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Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

David Bernstein, editor

April 1997

David Bernstein, an engineering research associate at Stanford University's Center for International Security and Arms Control, participates in the Center's project on Industrial Restructuring and the Political Economy in Russia.

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Foreword

For several years the Center for International Security and Arms Control has conducted research on defense conversion and industrial restructuring in the former Soviet Union. This research was initiated by William Perry in 1990 when he was co-director of the Center. (See David Bernstein and William J. Perry, "Defense Conversion in Russia: A Strategic Imperative." *Stanford Journal of International Affairs*, Summer 1993.) It was clear that it would be beneficial to the Soviet economy, and also to international security, if many of the enormous assets of the Soviet military-industrial complex could be redirected toward civilian R&D and production.

As many studies—including those published by this center—have shown, the process of defense conversion has been a very complex and difficult one, and the results have so far not lived up to early hopes that the end of the Cold War would yield a big "peace dividend" for the former Soviet Union. An important recent paper by John Earle and Ivan Komarov has argued that although there has been a large drop in military production in Russia, there has been very little conversion of defense industrial assets to civilian production. (See John S. Earle and Ivan Komarov, *Measuring Defense Conversion in Russian Industry*. Center for International Security and Arms Control, September 1996.)

It is of course too early to pass a final judgment on conversion efforts in Russia. It is necessary to look not only at the overall picture, but to study also the specific strategies being pursued by Russian defense firms in their effort to adapt to changing economic circumstances and exploit some of their assets for the civilian market. (See David Bernstein, ed. *Defense Industry Restructuring in Russia: Case Studies and Analysis*. Center for International Security and Arms Control, December 1994.) One of these strategies has been to set up cooperative ventures with U.S. companies. These cooperative ventures are the subject of this report, which examines a number of such ventures and analyzes the economic, legal, and political context in which such ventures are undertaken.

The picture that emerges from this report is a mixed one. The cooperative ventures examined here have achieved varying degrees of success. There are many obstacles to success, and no single formula to overcome those obstacles. We hope that this study, by reporting on the experience of U.S. and Russian companies in organizing cooperative ventures, will help those who embark on such ventures in the future to achieve success.

DAVID HOLLOWAY
CO-DIRECTOR, CISAC

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Some of my research colleagues—Andrei Baev, Tatiana Krylova, John Litwack, Michael McFaul, Judith Sedaitis, and Elaine Wai—provided the descriptions in the appendixes of the political, financial, and legal contexts in which cooperative ventures must be formed and operate. Other fellow researchers—David Binns, Nicholas Carlson, Ksenia Gonchar, Michael Higgins, Marnie Tobriner, and Elaine Wai—conducted many of the interviews and participated in the writing of many of the case studies. Kevin O’Prey generously shared data on some of the enterprises that he had previously interviewed. Matthew Bencke assisted in the project research and helped guide the studies of the aerospace industry in Russia.

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DAVID BERNSTEIN
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Executive Summary

David Bernstein

As a result of the rapid changes following the breakup of the Soviet bloc, there were suddenly new markets of hundreds of millions of people, covering a large portion of the earth, containing large fractions of many of the world's natural resources, possessing extensive research and production capacity, with a highly educated workforce, and utilizing many advanced technologies. Russia contained a large fraction of these factors, especially those oriented toward high technology, and hence it behooves international companies to formulate and implement strategies for doing business in Russia.

U.S. companies have had to assess and respond to these large, rapid changes and adjust their business strategies accordingly. Enterprises in Russia, and especially defense enterprises, were faced with far greater and more essential adjustments than those of the U.S. companies because their basic businesses were in many cases disintegrating and their very survival was threatened. One option for both the Americans and Russians has been to seek business alliances with counterparts in the other country. The role and experiences of such alliances between U.S. companies and Russian defense enterprises are the subjects of this report.

This particular study was undertaken because the quest for cooperative ventures has been a major portion of the strategy of many Russian defense enterprises and U.S. companies. We deemed it important to gain a better understanding of the factors affecting companies' and enterprises' decisions regarding cooperative ventures and some of the determinants of success, as well as to analyze strategies for U.S. companies and Russian enterprises contemplating or participating in cooperative ventures. This report is written primarily for industrialists, policymakers, and financial institutions in Russia and the West, and secondarily for the academic community.

In examining the partnering process through American eyes, one must remember that Russian and American understandings of the processes, structures, and objectives are quite different. Many vital concepts are foreign to the Soviet tradition and culture, but are virtually intuitive to Americans. As Americans study, assist, or invest in Russian enterprises, they increasingly see these differences of perspective. As enterprises have sought and established this new form of business involving cooperative ventures, they have had to become

familiar with entirely new ways of doing business and a totally new environment, and they have had to make very large adjustments in their thinking.

U.S. companies have also had to change their ways of thinking about foreign investments. Many of these companies have well-developed strategies for entering a new emerging market. However, Russia differs from most, if not all, of these other emerging markets in important qualitative and quantitative ways, and these differences cast doubt on the applicability of the strategies the U.S. companies have worked out elsewhere. As a result, many of the U.S. companies find themselves changing their strategies in a trial-and-error manner in their ventures in Russia. There are also many smaller cooperative ventures that are initiated at a project level within the U.S. companies. A few ventures were formed to respond to opportunities to obtain partial funding, without debt or equity obligations, from the U.S. government. Finally, there are cooperative ventures that involve subcontracts on U.S. government contracts, including Defense Department contracts. This was virtually unheard of during the Cold War.

Some of the principal factors that are different between U.S.–Russian and U.S. ventures in other emerging markets are the following:

- The Russian enterprises and commercial infrastructure are not familiar with doing international business or with doing any business under market-economic conditions. This frequently leads to a fundamental difference in basic assumptions on the two sides and a mismatch in interpretation of discussions and expectations.
- Many Russian defense enterprises have recently undergone corporatization or privatization or are contemplating it, and all of them have had to internalize many of the functions previously performed by the state ministries.
- The possibility for U.S. companies to do business in Russia emerged quite suddenly as a result of political changes rather than simply following observable economic development as in many other emerging markets; in fact, the economy was in a declining mode when the opportunity opened, and the decline in some sectors has continued to the present.
- Russia was heavily (over)industrialized with some very advanced technologies and products, but this technical industrial base was devoted almost entirely to military research and production, and was not fulfilling the needs of the country's population. Therefore that base needed major restructuring to meet civilian product needs.
- The Soviet Union had a fairly strong economy with considerable infrastructure, but the economy later collapsed. The old (command) system became dysfunctional before a new (market) system could be implemented. A total restructuring of the political and economic systems is under way, and a new commercial and legal infrastructure is largely in place, but many of its features are not supportive of foreign investment in the defense industry. The natural resources and financial sectors have the balance of political influence, and they are not supportive of the reforms necessary to attract foreign investment in the defense enterprises.
- The capital structure of Russian companies is strongly influenced by the lack of domestic capital, large interenterprise debts, and the legacy of the Soviet accounting system. This presents U.S. companies with unusual balance sheets.
- There are many foreign sources of both debt and equity financing established separately and collectively by the governments of the industrialized countries, as well as many private

funds capitalized to invest in Russia. The managers of these funds generally complain of having an excess of capital relative to sound investment opportunities.

- Sources of domestic investment capital have been severely limited by the low rates of savings held within the country, poorly developed financial institutions, high inflation, and high and unstable taxation rates.

The primary objectives of this study have been to gain an understanding of the approaches taken by several U.S. and Russian companies toward cooperative ventures, to identify and analyze the factors that appear to be contributing to success or failure, and to formulate recommendations for organizations engaged in or considering such ventures as well as for organizations financing cooperative ventures. Success can only be considered as interim success since none of these ventures are as yet long-established mature businesses, nor can the economic, political, business, and legal environments be considered to be settled. Furthermore, success may not have the same meaning for the two partners since their objectives frequently differ. Failure to understand and account for these differences can be harmful to a cooperative venture. It is also hazardous to compare the relative success of various cooperative ventures. One may have gone much further and established more profitable (or otherwise successful) operations than another, but the other may be establishing a sounder basis for long-term success. The recommendations in this report will by no means provide a formula for success but are rather some guidelines that can only be utilized with careful consideration of their applicability to a specific case.

The conclusions in this report are based on case-study interviews with companies and enterprises engaged in cooperative ventures. In my conclusions I have assumed a future of a functioning, expanding market economy in Russia. Other, less promising, futures are, unfortunately, also possible. All of the Russian enterprises in our study, with the exception of some start-ups, had been heavily involved in military work; the American companies were from both the military and civilian sectors. The restriction of the cases to the defense sector in Russia excludes ventures in resource extraction, financial services, and retail trade, which are some of the principal elements of the new economy in Russia and which have attracted some of the skilled personnel from the military-industrial complex. The cases chosen were all functioning cooperative ventures; we have not chosen cases of ventures that have ceased operation, although some have undergone ownership changes during the course of the study.

Notwithstanding the aforementioned biases and insufficiencies in the data and the fact that it is too early to assess success with much certainty, there are several conclusions that I draw from this study:

- Perhaps the main factor for success is the development of a sound personal and business relationship between the partners. This should include a deep understanding of each others' goals, problems, and priorities, as well as an understanding of each others' cultures. Building this relationship requires patience.
- The circumstances of the two potential partners are different in terms of their economic condition, their objectives, and their ways of doing business. A Russian's near-term criteria are apt to stress near-term survival as manifested by employment and the generation of some viable business activity, whereas an American's focus may be more on the long-term business development.

- It is important for the Russian partner to make structural changes conducive to the formation and operation of a cooperative venture, such as decentralization of authority, governance, and financial management; the adoption of market business practices such as accounting and cost control; the training of personnel; and a willingness to choose products and services that are based on market demand rather than just on existing technology.
- The American partner should take the necessary steps (and get the necessary advice) on the handling of myriad legal and infrastructural issues of doing business in Russia; provide extensive training for the personnel of the Russian partner; and structure the cooperative venture in ways that will maintain compatibility of goals of the two partners.
- Much of the Russian manufacturing technology, equipment, and facilities are outdated. Some, such as highly energy inefficient facilities, should be abandoned and replaced.
- Some of the enterprises that have been most successful in establishing and operating cooperative ventures are the ones that are willing to produce medium- to low-technology products. This gives them greater opportunities for near-term revenue, experience in market economics, experience and a reputation in cooperative ventures, and opportunities to train personnel in new sets of skills necessary in business.
- U.S. companies are generally more interested in a cooperative venture to produce components, subsystems, or technology to incorporate into their existing products than they are in developing totally new products or investing in existing Russian products.
- There are a few areas, such as space propulsion, in which a cooperative venture can utilize Russian technology that is superior to that in the rest of the world.
- If a cooperative venture is dependent upon sales in Russia, the relevant market as a function of time must be analyzed carefully to determine if and when there will be adequate ability to pay for the products/services; this is true for both state and private customers.
- The legal and commercial infrastructure in Russia is incomplete and inconsistent, and the government has not moved as aggressively as it might to improve it and to make the climate more conducive to foreign investment. The financial and resource sectors have had the political power and desire to prevent this.
- Pandemic crime and corruption, which the state either cannot or will not control, are among the strongest barriers to investment in cooperative ventures.
- Strategic alliances based on market considerations and other factors that contribute to the overall business are more likely to succeed than those based solely on financing.
- Both software and manufacturing ventures can be quite successful. There is probably greater flexibility in software and entry may be faster, easier, less expensive, and less risky, but both can be made to work.
- Successful cooperative ventures can be built either through contracts or by formation of an equity alliance, but the choice should be made after a careful analysis of the specific case and not just by long-standing corporate policy that may not be as applicable in Russia as in other countries.
- There are many detailed models that can lead to success, and the establishment of a Russian–American cooperative venture can often serve the objectives of both partners.

II. INTRODUCTION AND BACKGROUND

Introduction and Background

David Bernstein

In the past few decades business has become increasingly international. Markets, production, assembly, and raw materials are frequently not co-located for reasons of economic efficiency, access to inputs, and penetration of markets. Therefore many companies are continually investigating how to improve the geographical distribution of their activities. The factors affecting their decisions also are changing, but the changes are frequently gradual and somewhat predictable. An exception to this pace and predictability followed the breakups of the Warsaw Treaty Organization and the Soviet Union, and the subsequent initiation of economic reforms toward market economies within the constituent countries.

As a result of the rapid changes following the breakup of the Soviet bloc, there were suddenly new markets of hundreds of millions of people, covering a large portion of the earth, containing large fractions of many of the world's natural resources, possessing extensive research and production capacity, with a highly educated workforce, and utilizing many advanced technologies. Russia contained a large fraction of these factors, and hence it behooves international companies to formulate and implement strategies for doing business in Russia.

U.S. companies have had to assess and respond to these large, rapid changes and adjust their business strategies accordingly. Enterprises in Russia, and especially defense enterprises, were faced with far greater and more essential adjustments than those of the U.S. companies because their basic businesses were in many cases disintegrating and their very survival was threatened. One option for both the Americans and Russians has been to seek business alliances with counterparts in the other country. In many cases this has been a productive approach. The role and experiences of such alliances are the subjects of this report.¹

This report is written primarily for industrialists, policymakers, and financial institutions in Russia and the West, and secondarily for the academic community. It deals with a study of

David Bernstein is a research associate at the Center for International Security and Arms Control.

cooperative ventures between U.S. companies and Russian defense enterprises. Although this report is concerned solely with Russia, some of the features studied are relevant to other states of the former Soviet Union and possibly of East-Central Europe. This is part of an ongoing research project, started in 1990, to investigate the restructuring of the defense research and production complex in the Soviet Union/Russia.² This particular study was undertaken because the quest for cooperative ventures has been a major portion of the strategy of many Russian defense enterprises. We deemed it important to gain a better understanding of the factors affecting companies' and enterprises' decisions regarding cooperative ventures and some of the determinants of success, as well as to analyze strategies for U.S. companies and Russian enterprises contemplating or participating in cooperative ventures.

In examining the partnering process through American eyes, one must remember that Russian and American understandings of the processes, structures, and objectives are quite different. Many concepts are foreign to the Soviet tradition and culture, but are virtually intuitive to Americans. As Americans study, assist, or invest in Russian enterprises, they increasingly see these differences of perspective. Soviet enterprises were generally not accustomed to doing business outside of the former Soviet bloc, and when they had, this business was negotiated and controlled by the state without market-driven incentives and decisions. In recent years Russian enterprises have started doing business outside of Russia with a decreasing amount of input and control from the state. As enterprises have sought and established this new form of business and become involved in cooperative ventures, they have had to become familiar with entirely new ways of doing business and a totally new environment, and they have had to make very large adjustments in their thinking.

American companies have engaged in cooperative business ventures for several decades in many countries of the world that can be considered emerging or developing economies or markets. Many of these companies have well-developed strategies for entering a new emerging market. However, Russia differs from most, if not all, of these other emerging markets in important qualitative and quantitative ways, and these differences cast doubt on the applicability of the strategies the U.S. companies have worked out elsewhere. As a result many of the U.S. companies find themselves changing their strategies in a trial-and-error manner in their ventures in Russia. As a result, several viable new strategies are emerging. There are also many smaller cooperative ventures that are initiated at a project level within the U.S. companies. A few ventures were formed to respond to opportunities to obtain partial funding, without debt or equity obligations, from the U.S. government. Finally, there are cooperative ventures that involve subcontracts on U.S. government contracts, including Defense Department contracts. This was virtually unheard of during the Cold War.

Some of the principal factors that are different between U.S.-Russian and U.S. ventures in other emerging markets are the following:

- The Russian enterprises and commercial infrastructure are not very familiar with doing international business or any business under market-economic conditions. This frequently leads to a fundamental difference in basic assumptions on the two sides and an initial mismatch in interpretation of discussions and expectations.

Introduction and Background

- Many Russian defense enterprises have recently undergone corporatization or privatization or are contemplating it, and all of them have had to internalize many of the functions previously performed by the state ministries.
- The possibility for U.S. companies to do business in Russia emerged quite suddenly as a result of political changes rather than simply following observable economic development as in many other emerging markets; in fact, the economy was in a declining mode when the opportunity opened, and the decline in some sectors has continued to the present.
- Russia was heavily (over)industrialized with some very advanced technologies and products, but this technical industrial base was devoted almost entirely to military research and production, and was not fulfilling the needs of the country's population. Therefore that base needed major restructuring to meet civilian product needs.
- The Soviet Union had a fairly strong economy with considerable infrastructure, but the economy later collapsed. The old (command) system became dysfunctional before a new (market) system could be implemented. A total restructuring of the political and economic systems is under way, and a new commercial and legal infrastructure is largely in place, but many of its features are not supportive of foreign investment in the defense industry. The natural resources and financial sectors have the balance of political influence, and they are not supportive of the reforms necessary to attract foreign investment in the defense enterprises.
- The capital structure of Russian companies is strongly influenced by the lack of domestic capital, large interenterprise debts, and the legacy of the Soviet accounting system. This presents U.S. companies with unusual balance sheets. (See Appendix G, Capital Structure of Russian Companies.)
- There are many foreign sources of both debt and equity financing established separately and collectively by the governments of the industrialized countries, as well as many private funds capitalized to invest in Russia. The managers of these funds generally complain of having an excess of capital relative to sound investment opportunities.
- Sources of domestic investment capital have been severely limited by the low rates of savings held within the country, poorly developed financial institutions, high inflation, and high and unstable taxation rates.

The primary objectives of this study have been to gain an understanding of the approaches taken by several U.S. and Russian companies toward cooperative ventures, to identify and analyze the factors that appear to be contributing to success or failure, and to formulate recommendations for organizations engaged in or considering such ventures as well as for organizations financing cooperative ventures. Success can only be considered as interim success since few of these ventures are as yet long-established mature businesses, nor can the economic, political, business, and legal environments be considered to be settled. Furthermore, success may not have the same meaning for the two partners. As will be seen later in the report, there are cases when initial success can almost be considered as a cause of second-stage failure, at least by the criteria of one partner, because of the specifics of the agreements and the different objectives and circumstances of the two partners. While we

compare the approaches of different, but in some respects similar, cooperative ventures, we caution against comparing their relative success. One cooperative venture may have gone much further and established more profitable (or otherwise successful) operations than another, but the other may be establishing a sounder basis for long-term success. The recommendations in this report will by no means provide a formula for success but are rather some guidelines that can only be utilized with careful consideration of their applicability to a specific case.

The research data for the case studies in this project have been gathered through interviews by our research team with companies and enterprises engaged in cooperative ventures; whenever possible, both partners were interviewed.

All of the Russian enterprises in our study, with the exception of some start-ups, had been heavily involved in military work; the American companies were from both the military and civilian sectors. The restriction of the cases to the defense sector in Russia excludes ventures in resource extraction, financial services, and retail trade, which are some of the principal elements of the new economy in Russia and which have attracted some of the skilled personnel from the military-industrial complex. Therefore one should not draw conclusions about these other important segments of the economy from the study. In particular, the military-industrial sectors are still declining, but this is not characteristic of some other important parts of the economy. Some of the findings, however, may be characteristic of a broader range of cooperative ventures between Russians and Americans.

Chapter II-A contains a discussion of the case study methodology used and a description of the aerospace and software sectors, in which many of the companies studied operate.

The analysis in Section III is meant to provide practical guidance to companies in the United States and Russia based on the cases studied herein and other related research. The conclusions in Section III are my own and also do not reflect a consensus of the contributing authors. In my conclusions I have assumed a future of a functioning, expanding market economy in Russia. Other futures are, unfortunately, also possible, either independently or in conjunction with the expanding market economy. One is a reversion to a command economy, possibly including the renationalization of some property; this looks increasingly unlikely as reforms, especially privatization, continue to expand. Another is a long continuation of the current vacillation and weakness of the state, followed by disillusionment of potential and current investors; this looks all too plausible. A third is an economy in which the fear and financial burden of organized crime stifles economic expansion and investment; this also is all too plausible. Both Russian and American partners recognize the uncertainty of the future and the slowness of reform, and frequently, perhaps prudently, take defensive moves to accommodate these other possible futures. This hedging may set back their preparations for the more optimistic futures. However, most of the companies interviewed thought that the potential rewards of carefully chosen investments outweighed the risks.

Section IV contains papers relating to various aspects of the environment for foreign investment in Russia. These papers were written at various times during 1996. Many conditions in Russia are changing very rapidly, especially in the development of the commercial/legal infrastructure; therefore, many of the comments in this report are out of date, and others will undoubtedly be out of date very soon. The primary purpose of these chapters is to provide background on some of the aspects of the economic, political, and legal context in

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which ventures have been established, structured, and operated. These chapters also reflect the opinions of the individual authors, and there was no effort to reach consensus. The first paper presents a statistical overview and analysis of several key issues related to cooperative ventures. It is based on a survey using a structured questionnaire.

Chapter IV-B deals with the macroeconomic infrastructure and conditions and their impacts on both domestic and foreign investment. Chapter IV-C deals specifically with the political situation in Russia and its impact on investment. The chapters IV-D and IV-E deal with the legal environment; D covers the general legal infrastructure for foreign investment, and E deals specifically with the laws pertaining to intellectual property rights. Chapter IV-F discusses the potential impact of crime and corruption on foreign investment. Chapters IV-B, G, and H relate to aspects of finance for ventures.³ Chapter IV-G looks at financing primarily from the standpoint of the capital structure of the enterprise itself and the alternative methods of finance.

Before presenting the case studies it is useful to summarize some of the general characteristics of the investment environment in Russia. Following the end of the Cold War, the possibilities for foreign investment in the Soviet Union and East-Central Europe changed dramatically, but the environment for investment was highly uncertain and rapidly changing in both positive and negative ways.

U.S. companies considering an investment in Russia face a different set of circumstances than they do in looking at other emerging economies/markets. An important factor that distinguishes Russia is that it has a very advanced state of development of some aspects of its economy, but the economy itself is now quite weak. The path of industrialization in the Soviet Union was determined by central command rather than by market forces, and a (if not the) principal objective of this effort was to make the nation into a major power. The hallmark of such power was seen as being military might rather than economic development.

Emerging economies generally accelerate their economic capacity from a series of states that were lower by most economic measures. By contrast, in the Soviet Union certain aspects of the economy were very highly developed, the economy was large and reasonably advanced (although perhaps unsustainable), and then the entire economy went into a sharp decline, which continued in Russia after the breakup of the Soviet Union. Therefore some measures of economic capability in Russia are far more advanced than others. The features of the previous economy are in various states of usefulness both for economic revival and to potential foreign investors. A potential investor must decide whether or not to invest in Russia based on his/her analysis of this combination of factors. The following are some characteristics of the Russian economy for a U.S. company to consider when evaluating Russia for investment:

History of foreign investment. Although there were isolated cases of U.S. companies doing business in the Soviet Union for several decades, most of this involved the sale of the U.S. companies' products, and most of it did not involve interactions with the military-industrial complex. The Soviet state was the formal partner regardless of any enterprises involved. In general, investment was not encouraged by either the Soviet or American government. Therefore, when investment opportunities opened up after the Cold War, it presented both a

qualitative and quantitative shift in possibilities with little historical data on which to judge the prospects for successful investment or the approach to be taken.

State policy on foreign investment. The government avers that it wishes to encourage foreign investment in Russian industry, but it has not enacted, let alone implemented, a consistent and stable body of legislation to attract such investment. In fact the weak control of the state with its unclear boundaries of responsibility is one of the major barriers to business development in general and foreign investment in particular. The tax laws in particular have been a major disincentive to investment. The government is working toward a more rational legal system that takes into account the suggestions of the international business community, but the progress is slow.⁴

U.S. government policy. Up until about 1993 the U.S. government strongly discouraged U.S. technology companies, especially defense companies, from having any interactions in Russia. In the past years the U.S. government has reduced many of the restrictions on doing business in Russia. A key specific change has been the relaxation of export controls, although more is needed in this regard to adapt to the global availability of some technologies and products. However, U.S. companies engaged in defense work are still restricted in the range of technical topics that they may discuss with their Russian counterparts.

The U.S. government has capitalized several enterprise funds; contributed to both old (World Bank Group) and new (European Bank for Reconstruction and Development) international financial institutions financing investments in Russia; provided political risk insurance, loan guarantees, and financing guarantees through the Overseas Private Investment Corporation (OPIC) and the Export-Import Bank; provided extensive technical assistance in helping the Russians set up many facets of a commercial and legal infrastructure; and given extensive informational and logistic support to U.S. companies investing in Russia.

World-class science and technology. In some fields the level of scientific advancement in Russia, including facilities for testing and development, was on a par with that in the West, and in a few fields it was superior. Many of the scientists and engineers were trained to great depth in very narrow specialties. Communications with the domestic and international scientific communities had been severely limited by the Soviet government. While this stifled progress in many ways, it also led to development in different directions than those being taken in other countries; the results of some of these developments provide unique capabilities. Given the rapid rate of scientific and technological development in the world, the drop in new science graduates in Russia, and the drastic reductions in support for Russian science, however, the Russian preeminence will decline with time unless much more is done to support and renew Russian science and technology.⁵

Secrecy. Many of the most advanced industrial facilities, technology, and personnel in the Soviet Union were a part of the military-industrial complex; there was very little civilian high technology. High levels of secrecy and compartmentalization were imposed. Therefore these assets were unknown not only in the West, but they were not widely known within the country. There was a lack of comprehensive comparative data on the various sources of a given technology or industrial capability, both domestically and internationally. This makes it difficult for a potential investor to find the most suitable source of technology and

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capability for a given application. The value of technology is limited by the uncertainty of the ownership of intellectual property rights, which sometimes includes multiple claims of ownership.⁶

High level of industrialization. The Soviet Union had a greater percentage of its GNP in industry than most other industrialized countries; however, the physical plants and much of the equipment are not as modern as in many of these other countries.⁷ Although there is now a large amount of unused factory space and tooling, much of it would be more costly to redirect or modernize than to replace with new facilities. Some of these facilities were operated under conditions of controlled (low) prices for energy, and the facilities cannot be operated efficiently at liberalized energy prices. In some cases the real estate is more valuable than the buildings, but it is not always owned by the owners of the business located on it. In addition, much of the equipment was inflexibly designed for specific production tasks.

Highly trained but immobile workforce. The educational standards and training of the Soviet workforce were extremely high, higher in fact than in many Western countries. This workforce was, however, quite immobile, and hence the workers became very proficient in their jobs but increasingly incapable of taking on substantially different jobs. Notwithstanding the high level of training and capability, the command economy did not provide incentives for greater productivity or innovation and certainly not for entrepreneurship. Workforce mobility in Russia is also hampered by the shortage of housing and the concern of workers over losing what remains of their social benefits, as well as by the poorly functioning real estate market.

Declining role of the state. In the Soviet command economy, the boundaries of the firms did not contain complete business entities in the market-economic sense. In particular the enterprises lacked departments such as marketing, finance, and strategic planning. To the extent that these functions were performed at all, the state ministries performed them. They had also been responsible for much of the interenterprise negotiations, procurement of input supplies, and distribution of output. The state ministries stopped providing these services before replacement mechanisms were in place. The more progressive enterprises have restructured to internalize these functions.

Irrationally integrated industrial sector. The level of integration in Soviet industry was dictated by the state and was not permitted to evolve to improve efficiency. There was frequently an artificial separation of design and engineering from production. There was also a practice of processing raw materials and manufacturing almost all components within the enterprise that did the final production of a product. There was not a community of small high-technology companies. Many of these irrationalities have been reduced over the past few years.

Breakage of interrepublic links. Much of the production in the Soviet Union relied on suppliers from various republics, which are now independent countries. Generally the integration of the final product was in Russia. The harmful effects of the breakage of these links were exacerbated by the fact that many of these suppliers operated as monopolies. For the first years after the breakup this hampered industrial operations.

Privatization. Privatization has been one of the most important steps in the economic reform; however, some of its initial effects were negative in that they broke operating procedures that had been in place for decades before new forms of corporate governance and management had become well grounded. Another potentially negative outcome of the privatization program is that it facilitates hostile takeovers that may not be in the interest of the business or of the shareholders. The first phase of privatization has vested a great deal of control in the hands of the enterprises' managers.⁸ In many cases this gives the enterprise its best chance of survival; however, when management changes are desirable, it is difficult to remove the existing management, and there is no labor market of managers with a history of success under market-economic conditions.

As noted above and in the next section, there are many biases in the selection of cases. Notwithstanding these biases, insufficiencies in the data, and the fact that it is too early to assess success with certainty, there are several conclusions that I draw from this study:

- Perhaps the main factor for success is the development of a sound personal and business relationship between the partners. This should include a deep understanding of each others' goals, problems, and priorities, as well as an understanding of each others' cultures. Building this relationship requires patience.
- The circumstances of the two potential partners are different in terms of their economic condition, their objectives, and their ways of doing business. A Russian's near-term criteria are apt to stress survival as manifested by employment and the maintenance of high-technology research and/or production, whereas an American's focus may be more on the long-term business development.
- It is important for the Russian partner to make structural changes conducive to the formation and operation of a cooperative venture, such as decentralization of authority, governance, and financial management; the adoption of market business practices such as accounting and cost control; the training of personnel; and a willingness to choose products and services that are based on market demand rather than just on existing technology.
- The American partner should take the necessary steps (and get the necessary advice) on the handling of myriad legal and infrastructural issues of doing business in Russia; provide extensive training for the personnel of the Russian partner; and structure the cooperative venture in ways that will maintain compatibility of goals of the two partners.
- Much of the Russian manufacturing technology, equipment, and facilities are outdated. Some, such as highly energy inefficient facilities, should be abandoned and replaced.
- Some of the enterprises that have been most successful in establishing and operating cooperative ventures are the ones that are willing to produce medium- to low-technology products. This gives them greater opportunities for near-term revenue, experience in market economics, experience and a reputation in cooperative ventures, and opportunities to train personnel in new sets of skills necessary in business.

Introduction and Background

- U.S. companies are generally more interested in a cooperative venture to produce components, subsystems, or technology to incorporate into their existing products than they are in developing totally new products or investing in existing Russian products.
- There are a few areas, such as space propulsion, in which a cooperative venture can utilize Russian technology that is superior to that available anywhere else in the world.
- If a cooperative venture is dependent upon sales in Russia, the relevant market as a function of time must be analyzed carefully to determine if and when there will be adequate ability to pay for the products/services; this is true for both state and private customers.
- The legal and commercial infrastructure in Russia is incomplete and inconsistent, and the government has not moved as aggressively as it might to improve it and to make the climate more conducive to foreign investment. The financial and resource sectors have had the political power and desire to prevent this.
- Pandemic crime and corruption, which the state either cannot or will not control, are among the strongest barriers to investment in cooperative ventures.
- Strategic alliances based on market considerations and other factors that contribute to the overall business are more likely to succeed than those based solely on financing.
- Both software and manufacturing ventures can be quite successful. There is probably greater flexibility in software and entry may be faster, easier, less expensive, and less risky, but both can be made to work.
- Successful cooperative ventures can be built either through contracts or by formation of an equity alliance, but the choice should be made after a careful analysis of the specific case and not just by long-standing corporate policy that may not be as applicable in Russia as in other countries.
- There are many detailed models that can lead to success, and the establishment of a Russian–American cooperative venture can often serve the objectives of both partners.

Notes

¹ The terms cooperative venture and alliance are used interchangeably in this volume to indicate any form of venture between a U.S. company and a Russian enterprise. The terms do not refer to any particular legal form of the venture.

² This work has been supported by the Carnegie Corporation of New York and the United States Agency for International Development through the Eurasia Foundation. Some of the data were collected in conjunction with work that I am doing on behalf of the U.S. Department of Defense, but the report does not represent the views of the DoD.

³ For an earlier paper sponsored by this project that complements these by addressing the potential role of venture capital financing in Russia, see John Barton and Simone Shaheen, “Sharing the Wealth: The Role of Venture Capitalists in Russia’s Economic Development,” *Law and Policy in International Business*, *The International Law Journal of Georgetown University Law Center* 27, no. 1 (Fall 1995).

⁴ See Section IV-C.

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⁵ For a discussion of the decline of science in Russia, see Sharon Leiter, *Prospects for Russian Military R&D* (Santa Monica, CA: The RAND Corporation, 1996).

⁶ See Section IV-E.

⁷ Quantitative values are unreliable because of the inconsistencies in Soviet accounting, but the excess industrialization is undeniable.

⁸ Michael McFaul, "The Allocation of Property Rights in Russia: The First Round," *Communist and Post-Communist Studies* 29, no. 3 (September 1996).

II. CASE STUDIES

Introduction to Case Studies

David Bernstein

The research data for the case studies in this project have been gathered through interviews by our research team with companies and enterprises engaged in cooperative ventures; whenever possible both partners were interviewed. The interviews were conducted primarily in 1995 and 1996, with the last data, including updates of early interviews, collected in the autumn of 1996. The type of information sought in the interviews inevitably involves a degree of subjectivity of the interviewee(s) as well as coloration by the interviewer(s). Business people have good days and bad ones, and this affects their responses; any pretense to the contrary is hazardous. We have seen examples in our research where two interviews pertaining to the same cooperative venture have led to significantly different conclusions.

There are no anonymous quotes or interviews. The names of the companies and enterprises are given in all cases, and in most cases the interviewees have had the opportunity to review the drafts for accuracy and the inadvertent inclusion of proprietary data. In practice this review did not result in the deletion of information critical to an analysis of the structure and operation of the ventures. In addition to the cases investigated specifically for this study, we have also drawn on information that we have collected from discussions at other U.S. companies and Russian enterprises.

All of the Russian enterprises in our study, with the exception of some start-ups, had been heavily involved in military work; the American companies were from both the military and civilian sectors. The selection of cases that were studied was not random; it was based on information in the press or obtained through personal contacts that indicated that certain ventures would be likely to yield important information. There is a strong built-in bias toward ventures that are either successful so far or are at least continuing to operate; there is a far lower probability of learning the most important aspects of negotiations that never reached fruition, of ventures abandoned early, and of ventures that failed after a consider-

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able period. Nonetheless we have obtained extensive information about problems and barriers that were encountered. Another bias is introduced by the understandable refusal of some organizations to be interviewed or to discuss all of their cooperative ventures. There is also a great reluctance on the part of both U.S. companies and Russian enterprises to discuss quantitative financial data, and, in some cases, distribution of ownership.

We included multiple ventures in some business sectors for comparative purposes, with the resultant exclusion of other important sectors. Many of the ventures are from the aerospace sector and/or involve software development, which, while widespread and highly advanced in Russia, is only starting to emerge as a business sector. A brief description of these two sectors is at the end of this introduction. Other ventures spanned a range of manufacturing and research sectors. The cases are listed in Table 1 and are grouped by whether they are most involved in the aerospace sector, the software sector, or other sectors; some major U.S. companies are actually involved in all three. The case studies are not of uniform depth or breadth. Some cases involve very large U.S. or Russian companies with many cooperative ventures, spanning several years of activity. In the table they are listed in their major area of activity. On the other extreme are some very short cases that are included primarily to illustrate a specific point. The Russian enterprises were almost all in the Moscow and St. Petersburg areas, which introduces an additional bias into some of the aspects studied.

The restriction of the cases to the defense sector in Russia excludes ventures in resource extraction, financial services, and retail trade, which are some of the principal elements of the new economy in Russia and which have attracted some of the skilled personnel from the military-industrial complex. Therefore one should not draw conclusions about these other important segments of the economy from the study. In particular the military-industrial sectors are still declining, but this is not characteristic of some other important parts of the economy. However, I believe that some of the findings are characteristic of a broader range of cooperative ventures between Russians and Americans.

In most of the cases we have selected ventures which have been in operation for at least two years. We have also included some information on other cooperative ventures that one or both of the partners have even if we did not study them in the same level of detail. The U.S. companies range in size from very large to very small as do the Russian partners, but the small Russian ones are mostly new start-ups or split-offs resulting from the economic transition in Russia.¹ In some cases they were formed as a result of the initiation of a cooperative venture.

Space Sector²

One of the major fields for U.S. company investments is space launch vehicles. In these ventures, as opposed to most other manufacturing ventures, the cooperative venture is manufacturing Russian-designed systems. These may be major launch systems or smaller thrusters. The roles of the U.S. companies in these ventures are primarily marketing and systems integration; they impact production rates and have introduced some production

methods and technologies, but they do not attempt to control all aspects of design or production. This is one of the few fields in which the Russian partners can retain essentially all of the roles and most of the operational control that they had before. They can also maintain and build their proprietorship in the business, thereby creating a valuable future business.

Thus the space subsector of the aerospace sector has been one of the major areas, in terms of size of projects and intensity of interest by U.S. companies, for cooperative ventures with Russian military enterprises. It has far outstripped the aviation subsector as well as other industrial sectors. This level of activity is driven by a large, growing, and competitive market for providers of space services and by the performance, availability, cost, and reliability of various Russian products. These cooperative ventures are both for private industry's civilian applications and for U.S. government projects.

During the Cold War the United States and the Soviet Union were the principal competitors in space for military and prestige reasons. Both countries placed high priority and considerable funding into their space programs; however, their approaches and emphases differed based on their differing economic and political systems, as well as their different philosophies about high-technology equipment. The Soviets integrated their space program into their military activities; the United States separated the two, although there was certainly some common effort. In particular, the United States allowed and encouraged the development of a civilian space industry with private capital and entrepreneurship. More recently other countries have entered aspects of the space business in a major way; a large number of countries want to have their own satellites launched, and a few countries (e.g., France, China, India, Israel, and Japan) are entering the launch portion of the business.

In addition to the difference mentioned above, the Soviets launched many more satellites with shorter useful lives. The Soviets lagged behind the United States in microelectronics and nuclear weapons technologies that allowed the United States to build relatively small launch vehicles, and as a result the Soviets tended to build heavier satellites and correspondingly larger boosters. Similarly, the Soviets responded to real and perceived American advances in antisatellite technology in the 1980s by manufacturing launch vehicles capable of launching satellites frequently and on extremely short notice. Reconnaissance satellites also differed in other ways. Because of the size and closed nature of the Soviet Union, the United States placed heavier emphasis on photo and electronic data-gathering systems for both military intelligence and arms control verification purposes. The two programs also had many parallel efforts, such as the development of satellite-based navigational systems—GPS in the United States, and GLONASS in the Soviet Union. These systems were largely for military purposes, so each nation needed its own system.

There was some cooperation between the United States and Soviet space programs during the more relaxed periods of the Cold War. These were based on government-to-government agreements, and U.S. companies only participated as government contractors. This cooperation generally involved sharing scientific data and/or the coupling of Soviet and American systems in joint missions rather than detailed sharing of technology, and it certainly did not involve co-production or private enterprise initiatives. Both governments tightly controlled the exchange of visits and technical information. In addition each government funded its own portion of the cooperative missions.

After the Cold War the commercial market for space systems expanded greatly. This was to a large degree based on the growth of space-based telecommunications rather than the end of the Cold War. The global demand for satellite communication capacity began growing so quickly in the 1990s that the capacity of the traditional Western launch vehicle manufacturers to orbit these payloads was insufficient. This coincidence and the differences in the two countries' programs during the Cold War led to many opportunities for both commercial and government-sponsored programs utilizing Russian technology and systems. The size, growth rate, and competitiveness of the market led American companies to seek competitive advantages through cooperative ventures. The global demand for launch vehicles exploded just as many of the previously inaccessible former Soviet launch vehicles became available.

These programs differ greatly from the cooperative programs during the Cold War. There is a much freer interchange of technical information, cooperative production and testing activities, and cross funding. The development of space-based civilian applications in telecommunications had been accomplished almost exclusively in the West. This disparity was partly a result of the Soviet Union's reluctance to let its people have open communication channels with the West, but it was also a result of the profit motive in the West. Space-based telecommunication involves a complex value chain ranging from the end-use consumer products (e.g., telephones, personal computer networks, and television sets) up through the space-based components and the systems for launching and maintaining them.

The Russian partners were rich in some technologies and had systems with proven reliability. They even had an inventory of some of these systems available for sale. The Russian systems utilized most extensively in these cooperative ventures are launch vehicles. In addition, the Russians used two major launch facilities and had extensive experience using them. The United States also had sophisticated launching facilities, but they were engineered and equipped to mate to U.S.-built launchers. A particular Russian capability was the short time (compared with the U.S. approach) the rocket spent on the launch pad prior to launch. This was largely the result of using a standard procedure for mating launchers and satellites while the booster was in a horizontal position. As a result, the time between launches from a launch pad could be as short as one week.

The Russians were not in a position to offer complete commercial telecommunication services. Their telecommunications industry was not as developed as that in the United States, and it certainly had not built up a commercial marketing infrastructure. Russia also lacked the investment capital to develop complete space-based telecommunication services, as well as the working relations with the American and other producers of commercial satellites. As a result most of the systems integration and marketing was taken on by the American partner.

The differences in system development during the Cold War coupled with the different approach toward commercial telecommunications resulted in highly complementary capabilities in the two countries. This made for very logical alliances utilizing the best assets of each country's industry.

Software “Sector”³

In many ways the easiest asset of the Russian military-industrial complex to utilize is brain power; a key example is software development. The software could of course include large proprietary programs to be marketed broadly in Russia and/or in the West, but there are many other possibilities as a result of the structure, strength, and availability of the software “sector” in Russia. This is really not an industrial sector at all in Russia as it is in the United States; large software companies do not exist. Reasons for this relate to the economic system in the Soviet Union. The central planners chose to integrate software development into the individual user organizations, partly because of their penchant for vertical integration and partly for security reasons. Software was developed almost exclusively for military applications, and commercial service organizations such as software companies were not a part of the planned economy.

The inability of the bureaucratic command economic system to respond quickly and optimally to technological innovation is perhaps nowhere more apparent than in the entire computer (hardware and software) field, where the pace of innovation over the last few decades is unprecedented. The pace of such innovation in the United States has been stimulated by several factors. The first is that the lead role in such innovation passed from the government programs, where much of the early work was done, to the private sector, where almost all innovation now takes place. The profit motive, the opening of civilian applications, the availability of venture capital, the mobility of labor, and the absence of government security helped this development. It is interesting to note that this open approach helped provide the United States with a large technological advantage over the Soviet Union in the military sphere as well. Computer technology permeates almost all sectors of the U.S. economy, and this came about as a result of market demand. The absence (or delay) of widespread computerization in the planned economy of the Soviet Union/Russia may be as big a factor as any in the decline of its economy relative to the West.

There are other factors that, while not unique to Russia, have inhibited the development of a software sector there in recent years. One is the availability of a wide array of imported software packages. This, coupled with the widespread piracy of intellectual property such as software, removed much of the economic incentive to develop proprietary software packages even as the market economy was gaining strength. Following the collapse of the Soviet Union and the steep decline of the Russian economy, many of the industries that would normally create a demand for software (e.g., telecommunications and computer hardware) were in a very weak condition.

Notwithstanding the exceptional mathematics and programming capability in Russia, there are many software engineers available for employment because of the general weakness of the high-technology portion of the economy. As a result various U.S. companies have many diverse ways in which to utilize this talent. Some are contracting for the development of programs to be integrated into larger programs of the sponsoring company. Others do this as a part of their larger research and development projects. Still others use it as the basis of a business to market software development outsourcing. Many U.S. companies, including manufacturing companies, have entered into software development projects in Russia. In some cases the long-term objective of the U.S. company is to sell its main line products in

Russia and/or to start a manufacturing venture. However, software development can be a low-risk way to become established in Russia and to learn to do business there.

Several other factors contribute to the success of these efforts. Software development is not capital intensive, so a return on investment may be quicker to realize than in manufacturing ventures, and the risk is not as great as in manufacturing. If necessary, elements of the work can be moved to other locations or organizations, and in fact some U.S. companies have done this. Unlike in manufacturing, the only equipment necessary (small computers) is readily and inexpensively available. When the software is for the internal use of the American company, product marketing is not involved. Extensive and costly facility modernization is not necessary. Software development need not involve shipping of input materials or manufactured output.

The Soviet Union stressed software development capability in the military-industrial research institutes and enterprises because it was a vital part of many weapon systems and was crucial to designing many weapons as well. Hence the development of this capability was well supported. Soviet computer hardware was inferior to that in the West, and this required greater emphasis on developing more innovative software solutions; this worked well because mathematics had always been stressed in the Soviet Union and was of the highest caliber. Finally, the Soviet Union was isolated from Western technology so they had to do more of their own development. In particular there were stringent controls on the export of computer technology from the West. Much of the mathematics and software capability remains in spite of the industrial collapse, and it is still sufficiently strong that it would take several more years of neglect for this capability to become obsolete.

Based on our limited sample it appears that software cooperative ventures can have a high probability of success, where success is defined in terms of satisfaction of the American partner relative to its specific objectives.

Notes

¹In this study the term start-up refers to a new company formed by a group of people not coming from a single enterprise. Split-off refers to a new company formed by a group coming predominantly from a single enterprise. Spin-off denotes the formation of a new company by a parent enterprise.

²The material in this section is derived primarily from Matthew J. Von Bencke, *The Politics of Space: A History of U.S.-Soviet/Russian Competition and Cooperation in Space* (Boulder, CO: Westview Press, 1996).

³The Center for International Security and Arms Control convened a workshop on April 24, 1996 on cooperative software ventures in Russia. See D. Bernstein, *Software Projects in Russia: A Workshop Report* (Stanford, CA: Center for International Security and Arms Control, 1996).

Table I: Summary of Case Studies

SPACE SECTOR						
COMPANY						
Division	Partner Organizations	Activity	Venture Type	Start Date of Venture ²¹ / Negotiations	Location of Russian portion of venture	Estimated Size ²²
BOEING						
Commercial Airplane Group	Various aviation institutes	Aerodynamic research and testing	Contracts	1993	Moscow and elsewhere	M
	Various aviation institutes	Materials development and certification leading to purchase of materials	Contracts	1994		S-M
Defense and Space Group	Energiya and Yuzhnoye(Ukraine)	Development and production of satellite launch systems to be used in Sea Launch	Joint venture: Sea Launch	1995	Moscow, Dnepropetrovsk (Ukraine)	L
	Khrunichev	Development of subsystems for the Space Station	Subcontract on USG contract	1993	Moscow	L
LOCKHEED MARTIN						
	Khrunichev Energiya	Provide commercial launching services using the Proton rocket	Joint venture: LKEI	1992	Moscow	L
UNITED TECHNOLOGIES CORPORATION (UTC)²³						
Otis	Various institutes and organizations	Manufacturing, installation, and maintenance of elevators	Most joint ventures, some contracts	1991	Shcherbinka, St. Petersburg, and others	L
Hamilton Standard	Nauka	Development, marketing, and repair of environmental control systems for aircraft	Joint venture	1994	Moscow	M
Pratt & Whitney	Ilyushin Design Bureau	Production of IL-96M/T	Joint venture	1989	Voronezh, Moscow	L
	Perm Motors AVIAM	Manufacture of aircraft engines and gas turbines	Joint venture	1992	Perm	L
	NPO Energomash	Development of RD-180 rocket engine	Joint venture	1996	Moscow	L
Pratt & Whitney Canada	Klimov Design Bureau	Development, manufacturing, and support of aircraft engines	Joint venture	1993	St. Petersburg	M

²¹The given start date is somewhat arbitrary because the time lag between negotiations and the start of activity or between the start of activity and formalizing an agreement can be quite long. In some cases where there are contracts with several institutes we have given the earliest date that we are aware of.

²²Small less than \$1M annual budget; Medium \$1-20M; Large greater than \$20M. This size is estimated by CISAC when data are not available.

²³UTC has several projects within its various divisions in Russia. We have only listed a few of these ventures here.

ROCKWELL CORPORATION ²⁴						
Automation	Various institutes and organizations	Plant automation, assembly, and repair	Contracts	1990	Moscow	S-M
Rocketdyne	Various institutes and organizations	Advanced propulsion, solar power, lasers, material development and testing	Contracts	1992	Moscow	M
North American Aircraft Division	Zvezda Design Bureau	Design and production of equipment for aircraft	Contract	1994	Moscow	M
	Tupolev Design Bureau	Research on supersonic flight	Subcontract on USG contract			
Collins Commercial Avionics ²⁵	Ilyushin Design Bureau	Production of IL-96 M/T	Joint ventures	1991	Moscow, Voronezh	L
	GosNIIAS (Scientific Research Inst. of Aviation Systems), other institutes	Software development and assembly of TCAS equipment	Contracts (Incl. USG)	1994	Moscow	M
Rockwell Science Center	RR-Gateway, Inst. for Control Sciences, other institutes	Software development and graphical programming	Contracts	1994	Moscow	S-M

SOFTWARE SECTOR						
MOSCOW CENTER FOR SPARC TECHNOLOGY (MCST)						
	Sun Microsystems COMPASS EnergyLine	Software and hardware development	Contracts	1992	Moscow, Novosibirsk, St. Petersburg	M
PARAGRAPH INTERNATIONAL						
	²⁶	Software development and licensing	Joint venture	1989	Moscow	M
TYPHOON SOFTWARE						
	Santa Barbara Ltd.	Software development for U.S. clients and for proprietary products	Contracts	1993	St. Petersburg	S-M

²⁴Rockwell has several projects within its various divisions in Russia. We have only listed a few of these ventures here, and data are prior to partial acquisition by Boeing.

²⁵There is considerable interaction between the IL-96 M/T project and some of the research activities.

²⁶This is one company with operations in both Russia and the United States.

COMPANY						
Division	Partner Organizations	Activity	Venture Type	Start Date of Venture/ Negotiations	Location of Russian portion of venture	Estimated Size
ASHTECH CORPORATION						
	Various Russian institutes and consultants	Development of software for GPS- and GLONASS-based products and technologies	Contracts	1994	Moscow	M
TRIMBLE NAVIGATION						
	Ozero, PRIN	Software development	Contracts	1993	Irkutsk, Moscow	S
INTEL CORPORATION						
	VNIIEF (All-Union Scientific Research Inst. of Experimental Physics)	Software development	Contract	1992	Sarov (formerly Arzamas-16)	M
OTHER SECTORS						
LENINETS ²⁷						
	Various U.S. (and European) companies	Consumer product manufacturing and radio electronics development	Joint ventures and contracts	1991	St. Petersburg	S, M, L
BAXTER HEALTHCARE						
	NIIAP (Institute of Automation and Instrument Building)	Manufacture of surgical instruments for domestic and export markets	Joint venture: Mosmed	1993	Moscow	M
CATERPILLAR						
	Kirovskiy Zavod	Manufacture of excavator base frames for export	Joint venture: Nevamash	1994	St. Petersburg	M
	AO Uralmash National Oilwell	Production of drilling rigs for domestic and export markets	Joint venture: UNOC	1993	Yekaterinburg	M
	AMO Zil PACCAR/Kenworth	Production of trucks	Joint venture: Novotruck	1993	Moscow	S
	AMO Zil	Production of truck engines for domestic market	Joint venture: Novodiesel	1994	Moscow	S

²⁷This case study is primarily an analysis of Leninets' restructuring, which includes several cooperative ventures.

COMPANY						
Division	Partner Organizations	Activity	Venture Type	Start Date of Venture/ Negotiations	Location of Russian portion of venture	Estimated Size
HEARING AIDS INTERNATIONAL						
	Istok	Production of hearing aids	Joint venture: Istok Audio International	1995	Near Moscow	M
OBUKHOV ²⁸						
	DA International	Production of wheelchairs	Joint venture: DAB International	1991	St. Petersburg	M
	FMC	Production of steel alloy materials for export	Contract	1990	St. Petersburg	M
POLAROID CORPORATION						
	Institutes of the Ministry of Atomic Energy and Industry (MAEI)	Camera assembly and sales and production of circuit boards	Joint venture: Svetozor	1989	Moscow	M
REM CAPITAL						
	Ministry of Atomic Energy (MINATOM), V. G. Khlopin Radium Institute	Sterilization of Russian timber	Joint venture: RAIES International	1994	St. Petersburg	M
SVETLANA ELECTRON DEVICES						
	Svetlana Enterprise	Production of power tubes	Joint venture: Svetlana Electron Devices	1992	St. Petersburg	M
SCIENCE APPLICATIONS INTERNATIONAL CORPORATION (SAIC)						
	Several institutes and organizations	Development of technical opportunities for American customers, U.S.-Russian military/technical cooperation projects, consulting on enterprise restructuring	Marketing and research contracts	1992	Novosibirsk, Moscow, Nizhny Novgorod, St. Petersburg, Volgograd	M

²⁸This is a Russian company.

Aerospace Sector

The Boeing Company

Lockheed Martin Corporation

United Technologies Corporation

Rockwell International Corporation

The Boeing Company

David Bernstein, David Binns

The Boeing Company has three major components: the Boeing Commercial Airplane Group (BCAG), the Boeing Defense and Space Group (BD&SG), and Boeing Information Support and Services (BISS).¹ This case study deals with the first two and some of their cooperative ventures in the newly independent states (NIS) of the former Soviet Union (primarily in Russia). These ventures cover a wide range of projects with very different objectives, sources of funding, methods of operations, and challenges. Overall, these projects involve the activities of hundreds of personnel in the NIS. In this report we look at several representative projects.

Fundamental differences in the activities of BCAG and BD&SG lead to very different operational practices in their respective cooperative ventures. The cooperative ventures of BCAG are primarily R&D or material certification activities that are not initially on critical paths for the design or production of Boeing aircraft, although they may achieve that status in the future. In addition, most of these activities are relatively small and do not require complex integration of the work of the two partners. BD&SG's cooperative ventures are generally large system-development projects, with detailed dependence upon the work of both partners. As a result, a systems integration management approach is used. This has a profound impact on the working relationship between the partners. This situation is complicated further by the fact that some programs are commercial, and others are funded by the U.S. government and therefore have a host of contractual requirements which Boeing (as prime contractor) must impose on its Russian partner (as subcontractor).

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Boeing Commercial Airplane Group

The primary business of the Boeing Commercial Airplane Group (BCAG) is the sale of airplanes worldwide. In 1995 BCAG's revenue was \$13.9 billion. For many years revenue from export sales has been a very important part of Boeing's business. Its export sales are in many countries, ranging from mature markets that have purchased and/or ordered large fleets of aircraft (e.g., Japan, Singapore, Germany) to markets (for Western-built aircraft) that are in early stages of emergence, such as the NIS and the states of East-Central Europe. These latter markets must be studied and nurtured for years before large-volume orders can be expected. Each emerging market has its own time to maturity, expected rate of growth, ultimate potential, and competitive environment (not to mention other national idiosyncrasies). As a result, a company like Boeing must allocate its resources carefully among many potential markets.²

Russia is a very large country, with an economy that may experience strong growth in the future. It is increasingly participating in international commerce, and its civilian airliner fleet, while very large, is quite old, poorly maintained, and inefficient. Therefore the market for civilian aircraft in Russia should be quite large in the long run; however, it may continue to develop very slowly as a result of the weak economy. As of mid-1996, there were thirty Boeing aircraft in commercial service in the former Soviet Union and orders for about nineteen more. Russia differs from many emerging economies in that its predecessor, the Soviet Union, once had a large, moderately viable economy; this included a very large aircraft industry, comparable in size to that of the United States, and a sizable aerospace research and development base. The great majority of this Soviet industrial and research base was located in Russia. While many aspects of that R&D base and some aspects of that production industry were comparable or even superior to U.S. capabilities, other important elements were not. Soviet jetliners were designed for the Soviet market and economy (e.g., with artificially low fuel costs and far less stringent environmental requirements), but the Russian industry is far (one or two generations) behind its Western competition in producing jetliners suitable for Western markets. However, the development of competitive capability, especially in collaboration with Western partners and/or suppliers, is potentially achievable there far more easily than in most emerging market countries.

Russia also is different from many countries in that it is undergoing a revolutionary economic transition that includes competing in Western markets. It also includes a dramatic transition away from all decisions being made by the state to an increasingly significant role for private industry. The aircraft industry is in the midst of the transition to private control, and this poses a serious dilemma for Russia. On the one hand it wants to have a viable commercial aircraft industry, but on the other hand, its airlines want the best airliners available today.

These circumstances dictate that Boeing be substantively engaged with key elements of the aircraft industry and R&D establishment well before the market matures. Boeing appears to have recognized that this involvement can be of mutual technological benefit in addition to any marketing benefit that might result. Boeing has clearly recognized that for any collaboration to be successful it must be mutually beneficial, and that the preservation

and further development of Russia's R&D base is in the best interest of Boeing and the United States as well as Russia.

As in most large U.S. companies, there are different opinions as to how rapidly and deeply Boeing should be involved in Russia at this time. Some of its earliest contacts were with Aeroflot and the Ilyushin Design Bureau in the early 1970s; it started contacting the aircraft manufacturing plants in Voronezh and Samara in 1991. This has led to collaborative work in R&D as well as to the procurement of some materials in Russia. To date all of BCAG's projects in Russia have been contractual relationships; it has not entered into any joint ventures.

Collaborative R&D

A series of technical contacts led to the initiation of several collaborative R&D projects. In 1993, the Boeing Technical Research Center (BTRC) was established in Moscow to coordinate and manage Boeing-sponsored R&D projects in Russia. Boeing did not know how well this would work out, but it has been very pleased with the quality of the technical work, and this is reflected in the growth of BTRC's activities. The operating approach of the BTRC has been to work by contract with the research institutes. In general Boeing did not take the approach of hiring individual scientists or engineers directly and has not encouraged any of them to leave their institutes and seek employment from Boeing. Neither has Boeing encouraged any of them to start their own companies. In addition, Boeing has not hired Russian engineers to bring them to the United States. Boeing believes that its approach is the best way to help Russia maintain its core capabilities and to ensure Boeing's access to the best technology and cooperation available without contributing to the brain drain of top Russian scientists and engineers.

Initially Boeing established contracts with the three major aerospace research institutes: the Central Aerohydrodynamics Research Institute (TsAGI), the Institute of Aviation Materials (VIAM), and the Central Institute of Aviation Motors (TsIAM). In 1996 it expanded this work to include contracts with twelve institutes, including the Scientific Research Institute of Aviation Technology (NIIAT), which employ between 150 and 200 scientists and engineers on Boeing projects, including some in St. Petersburg, Novosibirsk, and Yekaterinburg, as well as Moscow. Boeing does not consider lower labor rates to be the primary advantage of working in Russia, although the projects must make economic as well as technological sense. Many of these projects are being performed in close collaboration with Boeing engineers in Seattle. This takes a great deal of coordination, but the benefits have been well worth the effort. The Boeing staff involved with the BTRC is looking for additional projects in Boeing that could benefit from collaborating with the Russian institutes. Whereas Boeing has traditionally kept most of its R&D in-house, there is growing pressure to evaluate make-or-buy decisions in R&D as the company does in manufacturing.

At every step of the way Boeing has kept the Russian government informed. This, and a clear demonstration of long-term commitment, has resulted in good cooperation from the government as well as the institutes on the research projects.

Material Procurement

The procurement of special materials for use in aircraft construction is in some ways a more complicated issue than collaborative R&D. Work in this area was also started in late 1993 as another outgrowth of initial contacts in Russia. Two of the main issues are standards and certification. The Soviet Union had excellent metallurgical capabilities, sometimes superior to those in Western countries; however, it had not adopted international standards. Therefore, before using any Russian materials it is necessary to bring the standards in Russia into conformity with Boeing standards. Boeing's initial materials acquisition efforts were on forgings and billets. In time this may be followed by the acquisition of components fabricated from these metals, but that stage has not yet been reached. The Russian tax structure is conducive to this in that the tax rate decreases with increasing value added in Russia. Boeing and even some of its U.S. suppliers have been assisting the Russians in bringing their standards into conformity; this process can take upwards of six months, considerably longer than would be the case with a new U.S. supplier. In the case of materials acquisition, the economics must make sense in the long run, and it will be necessary for the Russian suppliers to demonstrate a record of supplying materials on time with high reliability and quality control. In the short run, there is clearly an investment involved, but here again a motivation for making this effort is the building of a long-term relationship with the Russian industrial complex.

The suppliers with whom Boeing has worked have not made a substantial effort to build a more comprehensive business based on the standards being established through their work with Boeing; however, Boeing is willing to help them in this regard.

While initial contacts at high levels led to the early work, Boeing later surveyed other potential suppliers to be sure that it worked with the best groups in a given field. In all cases a strong positive relationship with the general director of the enterprise is essential to success. After that, good communications are a key element to a successful project. An agreement must be predicated on advantages to both sides, and these must be ongoing and on similar time scales.

Boeing Defense and Space Group

The Boeing Defense and Space Group (BD&SG) has long been a major contractor to NASA and the Department of Defense. This includes space systems and military aircraft, including military derivatives of Boeing's commercial aircraft. More recently it has entered the commercial space business with the initiation of the Sea Launch project. In 1996 BD&SG had revenues of \$5.7 billion. The group's work in Russia is for both U.S. government-sponsored and commercial projects.

Sea Launch

Sea Launch is the largest commercial Boeing project involving NIS partners. It is a joint venture, incorporated in the Cayman Islands, in which Boeing owns 40 percent, Kværner,

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Europe's largest marine operator, owns 20 percent, NPO Yuzhnoye, the leading Ukrainian aerospace company, owns 15 percent, and NPO Energiya, a leading Russian space company, owns 25 percent. The objective of the project is to provide sea-based launches of satellites for commercial customers. Sea-based launching can provide different launch locations for different orbit satellites so as to maximize payload and spacecraft life. Detailed discussions of the venture began between Boeing and Energiya in 1993, and the full go-ahead decision on the project was made in December 1995. The go-ahead decision was facilitated by the negotiation of an agreement between the U.S. and Ukrainian governments to permit up to twenty launches of U.S.-manufactured GEO satellites using Ukrainian rockets through the year 2000. To date Sea Launch has firm orders for eighteen launches, starting in mid-1998 and running through 2001. The main customers thus far are Hughes and Space Systems/Loral. The original plan was to perform under complete launch conditions a test that would end one hundred seconds before launch would normally take place, and to follow this with a launch test using a dummy payload. At the suggestion of Hughes, the dummy payload will be replaced with a Hughes satellite.

Boeing's major roles are systems integration and program management, and it will also design and produce some components, such as the fairings. Kværner will provide a command ship and a modified oil platform from which the rockets will be launched. Yuzhnoye will provide the Zenit rocket to be used as the first two stages of the Sea Launch rocket. NPO Energiya will provide the Block DM as the rocket's third-stage engine that ignites last, placing the satellite into the desired orbit. Each of the partners will have responsibilities for operation and maintenance of most of the activities associated with the components it provides, although, once again, Boeing has responsibility for overall systems integration. As the project moves from the development phase into one of serial production and launching, the partners will continue in their basic roles. For example, Boeing will not develop the capability to manufacture components being developed and supplied by the other partners. This approach should alleviate any fears the Russians and Ukrainians might have that their role would diminish in the long run; however, the decision is also consistent with Boeing's preference that it not manufacture complex systems that it did not design. This format cements the partners into long-term interdependence: the venture literally cannot survive without its key members, and it would be difficult if not impossible for one partner to replace another. The resulting foundation of trust goes a long way in facilitating the venture's activities, large and small.

This project experiences all of the usual issues involved in cooperative ventures with Russian and Ukrainian enterprises which flow from the economic and political transitions unfolding in those countries, and it is further complicated by dealing with both Russian and Ukrainian partners. While these partners cooperate very well, there are still many interstate issues to be resolved between these two countries, republics of the Soviet Union until they gained their independence in 1991. In fact, the Zenit rocket itself is actually an international venture since about 60 percent of the components come from Russia. This is not only a commercial complication but a complication in terms of export controls, as many of the components, subsystems, and technologies are inherently dual use. The introduction of Kværner, a Norwegian company, introduces yet a fourth culture and location into the venture.

In addition, this is a highly complex technical project. While all of the major components have a track record of reliability, all of them are undergoing some modifications, and they must all be integrated into a single system, as well as integrated with the customers' payloads. Even though this is a commercial project, the governments of all four countries plus the Cayman Islands are involved through export and import controls, issues relating to personnel working together under the laws of various countries (and even subnational jurisdictions, such as the state of California, where the vessels will be based), and the terms of an international arms control agreement, the Missile Technology Control Regime. Finally, the schedule of the project is driven in part by the competitive aspects of the commercial space launch business.

Any project of this size and complexity requires a management structure that decentralizes the responsibility for executing different tasks yet has effective centralized control of interfaces, budgets, schedules, dealings with regulatory bodies, and marketing. These are standard challenges for a company like Boeing on many of its major commercial and government programs, but the added dimension of working with the NIS partners renders many standard approaches inadequate. For example, the Russians and Ukrainians have traditionally delegated far less authority to middle managers and make far more decisions at higher levels than Americans do. It is not a matter of one approach being right, but of achieving a consistency of style in whatever way suits the specific problems. The current approach is to form working groups to address the individual problems. These working groups frequently involve participants from several partners, but as of mid-1996 all of the partners did not have staff resident in each others' facilities although they were working toward such a situation. All communications among the partners are complicated by the fact that many of the technical discussions are subject to export control under a Technical Assistance Agreement that must be approved by the U.S. government.

To improve coordination, Sea Launch is considering two steps. The first is to establish a systems integration working group, and the second is to have personnel of all partners resident in the other partners' facilities. These steps were beginning to be implemented in the fall of 1996, and are being further addressed by locating more operations in Oslo, which is conveniently located between Seattle, Moscow, and Dnepropetrovsk.

Functional Energy Block (FGB)

Boeing is the prime contractor to NASA for the International Space Station program. This is a multibillion dollar program with literally thousands of subcontractors and suppliers. The decision to have this cooperative program with the Russians was made in November 1993 based on an agreement between NASA and the Russian Space Agency (RSA). NASA paid RSA \$400 million.

One major element of the project is the Functional Energy Block (FGB), which is being built by Russia's Khrunichev Space Center. This will be the first element of the space station to be launched, in November 1997. It will supply the initial propulsion and later provide storage for fuel and equipment. Assembly of the Space Station is scheduled for completion in 2002. The subcontract to Khrunichev is for \$190 million. In addition, RSA paid Khrunichev

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approximately \$25 million to develop the twenty-ton FGB, which will be launched from the Baikonur Cosmodrome in Kazakstan into a 190-mile orbit.

The negotiation process with Khrunichev has been long and difficult, primarily because of different negotiating styles. The U.S. project manager was authorized to make negotiating decisions and commit Boeing; however, the decisions on the Russian side had to be approved at the highest company levels after the Khrunichev program manager had negotiated the terms. While this is a frustrating experience from the U.S. perspective, it is understandable given Russian enterprises' lack of experience in Western-style contracts and business in general. Their caution stems partly from this and partly from the Soviet tradition of having major decisions made at higher levels than in U.S. companies. Another difficult area in the negotiations was the amount of money, and this continues to be an area of some contention. One of the problems is that Khrunichev is not being paid by RSA for work that it does, and this leaves it short of funds.

Another aspect of the negotiation and contractual terms that is difficult for the Russians to understand is the difference of terms between U.S. government-sponsored and commercially sponsored projects. Khrunichev also has a major joint venture, Lockheed-Khrunichev-Energiya International (LKEI), with Lockheed (now Lockheed Martin) to provide commercial space launches marketed by LKEI, using Khrunichev's Proton boosters. U.S. aerospace companies also find doing business with the U.S. government so different from doing commercial business that they generally establish totally distinct companies or divisions for the two types of business. It is therefore not surprising that the Russians find the differences puzzling.

Boeing has three technical people on site at Khrunichev. Initially Khrunichev resisted the establishment of a Boeing office there, but these people help Khrunichev in any way that they can, and this has helped cement the relationship. Boeing would like to improve the coordination of schedules further. They have agreed on a series of thirty-nine technical milestones for which Boeing will give progress payments for work accomplished. The final payment will be based on performance in orbit after launch, although this assessment will be difficult due to limited telemetry. Notwithstanding the problems, Boeing considers Khrunichev to be an excellent organization with greater capability than competitive American companies.

Notes

¹Since the preparation of this case study Boeing has acquired major segments of Rockwell International's business, including projects in Russia, and has announced an intended merger with McDonnell Douglas, which also has some work in Russia. There could be efforts to consolidate all of their Russian activities or to modify certain programs, especially in the units acquired. In this report, however, we have not attempted to gather data on these possibilities.

²Boeing Commercial Airplane Group Marketing, Current Market Outlook (World air travel demand and airplane supply requirements), March 1996.

Lockheed Martin Corporation

David Bernstein

Lockheed Martin Corporation is an advanced technology, \$30 billion company with more than 190,000 employees worldwide. Lockheed Martin's Space and Strategic Missiles Sector, located in Bethesda, Maryland, was created in March 1995 following the merger of Lockheed and Martin Marietta. The sector employs 29,400 people with \$7.5 billion in 1995 sales. It comprises the Missiles and Space, Astronautics, Astro Space Commercial, and Technical Operations divisions.

In December 1992 Lockheed partnered with two Russian space firms, the Khrunichev State Research and Production Space Center (Khrunichev) and the Energiya Missile and Space Corporation (NPO Energiya), to form the Lockheed-Khrunichev-Energiya International (LKEI) joint venture. LKEI has exclusive rights to market launches of commercial payloads on Khrunichev's Proton rocket. Lockheed provided the initial capital investment (approximately \$20 million) along with commercial contracts and its experience in satellite design and manufacture and payload integration; Khrunichev provides the Proton rocket; and Energiya builds the fourth stage of the rocket.

Lockheed's impetus for pursuing the LKEI joint venture was its desire to find commercial revenue based on its core competencies; the Russian firms were looking for fresh capital and an opening to Western markets. Prior to 1980 United States companies enjoyed a virtual monopoly in the market for commercial space launches. The European group Arianespace drew even in the mid-1980s and went on to dominate the field in the late 1980s. The market for commercial launches is expected to grow in the next ten years, particularly for low-price, reliable launch vehicles.

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The joint venture brings together complementary expertise. Khrunichev and Energiya both have experience in building and launching rockets. Lockheed Martin has experience manufacturing satellites, integrating them with launchers, and supporting the satellites once aloft. Lockheed Missiles and Space Company, Inc. (LMSC) has experience in these functions with numerous military and civilian satellites. Lockheed Martin is much better positioned to gain access to the Western commercial space market than either of the two Russian firms. Lockheed also had the Western contracting experience and financial skills and resources necessary to conduct business in this marketplace.

As early as 1990 LMSC identified the commercial space market as a key future growth market suitable for its competencies. Of the worldwide commercial space market, approximately 90 percent is in satellite manufacturing, ground support, data handling, etc.—precisely the areas LMSC identified as suited to its competencies. The remaining 10 percent of the commercial market is in launch vehicles, and LMSC identified this area as particularly attractive for commercial ventures. LMSC recognized the need for reliable, low-cost competitors to the commercial launch vehicles available at that time. It developed its own small launcher derived from the company's defense technologies to launch one- to four-ton satellites into low earth orbit. To launch larger payloads, LMSC teamed with Khrunichev and Energiya.

Khrunichev State Research and Production Space Center

Khrunichev State Research and Production Space Center is composed of the Khrunichev Machine Building Plant and the Salyut Design Bureau. The Center was formed on January 9, 1994 by a Russian presidential decree. In 1992 the plant employed fifteen thousand workers. It produced more than fifteen types of aircraft before converting to missile and space products in 1962. In 1965, the Proton heavy-lift launch vehicle was successfully tested. It has been one of Khrunichev's key product lines, with over two hundred successful launches and a success rate of more than 97.4 percent. However, in 1985 the general director of the factory, along with top management, decided to cease production of military goods (although the rocket boosters and space stations are dual use). Khrunichev management felt that civilian production would allow for faster growth and larger profits for the firm.

Khrunichev is still a state-owned enterprise and has contracts with the Russian Space Agency (RSA) and the Defense Ministry. Due to strict controls on privatization of companies of a military nature, Khrunichev has not yet succeeded in receiving permission to become private. However, the management hopes that transformation into a closed joint-stock company might lead to private ownership in the future. Federal funding in 1995 amounted to 30 percent of Khrunichev's revenue.

Before Russian President Boris Yeltsin signed the decree that ordered the merger of the Salyut Design Bureau (the designer of Proton) and Khrunichev, there had been great confusion as to which of the two entities could market and sell the Proton launch services.

In January 1993, Motorola announced that Khrunichev had purchased a portion of its Iridium project, which had planned the launch and maintenance of sixty-six commercial satellites. Iridium, Inc. is an international consortium of companies involved in the funding of a global wireless telecommunications infrastructure. According to the deal, Khrunichev

agreed to pay \$40 million for a 5 percent stake in the project, in return for which Khrunichev will launch several of the satellites (reportedly for \$200 million).¹ Khrunichev also has exclusive rights to market Iridium satellites in Russia.

In addition to its agreement with Motorola, Khrunichev announced in 1993 that it will launch a telecommunications satellite for the 67-nation Inmarsat satellite consortium. The deal was signed for \$35.5 million, far below the \$60 million asked by U.S. or European launchers.² In April 1994, the European Bank for Reconstruction and Development (EBRD) signed a credit line of \$10.3 million to assist Khrunichev in its conversion efforts, but particularly to support its involvement in the Inmarsat system. The EBRD also helped to acquire permission from the Coordinating Committee on Multilateral Exchange Controls (CoCom) to allow for the import of the high-technology satellite into Russia for its launch in 1995.

While aerospace products are the centerpiece of Khrunichev's production, it also makes a variety of civilian products.³ According to the company, 44 percent of production in late 1994 was in non-aerospace product lines. In May 1994, Khrunichev and the Deutsche Aerospace Agency (DASA) announced a joint venture to market and launch satellites up to 4,400 lb. into low earth orbit. DASA has a 51 percent share in the venture. The name of the venture is Eurorokot Launch Services GmbH. The launch vehicle, the "Rokot," is a modified SS-19 ICBM.

NPO Energiya

NPO Energiya was founded in 1974 as a spin-off from the Korolev Design Bureau, Russia's oldest and most prominent space enterprise. In 1991 it had thirty-five thousand employees. Energiya, which is now privatized, is a major designer and manufacturer of space launch vehicles and manned spacecraft. The company comprises the Central Design Bureau of Experimental Machine Building in Kaliningrad, which designs spacecraft; an associated pilot production plant in Kaliningrad; and facilities in several other cities.

NPO Energiya is the main design bureau for the Mir space station (produced by Khrunichev), the Buran space shuttle, several communication satellites, and geophysical survey systems, as well as the manufacturer for the fourth stage of the Proton rocket. It also has a range of civilian products.⁴

In addition to supplying the fourth stage to the LKEI joint venture, Energiya signed an agreement with Lockheed to cooperate on future space programs, and to study the possibility of developing the Soyuz spacecraft as the interim rescue vehicle for Space Station Freedom.

The market for space launchers has several distinguishing characteristics: (1) Cost of launch vehicle development in the billions of dollars; (2) Lead times in years for development and production; (3) Uniqueness of each flight; (4) Direct costs in the hundreds of millions of dollars per flight; and (5) Low volume: each rocket type normally can be launched from two to twelve times a year.

During the negotiations, Lockheed requested considerable information and data about the rocket in order to market the system properly and to begin the work of integrating contracted payloads. At the same time, however, Lockheed could not answer Khrunichev's

questions about the technical details of the satellites, due to U.S. government controls on technology transfer. This led to several misunderstandings. First, while Khrunichev's technical data were tangible and highly valued (particularly in Russia), marketing skills were not understood by many Russians (trained under the communist system) to be of very high value. Second, Khrunichev was and still is a highly compartmentalized company, with a corporate culture in which knowledge is power. Giving Lockheed such important technical information would, in the Russians' eyes, mean a reduction of power. Third, the Western method of mission development is much more inclusive and open with respect to sharing information than the Russian method. Interacting with Western customers, who demand detailed information, was new for Khrunichev.

The initial proposal was for Lockheed and Khrunichev to team up to market Proton internationally, sharing revenues 50-50. Both partners would be equal in a new company, Lockheed Khrunichev International (LKI), in perpetuity. Lockheed would oversee marketing and perform payload integration, while Khrunichev would perform system integration and launch services. Reportedly, Lockheed would advance Khrunichev \$3 million a year for five years to help it through the difficult economic transition. Lockheed would also provide some funding for research and development of the next generation Proton. In preparation for presenting its proposal to Khrunichev, representatives from Lockheed met with government officials in Washington in August 1992 to inform them of their intent, hoping to prevent potential future objections from the U.S. government. It seems that none of the U.S. government organizations clearly objected.⁵ In September Lockheed proposed the joint venture and Khrunichev responded favorably. Khrunichev agreed to the concept, but sought to ensure that Lockheed would not interfere with its internal processes for building Proton. It had received proposals from other U.S. companies that intended neither to invest in nor to share risks with Khrunichev. Both parties signed a Memorandum of Understanding (MOU) at the end of the trip. Within several months, and after some modifications to the initial proposal, the agreement was signed and had received the approval of both governments.

Objections from U.S. producers of launchers led to negotiations between the U.S. and Russian government that concluded, later in the year, in a treaty limiting Russian launches of large Western satellites. According to the bilateral U.S.-Russian agreement on Russian space launches signed in 1993, (1) Russia is allowed to launch up to eight principal payloads (large payloads in GEO or GEO transfer orbit) for Western customers through the end of 2000; (2) It may launch a maximum of two of those per year; and (3) It may not bid more than 7.5 percent below Western bids without special consultations. This treaty has implications for how LKEI can conduct business: Proton could face competition for the limited launch quotas from other Russian-built launchers; and both American and European customers count as "Western." Thus far, LKEI's approach has been to first confirm eight orders, then to ask the U.S. government to consider approving additional missions.

NPO Energiya, which manufactures Proton's fourth stage, was later brought in as partner in the venture; LKI became LKEI. LKEI was incorporated under U.S. law in Delaware in April 1993. Ownership is split 49 percent for Lockheed, 32 percent for Khrunichev, and 17 percent for NPO Energiya.⁶ The CEO and president was appointed by Lockheed Commercial Space Company. The board of directors comprises seven members, four of which, including the president of LKEI, are from Lockheed. There are two represen-

tatives from Khrunichev and one from Energiya.⁷ Although Energiya is part of the joint venture and represented on the board, it operates as a subcontractor to Khrunichev. Khrunichev serves as the liaison between LKEI and any Russian companies that might be necessary for the successful launch of a Proton.

LKEI has a small staff and borrows additional people when necessary from the principals. Revenues of the venture are split roughly one-third for Lockheed and two-thirds for the two Russian companies (although how the revenues are then distributed is not known to representatives from Lockheed). Both parties agreed *ex ante* on a repartition of costs and advance payments made by customers. These payments have helped dramatically to alleviate Khrunichev's financial difficulties over the last few years of economic crisis in Russia.

Following the merger of Lockheed and Martin-Marietta in 1995, the structure of the operation was changed because Martin also had a commercial launch business (known as Commercial Launch Systems [CLS]), utilizing its Atlas rocket. In 1995, Lockheed Martin's Commercial Launch Services (LMCLS) and LKEI became the joint owners of a new company called International Launch Services (ILS) for the marketing of both the Proton and the Atlas launch vehicles. ILS has seventy employees in its office in San Diego. LKEI successfully conducted its first commercial Proton launch on April 9, 1996 for Luxembourg-based Société Européenne des Satellites (SES). ILS has signed seventeen contracts for Proton launches from 1996–2000, with the cost of each launch between \$70 million and \$100 million.⁸ The production cost of Proton was lower than equivalent U.S. launchers, since it took only eleven months (versus twenty-four) and fewer people to build a Proton; in addition, there was an existing inventory. LKEI receives progress payments from its customers as work prior to launch proceeds. The merger also opens the ability to have the Atlas as a backup to Proton launch contracts if any problems develop in Proton.

The joint venture is subject to constraints from several treaties and organizations, including the previously mentioned U.S.–Russian agreement on Russian launches, the Missile Technology Control Regime (MTCR), and the International Treaty on Arms Regulation. Russia's continuing participation in, and agreement to, international treaties and regimes, especially the MTCR, is a precondition for the joint venture to remain valid.

Although the LKEI venture appears to be highly successful, Lockheed is increasing its risk with every additional customer because it must guarantee every customer's launch in order to sign contracts in the first place. The guarantee basically insures that the launch will take place within a certain time period. Thus, until the launch is successfully completed, Lockheed bears the financial risk.

Another potential risk lies in Russia's economic instability. Proton's reliability derived from the work of particular subcontractors who worked with long-standing specifications and processes; these relationships assured a continuous and stable quality, and thus successful launch vehicles. But Lockheed cannot verify whether subcontractors are still in business and are willing to sell to Khrunichev. As an example, NPO Energiya, the manufacturer of the fourth stage of the rocket, has recently been privatized, and significant changes in organization or business climate could potentially have an adverse effect upon its products. Lockheed has not attempted to assume any responsibility for the manufacturing of the rocket itself, nor to make substantial changes to either Khrunichev's or Energiya's production or management structure; it has remained faithful to its original role of marketer and integrator. Agreements

have been signed with the Kazak government guaranteeing access to and use of the Baikonour Cosmodrome launch site, and there appears to be nothing threatening these arrangements.⁹

Several aspects of the cooperation between Lockheed, Khrunichev, and NPO Energiya are important to the success of their work. One advantage of the merger from LKEI's viewpoint is the possibility of selling launches on Proton while backing them up with the Atlas launch vehicle in case of problems with the Proton launcher. Because Atlas and Proton share no common suppliers or parts, the potential for technical difficulties in both systems is greatly reduced.

The overall technical capabilities of the Khrunichev employees have proven to be excellent. They have been found to be extremely capable—in fact, better educated in theory and mathematics than many of their American peers. In the business arena, LKEI employees have found the upper management of Khrunichev to be fairly astute. But, as the technical people are lacking some tools, it has found the business side of the company to be lacking in contracting and financial management skills, a legacy of the command economy. Lockheed representatives felt that clearly defining the companies' roles and responsibilities at the very beginning of the project was a key to the success of LKEI. By clarifying as much as possible up front, the partners have been able to avoid many misunderstandings. Questions about revenue distribution, pricing schemes, etc. do not need to be negotiated further between partners. The fact that much of the deal was transparent from the start allayed concerns on both sides.

Lockheed was able to enter the low-price range area of the launching market through this venture. As a result of large Soviet expenditures on defense, spin-offs of military technology held the potential to be one of the most internationally competitive industries, even compared with those of the West. The epitome of this success was the Russian space industry, the most prestigious of the Soviet defense industries. Together NPO Energiya and Khrunichev build a rocket considered by at least some in the industry to be the most reliable launch vehicle in the world. Given the high costs involved, high reliability is of the utmost importance. If a company can offer high reliability at a price cheaper than that of its competitors, it can expect a substantial market share even if it entered the market later than its competitors.

Khrunichev's organizational structure has not changed significantly; the launching of the rockets will be handled by the same units that have done so in the past. Lockheed did not make a deal to obtain access to reasonably priced and suitable factors of production with which it would merge its own manufacturing or technical expertise.

It is interesting to note the close ties between the partner companies and their respective governments. Lockheed is a privately held firm, but one whose principal customer has been and continues to be the U.S. government. Khrunichev was and is a state-owned firm, with a broad product line and customer base. Energiya was previously a state-owned enterprise of considerably larger size than Khrunichev, but is now privately held, with the Russian government remaining its largest customer. In an industry in which technology is typically a heavily guarded secret, these close government connections on the part of all three companies probably enabled all sides to obtain more rapid approval for the joint venture.

Case Studies: Lockheed Martin Corporation

Within a few days of making the first public announcement of the formation of the venture, LKEI received serious inquiries from its first actual customer, Loral. Within nine months, the first contract for a launch was signed. Within one year, LKEI announced that it had signed contracts and launch service agreements worth more than \$600 million.¹⁰ The exact prices and details of the contracts are not public. Because the first customer came on board quickly, LKEI became profitable early on.

An accepted product allows for early sales and thus early revenue. This serves to reduce risk for the investor by reducing financing requirements and providing cash flows for the company.

One other positive factor for both companies was the fact that Khrunichev possessed an inventory of several Proton rockets. These had been manufactured previously, were still flightworthy, and were made available for this joint venture.¹¹ This had two important implications. First, LKEI could offer potential customers earlier flight dates than they otherwise might have been able to, had not Khrunichev maintained an inventory. This also reduced the capital investment required. Therefore Lockheed was able to come into the joint venture with less financial risk than perhaps otherwise would have been possible.

The commercial space launcher market is characterized by very few suppliers, all of whom have significant impact on the entire industry's pricing. Although Arianespace has by far the largest market share, it must be able to react to competitive pricing from new entrants into the market, such as Proton. Executives from LKEI believe that with lower prices Proton can target a very large potential market.

Another significant characteristic of the launcher market is the prevalence of government subsidies, which skew input prices and profit considerations. The commercial space launcher market, while unusual in its own right, is similar to many defense industries in which there are a limited number of players and the government plays a large role. These industries are particularly attractive to transitioning firms from Russia: defense is historically one of Russia's strongest industries, and due to the economic instability in the country today, Russian firms are in a position to underprice many of their Western counterparts. With low real wages and fixed costs which are all but completely written off (paid for by the Russian/Soviet government), Russian companies can take advantage of competitive markets. In fact, this competitive advantage is encouraging Western firms to seek government controls and agreements to prevent loss of market share.

Notes

¹ Moscow News, July 2, 1993, p. 9.

² "Russian Rockets Finding Eager Customers in West," New York Times, 17 May 1994, A1.

³ A description of the Khrunichev Enterprise Company can be found on the Internet at <<http://www.fas.org/spp/civil/russia/khrunich.htm#5>>.

⁴ A description of the Energiya Company can be found on the Internet at <<http://csde.acesk12.ct.us/friends/jgreen/npoe.html>>.

⁵ In fact, there had already been efforts under way to explore possible NASA or U.S. industry

Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

cooperation in Russia. See "U.S., Europe, Japan Vie for Russian High Technology," *Aviation Week and Space Technology*, January 27, 1992; and "What's Ahead in Aerospace," *Aerospace Daily*, July 6, 1994.

⁶See the Khrunichev Web site, <<http://www.fas.org/spp/civil/russia/khrunich.htm#5>>, and *Kommersant Daily*, February 27, 1996, p. 11.

⁷*Aerospace Daily*, November 24, 1992.

⁸"Space Business with Russia," *Space Business News* 14, no. 18 (September 4, 1996).

⁹A contract was recently signed for the lease of the Cosmodrome (for \$115 million, plus additional support). *Aviation Week and Space Technology*, September 19, 1994.

¹⁰"LKEI Reports Positive Gains on Proton Vehicle," *Business Wire*, April 25, 1994.

¹¹Estimate from the report of a Lockheed manager who had visited the factory in 1992. *Aviation Week and Space Technology*, January 4, 1993.

United Technologies Corporation

David Bernstein, David Binns, Marnie Tobriner, Elaine Wai

United Technologies Corporation (UTC), a company engaged in several technology-based businesses, had \$20 billion in revenue in 1995. Fifty-five percent of this came from international operations. It has \$200 million invested in Russian projects, and fifteen thousand employees working on joint ventures in the former Soviet Union, mostly in Russia. It is committed to invest up to \$350 million, which would result in employment of up to thirty thousand people. UTC's component companies are Pratt & Whitney, Carrier Air Conditioning, Otis Elevator, Hamilton Standard, Sikorsky, and UT Automotive. Entry into foreign markets is one of UTC's primary business strategies. It believes that early entry is important, notwithstanding start-up costs and the time required for the markets to mature, and it believes that the risks of delaying entry are greater than those of premature entry. While the corporation espouses this strategy, specific investment decisions are made at the component company level.

In keeping with this strategy, UTC has been one of the first large American companies to make major investments in Russia. UTC also serves on an advisory committee to Russian Prime Minister Viktor Chernomyrdin. Its investments in Ukraine cover a broad spectrum of UTC's product lines and divisions, and some divisions have made multiple investments.

In general UTC prefers to engage in a joint venture in which it takes a majority interest; however, it has also pursued some contractual research activities, distributor relations, and acquisition of raw materials. When entering into a manufacturing joint venture, UTC generally prefers to build a new factory rather than refit an existing Russian factory, but it has taken both routes. In research activities it has found some excellent staff capability in Russia, but it finds that the separation that has existed between the institutes and the design

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bureaus has been a major impediment to commercialization of technology. The most general problem areas have been the uncertainties in contract law and the slow growth of the economy.

UTC's first major entry into Russia was made in 1988 by the Otis Elevator Company, one of UTC's most active divisions in Russia. In addition to building a manufacturing facility in St. Petersburg, Otis set up a network of sales and service offices in Russia and Ukraine. By early 1996 it had nineteen such centers and planned to add eight more. In the near future it expects the maintenance and service business to be at least as important as the production of new elevators.

Another active division is Pratt & Whitney, which has at least five cooperative ventures in Russia for aircraft engines, ground-based gas turbines, and rocket motors, and one venture in Ukraine to develop coatings for turbine blades. The Hamilton Standard division is also reasonably active in Russia with at least two ventures related to environmental control systems for aircraft. The Carrier division has explored cooperative ventures related to air conditioning and refrigeration; however, it has not proceeded because of lack of a market and/or high capital costs of setting up the manufacturing of compressors, the key component of air conditioning and refrigeration systems.

In many of UTC's ventures it has made major financial investments and is now in a holding mode waiting for the markets to develop more fully. In the meantime UTC is making what it terms "soft" investments, such as increased staff training, so that the structure and organization of the joint ventures will be better prepared to function strongly when the activity level picks up.

Otis

History

Otis, which produces, installs, and services elevators and elevator systems, has been active in Russia since 1988. Otis began operating in Russia in 1893, when the Russian court ordered an elevator for the Winter Palace in St. Petersburg, but its active presence there ceased with the Russian revolution. In 1976 Otis formed an agreement with the Russian State Design Bureau for Elevators, a state monopoly, to explore possibilities for technological cooperation. In 1987 a decree was issued allowing for joint ventures between Russian and Western companies, spurring Otis to explore its options to enter the Soviet market.

Elevator maintenance and design in the Soviet Union was divided between a few ministries: the Ministry for Electrical Construction Machinery was responsible for the design and manufacture of elevators; the Ministry of Construction was responsible for elevator installation; and the Ministry of Community Affairs was responsible for all elevator maintenance. In 1988, Otis entered into discussions with a number of different entities to determine if it was possible to form a new, integrated entity performing all three functions. The first protocol of intent was signed to establish a joint venture to produce, install, and maintain

elevators. The three largest cities (Moscow, Kiev, and St. Petersburg) each manufactured, installed, and maintained their own elevators from start to finish. When Otis entered the Russian market in 1988, the St. Petersburg facility had curtailed its production, but the Moscow and Kiev factories were still manufacturing elevators.

Structure of the Ventures

As of June 1996, Otis had four joint ventures with different partners in Russia, as well as one in Ukraine and one in Kazakstan, and \$90 million in total sales. Each venture is structured differently. In keeping with the company's preference for majority ownership, Otis owns 51 percent or more of each venture except one. Otis will not participate in 50–50 joint ventures. While such ventures sound equitable and can facilitate trust at the beginning of a relationship, Otis feels that they do not work; they circumvent a lot of issues that are simply put off until the joint venture is forced to address them at a later date. Many 50–50 joint ventures in Russia fail between the third and fifth year of operations when the first managing director must be replaced and the “equal” partners cannot agree on a number of issues, in particular a mutually acceptable replacement for the managing director.

Overall, Otis's four joint ventures employ ten thousand in the NIS, and it maintains 120,000 elevators, a total which is comparable to the number it maintains in North America. Otis has four production locations in the NIS: two factories producing complete elevators, one specializing in component assemblies, and another producing components for the maintenance and modernization of existing elevators. The elevators produced by the joint ventures are based on designs that Otis sells in Western Europe, with minor modifications to meet Russian safety code requirements.

Otis's joint ventures in Russia are:

1. Shcherbinka Otis Lift

Otis's first joint venture, Shcherbinka Otis Lift, was formed in 1991 in the Moscow suburb of Shcherbinka to produce elevator driving machines, and now employs one hundred people. The venture also sells and installs machines in the Moscow area. A facility has been constructed on the site of the Shcherbinka Lift Plant, a division of Liftmash, to produce elevator machines. The Russian partner, Shcherbinka Lift Plant, which owns 45 percent of the joint venture to Otis's 55 percent, was originally a state elevator manufacturing facility, and the joint venture was established by literally segregating a corner of the partner's premises. In 1993 the Russian partner privatized under Option 1, but those employees who had already transferred to the joint venture were unable to gain shares and ownership rights in their former employer. Today all the partner's shares are owned by its employees, and the partner has developed into Otis's competitor in the sale of complete elevator systems.

2. St. Petersburg

In St. Petersburg, Otis's partner was a municipal organization that produced elevators but, as previously mentioned, had been forced to substantially reduce its production during the 1980s. Otis chose to construct a new operation of twenty thousand square meters at a cost of

approximately \$8 million. It was financed with a loan secured by the property and by Otis, with the Russian partner contributing the land. After the joint venture was formed (Otis with 55 percent), the Russian partner privatized but failed to list its shares in the Otis joint venture as assets. Russian firms own the remaining 45 percent. Otis–St. Petersburg serves the mid-rise office and apartment markets and produces the Otis-designed Europa 2000 elevator.

3. MOS Otis

In its Moscow joint venture, MOS Otis, Otis holds about 51 percent of the venture shares while the city partner, Moslift, owns the remaining 49 percent. The joint venture maintains one-third of the elevators in Moscow (approximately thirty-four thousand), through six service branches, and employs 2,400 people. In 1992 Moslift, a city-owned company that had a monopoly on elevator maintenance in Moscow, privatized and simultaneously spun off one-third of its business to form the joint venture with Otis. Shortly thereafter, the city antimonopoly organization felt that Moslift (owning 100 percent of itself and 49 percent of MOS Otis) was still monopolistic. Moslift's shares in the joint venture were confiscated and reassigned to MosGKI (the city property fund). In 1995 MosGKI sold a portion of its shares (23.5 percent of the venture) to the joint venture's employees in a closed cash auction, maintaining a 25.5 percent blocking minority under Russian law. The purchase price of shares for employees was set by the city, and the offering was oversubscribed by the employees. Many of the employees have subsequently been interested in selling their shares to Otis at a price that offers them the chance for immediate profit. As of August 1996, Otis had acquired 20 percent from the employees by this means. The remaining 3.5 percent will be kept by employees interested in holding shares for the long term. With 1,100 shareholders, the majority of which are employees, MOS Otis is the only Otis joint venture that is an open joint-stock company.

4. RUS Otis

The RUS Otis joint venture was formed with organizations similar to Moslift in other Russian cities. These organizations structured themselves into a collective entity and bought their assets from the state during the pre-voucher privatization era. It is with this collective, now a closed joint-stock company, that the joint venture was formed. The joint venture has six thousand employees, maintains forty-five thousand elevators, and has thirty-three branches throughout the country. In a temporary ownership arrangement, Otis holds 49 percent and the Russian joint-stock company 51 percent. The 51 percent Russian ownership stake is composed of two different entities: AO Ruslift, with 50.1 percent, and AO Lift-Kompleks, with 0.9 percent. At the end of 1996, however, Otis had the right to acquire an additional 2 percent of the company, making Otis the majority owner. The joint venture's board of directors is composed of three Otis directors and four Russian directors. As of June 1996, the employees of the joint venture owned shares in the Russian joint-stock company. The joint-stock company is considering restructuring, however, to make the employees direct stockholders of the joint venture in an open joint-stock company. This conversion would create

greater administrative costs due to requirements for wide distribution of information and shareholder relations issues; however, it is still an option.

Otis seeks very strong partners, particularly in new markets. Due to the long product life of elevators, there is a strong emphasis in the industry on maintenance. By necessity maintenance must occur within Russia, and it is very important to Otis that its partners have appropriate capabilities. Because the ventures have Russian employees and must deal with the Russian bureaucracy, Otis recognizes the necessity of having knowledgeable partners capable of rapidly addressing issues that arise and navigating the constant changes in the Russian economic and political environment.

Otis employs a local national as general manager in its ventures whenever possible, and an experienced Otis executive as deputy general manager. In all of its Russian joint ventures, an expatriate is sent to Russia to fill the role of chief financial officer/financial manager, while a Russian fills the role of chief accountant. This division of duties occurs in part because planning and accounting functions were separated under the Soviet system, and because Russian accounting is not accrual based and separate books must be maintained to meet both Russian and Western accounting standards. The director of sales and marketing is usually an expatriate as well.

As of June 1996, Otis had invested approximately \$50 million into Russia. This investment was funded internally by Otis. By then, Otis had begun to break even or make a slight profit on the overall results of its Russian ventures. In the individual ventures that are profitable, however, Russian and American partners have agreed not to pay dividends for five years. Otis offered this suggestion and expected some resistance, but found that its Russian partners easily accepted the proposal. All profits have been reinvested into the operations of the ventures.

Hamilton Standard

Hamilton Standard creates environmental control systems, jet engine controls, propellers, optic systems, and microelectronics. It has a venture in Russia with a Russian enterprise called Nauka to create, market, and repair environmental control systems for commercial aircraft manufacturers in Russia. Nauka was recommended to Hamilton Standard by Tupolev since it had previously purchased air conditioning systems for many of its aircraft. Hamilton Standard chose Nauka for the venture since Nauka also had contacts with relevant ministries and manufacturing contracts with production enterprises.¹

In December 1994 the Defense Enterprise Fund (DEF), a venture capital fund established in 1994 by the Cooperative Threat Reduction program of the U.S. Department of Defense, invested \$2.5 million in this joint venture. The venture took five years to set up, with \$14 million in costs as of January 1996. Because this was one of the first aerospace joint ventures in Russia, indecision and a lack of knowledge on the U.S. side delayed its beginning. The partners also had different ideas about how to conduct the business; the Americans were accustomed to doing business by signing contracts for the work, for example, and the Russians were accustomed to relying on personal trust and relationships. Hamilton Stan-

Standard/Nauka is headed by a Russian and has an American deputy director. Hamilton Standard and Nauka both provide the technology for the venture and Nauka provides the building. Hamilton Standard has a 51 percent stake in the venture. As of December 1995, thirty-five people were employed by the joint venture in the Moscow facility. In January 1996, the joint venture delivered its first two environmental control systems (ECS) units for certification on the Tu-204 airplane and plans to offer ECS systems for all major aircraft in Russia including the Tu-334, An-70, Il-96, and Il-114.

Pratt & Whitney

Pratt & Whitney is engaged in the development, manufacture, and sales of gas turbines and rocket propulsion systems. The turbines are used for aircraft engines and as stationary sources for generating electricity, primarily in remote locations, such as for oil and gas pipelines. The rocket propulsion systems are used for space applications. Pratt & Whitney is also a major supplier of engines to aircraft manufacturers, and hence it also supports the marketing of these aircraft when outfitted with Pratt & Whitney engines.

Pratt & Whitney believes that there must be a domestic producer of modern jet engines in Russia if the commercial aircraft industry there is to survive. The current Russian-built engines are inefficient, noisy, and costly to maintain, and foreign-made engines (e.g., those of Pratt & Whitney, General Electric, and Rolls-Royce) are considerably more expensive. Pratt & Whitney's strategy is twofold. It is working toward establishing a domestic Russian source that will utilize Pratt & Whitney designs to fulfill Russia's long-term market needs. In the meantime Pratt & Whitney is providing its U.S.-manufactured engines to power Russian aircraft (Ilyushin 96M) produced by a joint venture in which Pratt & Whitney is a participant.

Pratt & Whitney entered into joint ventures in two major areas of the commercial aircraft business in Russia. The first is a joint venture to produce the Ilyushin 96M. This is a stretch version of the Il-96, which is a large, long-range commercial jetliner. It will have both passenger and freight versions. The airframe is designed by the state-owned Ilyushin Design Bureau and will be produced by the Voronezh Aircraft Production Factory, which is partially privatized. Several other U.S. companies also are participants in the venture. The Collins division of Rockwell International (see the Rockwell case study, next) is producing the avionics, the Sundstrand division of Allied Signal is providing electric generators and other components, and Hamilton Standard, another division of UTC, is providing the environmental control systems. The Ilyushin 96M is designed primarily for the CIS market.

The start of venture negotiations in 1989 marked Pratt & Whitney's initial entry into Russia. Pratt & Whitney's role was to provide the engines and nacelles. This project is proceeding, but has progressed more slowly than originally anticipated. Flight tests of the prototype for certification were about 70 percent completed as of March 1996. The first production plane, which will be the cargo version, was to have been flying in December 1995, but was later scheduled to start flying in May 1996 and to go into service in 1997. This plane will be used to complete the (Russian) certification flights. USFAA certification will

follow from a new bilateral reciprocal agreement. The reciprocal procedure was worked out on a smaller (five-passenger) plane, the Ilyushin 103. U.S. certification of the Il-96 is not expected to come through quickly, but this is not a problem since the early (and probably most of the) production will be for the CIS market. Russian certification is adequate for the planes to land in the United States. In Russia certification is done separately by the military and civilian authorities. Some of the analytical work for the certification is being done in the United States, but all of the testing is done in Russia. As of late 1996 Pratt & Whitney had invested \$75 million in the project.

When the Soviet Union collapsed, payment for the engines became a problem. Ilyushin had an initial contract with Aeroflot for twenty planes, but Aeroflot's financial condition worsened. Ilyushin and Pratt & Whitney then sought financing through the U.S. Export-Import (Ex-Im) Bank, an independent government organization that encourages trade between the United States and the former Soviet Union. A feasibility study, funded by the U.S. Trade & Development Agency, was performed to determine that the financing loans could be repaid. There was considerable opposition to the Ex-Im financing in both the United States (from Boeing, McDonnell Douglas, and the Machinists Union at Pratt & Whitney) and in Russia (from Perm Motors), but in early 1996 the financing agreement finally went through. A part of the compromise agreement was the lifting of the import tariff on Western aircraft sold in Russia.

The second major area of Pratt & Whitney's work in Russia is to implement the manufacture of aircraft engines and stationary gas turbines. In 1992 George David, chairman of UTC, decided that simply being a supplier of engines through deals like the Ilyushin venture would not work, and he urged Pratt & Whitney to find an equity partner for the production of engines in Russia. It surveyed the engine production sector and chose Perm Motors; however, it had to wait for Perm Motor's agreement with General Electric/Snecma to expire. Pratt & Whitney has an exclusive agreement with Ilyushin to provide engines for the first fifty Il-96Ms; after this Ilyushin can choose between the PS-90P engine and the Pratt & Whitney 2000 series engines, also eventually to be manufactured through the Perm Motors venture. It will take several years before the engines are in production and have been certified. This is a good deal for Perm Motors because it provides an interim source of engines while modifications and production are developed, and yet it favors the eventual use of the joint venture's engines. As of late 1996 Pratt & Whitney had committed \$125 million to the project.

Pratt & Whitney has also held negotiations with Tupolev for the supply of engines for the Tu-204 transport jet. Originally the plane was to be designed to take engines from Rolls-Royce, Perm Motors, and Pratt & Whitney; however, based on negotiation of the Perm-Pratt & Whitney joint venture, Tupolev selected the Perm Motors PS-90P engines. Aeroflot, however, does not want to use the Perm engines until some manufacturing problems have been solved. The joint venture also has letters of intent from Uzbek Air, Far East Avia, and other CIS airlines, and airlines in China, South America, and Africa have also expressed interest.

The stationary turbines are manufactured by AVIAM, which is a joint venture between Perm Motors and the Aviadvigatel Design Bureau. In addition to doing the turbine manufacturing, AVIAM holds the intellectual property rights. AVIAM also has 49 percent interest in

a joint venture called TEK with a Western group for the manufacture of aircraft engines. The Western group, which holds 51 percent of TEK, is a holding company owned by Pratt & Whitney, the EBRD, and a German firm, MTU. Pratt & Whitney is investing \$150 million in the engine ventures at Perm Motors.

The negotiations with Perm Motors have been lengthy, and the deal has been restructured many times. This is largely a result of the fact that Perm Motors itself has been undergoing a major restructuring. It was privatized in 1993, but the enterprise was in very poor financial shape. Privatization left about 20 percent of the stock with the state, 15 percent with the regional GKI, and 5 percent in the Shareholder's Fund for Enterprise Employees (FARP). The new private owners included Microdin, a new finance and trading company in Moscow. About 40 percent went to outside investors, and the balance went to the employees. Microdin and allied companies have a 28 percent stake in Perm Motors. They replaced many of the old managers at Perm, and as of April 1995 had reduced the workforce from forty-one thousand to twenty-five thousand, with more layoffs expected.² The current chairman is Mikhail A. Makarov, a 32-year-old aviation engineer. Perm Motors was turned into a holding company with several operating divisions. One of these divisions, AVIAM, is actually a joint venture in which Aviadvigatel owns 25 percent. The Ministry of Defense Industries has a seat on the board of Perm Motors, but there has recently been a change in the person holding that seat. These personnel changes necessitated much of the restructuring of the deal with Pratt & Whitney, as new people did not want to honor agreements made by their predecessors. The joint venture agreement has been signed, but as of March 1996 it had not been consummated.

Aviadvigatel was privatized under Option 2. The state's original 49 percent has now been reduced to 20 percent, with Perm Motors holding 29 percent. Pratt & Whitney believes that it would be beneficial to bring the relevant part of the Aviadvigatel Design Bureau into AVIAM to make it a more complete company. Aviadvigatel had the designs for the engines produced at Perm Motors. Some time ago, when Pratt & Whitney was also working with Rybinsk Motors, production of some engines was transferred by the state from Perm to Rybinsk, and the design information was transferred as well as the tooling. Pratt & Whitney wanted AVIAM to perform maintenance and overhaul of some of the existing engines, but it found that AVIAM no longer had either the design information or the rights. General Electric and Snecma had been working at Perm Motors before Pratt & Whitney, but they are now working with Rybinsk, and the two joint ventures are in competition.

Perm Motors has been concerned that the consummation of the joint venture will put it out of business, notwithstanding the fact that Pratt & Whitney is investing \$150 million to help it retool and is providing engine designs for the joint venture that are more advanced than the Russian designs. This concern is also difficult to understand since the manufacturing is being done by AVIAM, which is 100 percent controlled by Russian companies (Perm Motors and Aviadvigatel). In early 1996, Perm Motors became the first Russian aviation enterprise to receive certification from the Interstate Aviation Committee. This certification gives Perm more credibility in the eyes of international companies. As of late 1996, Perm and Pratt & Whitney have agreed to continue work on the PC-90A engine as well as some gas turbines.

Pratt & Whitney/NPO Energomash

In the rocket propulsion case, the situation is reversed in terms of the technology and the market. The Russian technology is in many important ways more advanced than that in the United States. Therefore Pratt & Whitney has negotiated joint ventures and contractual relationships that enable it to utilize Russian technology, components, and complete rocket engines on products that Pratt & Whitney produces for the global space market.

In February 1997 Pratt & Whitney established a joint venture with NPO Energomash, a Russian state-owned enterprise that manufactures liquid-fueled booster rockets, to develop and produce the NPO Energomash RD-180 rocket engine. The joint venture, RD AMROSS LLC, is based in West Palm Beach, Florida with the work being done at NPO Energomash's Khimky plant and Pratt & Whitney's Florida facilities. The joint venture will be a Delaware corporation with the equity split 50-50 between Pratt & Whitney and NPO Energomash. The joint venture itself will not do production work, but will subcontract the work to NPO Energomash and Pratt & Whitney. As a result, the staff will be relatively small, probably no more than ten people. There will be a five-person board of directors, two from Pratt & Whitney and two from NPO Energomash. The fifth director will be chosen by the first four members. The board positions have not yet been filled, but it is expected that NPO Energomash's general director will serve on the board. The fifth position could be someone from Lockheed Martin, or a mutually recognized and accepted independent party.

The RD-180 is a half-thrust derivative of the 1.9-million-pound thrust RD-170 rocket engine, initially designed and manufactured by NPO Energomash for the Soviet space program's Energiya and Zenit launchers. The new RD-180 engine will be produced for the Atlas 2-AR launch vehicle developed by Lockheed Martin to compete against the Ariane and other rockets for the expanding market for commercial satellite launches. Lockheed Martin has already sold several missions for the new Atlas and is in the process of filling up its order book. The Atlas is also competing for future missions under the U.S. government's Evolved Expendable Launch Vehicle (EELV) competition, which presents another potential market for the RD-180.

The RD-180 has its roots in initial talks between General Dynamics and NPO Energomash for the design and construction of an RD-170 derivative for use in the Atlas commercial launch vehicle. General Dynamics subsequently sold its Space Systems Division (including the rocket launch business) to Martin-Marietta, thereby transferring ownership of the RD-180 project rights. After initiating contact with NPO Energomash in 1992, Pratt & Whitney agreed to act as a "marketing and program management house" in the United States for the applications of other NPO Energomash engines. Pratt & Whitney eventually made a successful bid, in competition with Rocketdyne, to Lockheed Martin for the rights to the RD-180 project.

This bid process was soon followed by another competition to provide the engine for the Atlas. Lockheed Martin opted for the RD-180. Pratt & Whitney and NPO Energomash subsequently initiated their initial joint marketing and licensing agreement for liquid oxygen/kerosene engines in October 1992. To evaluate and verify their performance, Pratt & Whitney paid NPO Energomash to test the engines, with Pratt & Whitney oversight of the process. Once Pratt & Whitney was satisfied that the RD-170 met all of the requirements for

U.S. applications, including potential downsized utilization on the Atlas rocket, they proceeded with plans for the joint venture.

In order to facilitate the work of the joint venture, Pratt & Whitney has sent staff to Russia to familiarize NPO Energomash and the responsible Russian government oversight officials with the legalities of joint ventures, Western accounting standards, and general business practices in the Western market for rocket engines. Teams of legal and financial advisors, including representatives from Coudert Brothers, a U.S. law firm with operations in Moscow, have worked with NPO Energomash officials. This has increased mutual understanding of the joint venture's contracts and operations. In addition, there are four full-time employees in the Pratt & Whitney Moscow office who will be working exclusively on coordinating the NPO Energomash work for the joint venture. Those individuals will remain in Russia throughout the R&D stage, as well as the possible transition stage for initiating production of the RD-180 in the United States.

Under the terms of the joint venture agreement, NPO Energomash will perform the design work for the RD-180, with Pratt & Whitney oversight, and will transfer that R&D data to the joint venture. Pratt & Whitney will use this data and establish a parallel U.S. production line. NPO Energomash is also responsible for the production of all RD-180 engines being used for commercial applications. Once the RD-180 reaches the production stage, NPO Energomash will manufacture the engine at its production facility in Khimki near Moscow. The current contract with Lockheed Martin calls for the production of eighteen engines for the Atlas rocket, with substantial follow-on prospects once the new Atlas becomes established. These engines, which are built under contract to the joint venture, will then be delivered to the joint venture through Pratt & Whitney, which will deliver the final product to Lockheed Martin.

Pratt & Whitney is principally responsible for the management of the joint venture's contracts and relations with Lockheed Martin and for other marketing of the RD-180. As called for under the joint venture, Pratt & Whitney is also proceeding with plans to establish its own production facility for the RD-180 in West Palm Beach to enable Lockheed Martin to compete for U.S. government space launch contracts. Though there are no technological reasons why the Russian-built RD-180 could not be used, U.S. government policy for the EELV mission competition requires U.S. production of mission-critical components for space rockets, including engines. Competition for future U.S. government rocket contracts is under way, with Lockheed Martin's Atlas competing against rockets being proposed by McDonnell Douglas, Alliant Techsystems, and Boeing. The initial study contract has been awarded to Pratt & Whitney, and it is proceeding with start-up plans for this second production facility in order to demonstrate its capability to deliver a U.S.-built RD-180 engine for the Atlas for the U.S. government's EELV missions. The U.S. government had narrowed the selection to Lockheed Martin and McDonnell Douglas in December 1996, with final selection of one expected by May 1998. The rocket chosen will be used for future U.S. government satellite launches.

To facilitate the possible U.S. production of the RD-180, the U.S. government has approved a Technology Assistance Agreement (TAA) to enable Pratt & Whitney and Lockheed Martin to provide technical requirements and specifications to NPO Energomash. The Russian government has issued the decree necessary for the licensed transfer of the

required data during the R&D stage from NPO Energomash to the joint venture, and on to Pratt & Whitney's production facility. Pratt & Whitney has established milestones to pay NPO Energomash for R&D data once those data have been transferred. If Lockheed Martin wins the EELV bid, it is expected that the transition to a second line for U.S. production will be completed by 2000, with the first finished engine deliveries scheduled in late 2000 for a first flight in 2001. Furthermore, in the event that Lockheed Martin is successful, the expected split between commercial (Russian-built) and U.S. government EELV mission (Pratt & Whitney U.S.-built) engines is approximately 60/40 (commercial/EELV). Further commercial success would increase the Russian-built percentage.

Pratt & Whitney is providing the financing for the joint venture, both for the R&D and for the initial production in Russia. It has invested more than \$40 million to date and expects the final investment to approach \$100 million. Pratt & Whitney expects to recover its investment costs by inventorying their R&D and materials and amortizing them over the life of the initial production contract, which goes beyond 2000.

The flow of payments within the joint venture is a reflection of its structure. NPO Energomash is paid by the joint venture company, under cash advances from Pratt & Whitney, for R&D of the new RD-180 design and for production of the completed engines. The joint venture will then be paid by Lockheed Martin upon delivery of the engine. Pratt & Whitney recovers its investment incrementally with each engine delivery. Profits from the engine sales are to be divided 50/50 between Pratt & Whitney and NPO Energomash. In addition, NPO Energomash will receive royalties for its initial RD-170 rocket design, which accounts for 70 percent of the design features of the RD-180. These royalties are expected to approach as much as 10 percent of the profits received by NPO Energomash from its share of the joint venture's engine sales.

The establishment of the joint venture has required the involvement of both the U.S. and the Russian government. The U.S. government's involvement consisted primarily of the State Department's approval of the Technology Assistance Agreement. The Russian government's role included substantial review and oversight, primarily by the Russian Space Agency and the Ministry of Defense, but also involving the Department of Foreign Economic Relations and the Ministry of Finance. This redundant oversight and approval process was largely a result of the fact that NPO Energomash is still a state-owned company and it produced many of the boost engines for both the Soviet space program and Soviet liquid-propelled intercontinental ballistic missiles (ICBMs). An example of this continuous review is the above-mentioned contract guaranteeing data transfer concurrent with the R&D stage. The time required for obtaining approval of both the joint venture business structure and EELV compliance issues from the requisite Russian government departments was the most time-consuming part of the joint venture start-up phase. The entire process took much longer than Pratt & Whitney had anticipated. In fact, one of the biggest frustrations from Pratt & Whitney's and Lockheed Martin's perspective has been the lengthy and convoluted Russian political approval process.

Based on discussions with both current and prospective Russian government officials, Pratt & Whitney is now confident that, given the outcome of the June elections, the Russian government is committed to honoring all contracts between Pratt & Whitney and NPO Energomash. This is based on the fact that the joint venture relieves the government of

substantial obligations for subsidizing employment at NPO Energomash and for funding state-of-the-art space technology. NPO Energomash's Khimky production facility currently employs about six thousand people (down from a high of more than ten thousand). Its R&D team for the RD-180 comprises several hundred individuals and the production team for the RD-180 will eventually number more than one thousand. A smaller number of workers will be employed by Pratt & Whitney in the U.S. EELV dedicated manufacturing operation. This is due primarily to the fact that Pratt & Whitney is not as vertically integrated as NPO Energomash and will therefore subcontract out parts of the production cycle.

Pratt & Whitney is contemplating a separate, purely commercial application for the RD-120, a 180,000-pound thrust engine, also using kerosene and liquid oxygen. This engine, with one-fifth the thrust of an RD-180, would be used in two-stage light launch vehicles. This project is currently in the developmental marketing stage. Pratt & Whitney is seeking to present the joint venture project to potential customers and is still pursuing venture capital funding. An earlier potential client for the RD-120 was Pac Astro Corporation, which was interested in a boost engine for a small expendable launch vehicle for launching small satellites into lower orbits. Pac Astro has since dropped the project and is no longer a likely customer. Another possible client within Australia is potentially interested in using the RD-120 in a launch vehicle designed to lift satellites weighing less than two thousand pounds into low earth orbit from Australian launch facilities at Woomera and Darwin. Like the commercial versions of the RD-180, the RD-120 would be manufactured exclusively in Russia.

Pratt & Whitney also has a contract with the Chemical Automatics Design Bureau (CADB) in Voronezh to work on liquid oxygen-hydrogen rocket engines. The initial work was for CADB to perform studies for advanced upper-stage engines. This could eventually lead to the formation of another joint venture.

UTC has also been working with enterprises in other newly independent states of the former Soviet Union. Pratt & Whitney Aircraft Engines established a joint venture in 1993 with the E.O. Paton Electric Welding Institute in Kiev, Ukraine, called Pratt & Whitney/Paton. The joint venture is for R&D and production of Electron Beam Physical Vapor Deposition (EBPVD) products. The impetus for the venture was to provide a source and/or in-house capability to coat turbine blades and vanes with metallic and ceramic coatings³ for both aircraft and ground-based turbines manufactured by Pratt & Whitney.

Notes

¹This information was taken from Sam Loewenberg, "Defensive Touch," *International Business* 9, no. 6 (June 1996), 31-34, and Mary T. Prenon, "DEF Cuts Could Threaten U.S. Expansion in Overseas Markets," *Fairfield County Business Journal* 35, no. 11 (March 11, 1996), 8. Hamilton Standard declined to be interviewed.

²*Business Week*, April 17, 1995.

³The metallic coatings are nickel or cobalt with aluminum and yttrium. The ceramic coating is an yttrium-zirconia material.

Rockwell International Corporation

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Rockwell International had revenues of 13 billion dollars in 1995, \$3.6 billion of which resulted from its primary business, automation. Rockwell has more than eighty thousand employees in divisions in aerospace, automotive components, avionics, communications, and other electronics industries. Rockwell's electronics divisions accounted for 52 percent of its 1995 total sales; the aerospace sector made up 19 percent and the automotive division 24 percent. Almost all of Rockwell's work in the NIS has been in Russia. As of 1995, total investment in the Russian market was estimated to be in the "tens of millions of dollars"¹ in space and aviation projects. In late 1996, Boeing acquired the Aerospace and Defense divisions of Rockwell, which resulted in the transfer of several of Rockwell's Russian (and Ukrainian) projects, including the Tu-144 program, the Mir-Shuttle docking mechanism, and commercial launch venture programs, to Boeing. Rockwell's primary aerospace focus in the future will be avionics and communications.² The company's fastest growing business worldwide is in semiconductors.

Strategy and Format

Rockwell actively works with Russian partners on U.S. government contract work and has applied for U.S. government-assisted financing for cooperative ventures. In addition, the company has invested moderate amounts of its own funds in technology development and research projects, primarily in materials testing and development and in space propulsion.

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Rockwell has been active in Russia/the Soviet Union since the 1960s, and several of its projects have reached second and third phases. The company feels that its established methods of conducting business in Russia are working reasonably well. Individual divisions of Rockwell decide independently whether and how to do business in Russia and other former Soviet republics. A great deal of Rockwell's work in Russia is on a contract basis. In general, the company's activities have not given rise to joint ventures, although some initiatives can and do involve co-production and local value-added.

Rockwell's total business in Russia has grown to where the company now has approximately seventy local employees and indirectly supports a number of others through cooperative programs and ventures. The company opened an office in 1991 to provide local coordination and representation of group activities, as well as administrative and logistical support to the divisions. In 1994, Rockwell established a wholly owned local subsidiary, Rockwell AO, to act as the vehicle for its commercial activities in Russia.

Avionics and Communications

In October 1996 the Collins Commercial Avionics, Avionics and Communications, and Communications Systems divisions of Rockwell were combined into one unit called Avionics and Communications. Collins produces avionics equipment for commercial and military aircraft in much of the world. Collins is a world leader, with \$1.37 billion in sales in 1995. Collins has been engaged in two types of projects in Russia—commercially funded production programs and U.S. government-sponsored contracts. The major instances of the former have been the development of the Ilyushin Il-96M/T and the Tupolev Tu-204 aircraft. The first is a commercial aircraft program involving the Ilyushin Design Bureau, the Voronezh Aircraft Production facility, Pratt & Whitney (engines), and Collins, which is providing an integrated avionics suite for this modern 350-passenger long-distance jet airplane. As of December 1996, this program was awaiting completion of the first production aircraft at the Voronezh facility. Flight test and certification is expected to commence in the second half of 1997. Aeroflot Russian International Airlines (ARIA) has agreed to purchase twenty Il-96M/T, fitted with Pratt & Whitney engines and Collins avionics. The U.S. Export-Import Bank is providing project financing for the U.S. companies.

Avionics integration and related software development work on the Il-96 is being performed jointly by Collins and the GosNIIAS State Institute for Aviation Systems. At the height of the development program, approximately one hundred GosNIIAS engineers were engaged in this work at their laboratory in Moscow. Lack of project funding and a gradual decrease in Russian government support to the scientific community has imposed severe cash constraints on GosNIIAS to the point where its most talented software engineers have left for better paying jobs elsewhere. Collins has sought to minimize the exodus of qualified personnel by subsidizing the Il-96 work through special contractual arrangements with GosNIIAS.

In July 1994, Rockwell's Communication Systems Division (CSD) was awarded a \$4.7 million grant by the Defense Nuclear Agency (DNA) under the U.S. government Cooperative

Threat Reduction (CTR) program to develop an Air Traffic Management (ATM) systems integration capability at the GosNIIAS Institute. The program consisted of four main tasks: development of Traffic Collision Avoidance System (TCAS) hardware, design of GPS-GLONASS satellite positioning receivers, ATM systems engineering, and program management training. The objective of the program was to address the market for modernization of air traffic management systems in the Russian Far East, with a view to establishing GosNIIAS as a prime local integrator and project manager for Russian-supplied components and engineering effort.

Due to market factors, namely the lack of a coordinated approach on the part of the Russian Ministry of Transport toward its ATM modernization program, GosNIIAS has been unable to demonstrate the program management skills acquired under the DNA contract. In the process, however, the Institute has gained recognition in the Russian air transport industry as a leading proponent of satellite-based ATM systems. The Institute's executive director, Eugene Fedosov, is a member of the President's advisory board on high technology and has provided briefings to government and industry on the advantages of satellite-based air traffic management.

The Rockwell CSD and GosNIIAS team engaged in the DNA program faced many difficulties, including delays in release of imported materials through Russian customs, financing issues between the program partners and subcontractors, and differences in technical approach and management style. Significant technology transfer was accomplished through training of Russian engineers at the company's U.S. facilities and the "Russification" of technical data and software.

Since the DNA program concluded in late 1996, GosNIIAS has continued its work with the Collins Commercial Avionics group to develop an assembly capability for TCAS hardware. It is also providing software support to other Collins co-production initiatives in Russia related to the Il-96.

RR-Gateway

RR-Gateway (RR-G) is a 100 percent Russian-owned closed joint-stock company created in early 1994. Its origins lie in Rockwell Corporation's central research and development facility, the Rockwell Science Center (RSC) in California. In 1993, the Science Center decided to create an office in Russia to provide access to and assessment of Russian science and technology. This office, the Russian Research and Technical Center (RRTC), operated with three Russian employees with backgrounds in materials, aerodynamics, and software development. In December 1996, with the transfer of Rockwell's Aerospace and Defense divisions to Boeing, these activities were discontinued.

At roughly the same time that RRTC was established, the Science Center began a Russian software research project under contract to the Institute for Control Sciences (ICS). Vlad Levshin, one of the three RRTC employees responsible for support of software activity, was asked to oversee this research group's activity. This arrangement was problematic, however, in that the workers on the project had no access to the institute facility on

weekends or evenings. After about a year, the Science Center encouraged the establishment of a legally independent, 100 percent Russian-owned company, RR-Gateway, in order to tap the broader pool of software talent available in Moscow. They went on to develop software for the Rockwell Automation and Collins divisions. It took a while to coordinate this venture and establish good communications between the new joint-stock company (JSC) and the other Rockwell divisions. The JSC has eight to ten core members, and a few new graduates are brought in on a trial basis every few months. It has had no problems finding people. The group works solely for Rockwell, which keeps them quite busy. Rockwell has no equity position in the spin-off but encouraged it to spin off by offering it a one-year contract. Rockwell pays the JSC approximately \$1,000 per person-month.

RR-Gateway's board of directors is composed of Russian nationals and has no Rockwell representatives. The original ICS project program manager, a senior member of the Science Center technical staff, makes extended visits to RR-G to provide strategic guidance for the projects and to ensure the integration of their activities with related programs under way in the United States. He has also provided much needed guidance on developing progress reports and marketing new studies to the Rockwell businesses. The technical director of RR-G is Vlad Levshin, who remained a Rockwell employee until December 1996 and also received a small "symbolic" salary from RR-G. As of September 1996, one RR-G employee and one former RR-G employee were working at Rockwell Science Center in the United States. In addition to serving as technical director of RR-G, Levshin continued to be responsible for screening additional Russian technological capabilities for Rockwell, particularly in microelectronics and circuit board design.

By September 1996, RR-Gateway had ten employees. It is still owned by its original owners, although some are no longer employed by the company. The current employee-owners have expressed some interest in eventually repurchasing the stock held by owners no longer employed by the company.

RR-Gateway specializes in high-level, object-oriented software development and graphical programming. Because of the specialized nature of its work, the company's approach is to hire recent graduates with some software experience and match them with experts to train them in the project area. The work performed uses high-level languages, including Smalltalk and C++, and primarily consists of software program configuration and integration used for research by specialized high-end users.

In 1995 RR-Gateway found additional customers within Rockwell outside the Science Center. These diversification efforts resulted in a contract with Rockwell involving four projects for three customers: the Rockwell Science Center, the Rockwell Automation Division, and Rockwell's Collins Commercial Avionics division. All contract financing has been routed through the Science Center. This may soon change, however, as RR-G is investigating the development of a direct contract with Rockwell Automation. RR-G is not opposed to performing work for customers outside of Rockwell, but on the assumption that it will continue to be able to build its business within Rockwell it has not yet sought external business.

RR-Gateway's contract with Rockwell is based on a maximum monthly limit that can be billed by RR-G for all of the projects. Rockwell can require complete cost disclosure under

the terms of the contract, but it typically requires only simple structured invoices detailing labor, expenses, and taxes. As of June 1996, no audits or financial reports had been required.

Current tax practices in Russia present an obstacle. According to tax legislation, exported goods and services are exempt from value-added tax (VAT). However, Russian customs legislation counts only goods, not services, as exempt. To overcome this problem, RR-Gateway labels its service as a product, and assigns all costs of its services to the diskettes on which the information is transferred to the United States. This is acceptable to Russian customs officials, but has raised eyebrows at U.S. customs when one or two diskettes pass through with enormous value attached to them.

RR-Gateway has no formal marketing process and currently does not have the capability to institute a formal marketing process for its services. Expansion of its contract at Rockwell has primarily been through word of mouth. Recently, however, RR-G has begun development of some object-oriented design work purely as a research project. It was not requested by Rockwell, but Levshin believed that it would be of value to it. The interim results have been presented to two divisions of Rockwell, Automation and Collins, and the former is interested in the work.

RR-Gateway feels there is an increasing need for the type of high-level programming it performs, both in Russia and in Western countries, particularly in relation to integration of the World Wide Web. Levshin, now a full-time employee of RR-Gateway, believes that there is great potential for software development in Russia, as little capital investment is required to perform the necessary work and there is a large base of skilled, educated technologists.

When asked what RR-Gateway's response would be if Rockwell wished to acquire the company, Levshin was unsure how the owners would respond. A similar situation occurred with Gambit, a Russian-American partnership producing lower-level software that was mostly Russian owned. Gambit operated a Russian software design facility under contract to Rockwell Semiconductor Systems, implementing a variety of projects mainly in the signal processing domain. Quality and delivery met expectations, and in the fall of 1995 Rockwell Semiconductor Systems decided to directly employ Gambit software personnel active on its contracts. Gambit continues to provide facilities and other support services to Rockwell and to directly support other clients both in Russia and the United States.

Automation

Rockwell's automation divisions, Allen-Bradley and Reliance Electric Company, are involved in plant automation including systems for interface sensors and control devices to enhance productivity and information flow to a variety of industries. Allen-Bradley's primary activity in Russia is sales of its equipment, and it is establishing and maintaining repair, maintenance, and technical centers there as well as participating in defense conversion projects.

Allen-Bradley provides supplies for the AvtoVAZ Samara II automobile, and the Krivoy Rog steel plant utilizes Allen-Bradley supplies for its blast furnace control system. Technical

or repair centers are in progress at various facilities in Russia including AvtoVAZ, KAMAZ, and YAMZ.

Rockwell Automation (RA) has been operating in Russia since 1990. The company had fewer operations there during the Cold War, and according to Kurt Kueherz, director of sales and support of Rockwell Automation in Austria/Central Europe/CIS, some Russians were resentful that RA had limited activity during the country's rough political and economic periods, and increased its activity only after the situation improved. Kueherz indicated that RA reestablished its office and began its second start-up phase. Because of the break in activity, he believes that the company is at a disadvantage compared with its (mostly European) competitors, which had been in Russia through all periods (and which are also backed by government financing). As of October 1996, RA employed twenty-eight people throughout Russia.

Kueherz took over as head of Rockwell Automation's Moscow office in 1995. His main objectives were to target particular industries, market RA's products, establish cooperative relationships with viable Russian enterprises, and locate new sources of credit. The company has not established any joint ventures in Russia. Although the Russians prefer the concept of a legal joint venture, Kueherz feels this is difficult in practice. Rather than structuring formal joint ventures, RA has established a number of joint assembly projects.

Rockwell Automation is in a consolidation phase following the reestablishment of its Russian operations. The company is seeking young, innovative Russians to perform contract work and is terminating unproductive contracts. Rockwell employs three types of contracts in Russia: systems integration contracts, which are technically oriented; distribution contracts, which are commercially oriented; and consultant contracts, which provide important and necessary contact with other companies and ministries. Rockwell Automation Russia primarily sells its products to end users and original equipment manufacturers (OEMs).

One of RA's main projects is the development of a long-term joint assembly project of medium voltage drives for heating stations. The country's centralized heating systems (there are sixteen pumping stations serving Moscow) require large motors to operate. At each pumping station, a motor is required to run twenty-four hours a day. Motors require much maintenance and power, however, and have to be shut down and repaired twice a year on average. In addition, power costs have increased significantly in Russia. To address these problems, RA is now providing a medium volt drive that regulates the motor, eliminates a manual valve, and creates energy savings of 42 percent.

In response to Russian government concerns, RA is using Russian motors and Russian labor to modernize the systems. The drive is produced in Canada and imported for assembly. This arrangement could potentially amount to a multimillion dollar program in the CIS for Rockwell Automation, as the Russian Ministry of Fuel and Energy is requiring all Russian power and heating stations to use RA drives. In June 1996, RA had already sold seven drives. Obtaining financing for projects is difficult, however. At one point, RA had arranged for a large amount of financing from a Canadian bank, but several issues prevented the loan from coming through.

Rockwell Automation hopes to establish local assembly operations. In stage one of this effort, RA selects the product to be assembled, conducts training, and prepares a facility for assembly. This stage typifies most of the company's current activities in Russia. In stage two,

Case Studies: Rockwell International Corporation

RA increases the involvement of its Russian partner, whether in developing application software or using Russian parts in an assembly process. One of RA's client companies is in stage two and was scheduled to begin assembly in September 1996. Stage three would involve actual production in Russia for export to other Eastern European countries. None of RA's contractual relationships in Russia have progressed to this point.

Rockwell Automation has developed a flexible, triangular business relationship for dealing with partners with little cash. As an example, it is providing the drives for power station electricity generation to a Russian steel plant, which repays RA in goods. To facilitate this relationship, an independent Russian trading company was formed. RA has a similar barter agreement with a Russian automobile producer. RA serves as the automation supplier for several projects in automotive industries under this procedure.

RA is targeting the automotive, metallurgical and steel, energy savings, chemical, paper, food, and oil and gas sectors in Russia. Kueherz believes its best prospects lie in the automotive and oil and gas industries and energy savings programs. RA also provides distributor and systems integration capability, and corresponding applications software for those customers that do not have in-house capability.

RA's strategy in developing partnerships is to make its customers partners by training them to utilize RA technology. To accomplish this goal, the company establishes technical and training centers at customer sites. By June 1996, it had established five technical centers at Russian companies. These include KAMAZ, to support an automation development program; AvtoVAZ, to support repair and maintenance for a new automobile model; Nizneartovskneftegas; ZAPSID; and YAMZ.

Rockwell Automation also has three related training centers where it trains its client company employees who are supporting or will eventually support its activities. Rockwell Automation funds the development of these training centers while the client/partner company pays the employees' salaries. Once trained, the employees work as technical consultants and are paid by Rockwell. As of June 1996, approximately one hundred people had been trained and were working as consultants to RA. This is a long-term corporate strategy.

Rockwell Automation wants to expand carefully in Russia, concentrating on distribution and systems integration and selecting the right partners. Kueherz feels that American companies are at somewhat of a disadvantage in relation to German companies, which are more willing to extend a great deal of credit to their companies' projects in Russia for a payoff much further down the road.

Aerospace

Rockwell's aerospace divisions are Rockwell Space Systems, Autonetics, Rocketdyne, and North American Aircraft Division (NAAD).³ Rockwell Space Systems and Rocketdyne are working on the space shuttle; Rocketdyne designs and builds the engines, and Space Systems constructs the orbiters and space vehicles. Space Systems is working with NPO Energiya on launch service operation (docking for shuttles) and follow-on Mir missions. NPO Energiya provides the Soyuz vehicle, Yuzhnoye (in Ukraine) provides the Tsyklon rocket booster, and

Rockwell provides the marketing and systems integration. Rocketdyne is also working with other Russian organizations on a variety of projects.

Rocketdyne

Rocketdyne is the most active Rockwell group in Russia in terms of number of projects, with contracts primarily in the areas of advanced propulsion, solar power, lasers, and materials development and testing. Most of these started as small contracts (\$20,000–100,000); several of them are now in advanced phases at higher funding levels. Initially Rocketdyne found it easier to subcontract R&D on U.S. government contracts, but it is now entering into design projects as well. For example, it has a cooperative agreement with Aerojet for a design project, which will result in a subcontracted portion of the work to the Russians. It is looking at alternative approaches in a proof-of-principle phase to decide which projects to carry forward.

On several Rocketdyne-funded programs, the first phase was to prepare a report describing the status of the technology, suggesting possibilities for additional development, or solving specific problems for Rocketdyne. In almost all cases, Rocketdyne was pleased with the work performed. It has developed a short-form agreement with a standard data rights clause. Anything that the project develops and is paid for by Rocketdyne is owned by Rockwell. The Russians were concerned about the background data, so Rocketdyne added a clause ensuring that the Russians would retain rights to such data. The Russians were initially hesitant to work this way.

Some of the early problems the project faced included translation; the Russians' failure to fully understand some of the contractual terms, which occasionally led them to simply agree or disagree without fully understanding the contracts; inconsistent import duties (different Russian customs officials at the points of entry charge different rates, and some are not aware of the rates that should be charged. Russia is currently reviewing its export policies); and the transfer of funds from Rocketdyne to the contractor. The transfer of funds was managed by working through corporate offices to wire transfer payments directly into supplier accounts. Most of these problems have been overcome.

Rockwell does not usually try for financing through U.S. government programs such as the International Science and Technology Center (ISTC), the United States Industry Coalition (USIC), and the Civilian Research and Development Foundation (CRDF)⁴ because of the red tape and delay. It believes that the USIC program in particular appears basically to be funding the U.S. Department of Energy (DOE) laboratories.

The fact that the Russians frequently require, upon execution of contract, some payment early in their projects as cash flow is still an issue. Rocketdyne generally paid about 10 percent in advance, and the rest of the payments were made for deliverables. All payments are made to the general directors of the institutes, and it is not clear how much trickles down to the employees.

To ensure that the money goes to those actually doing the work, Rockwell sometimes works with spin-offs of the institutes if they can show that they have been legally established. They need to be recognized as legitimate companies in the United States in order to receive a

contract. Sometimes these are new institutes in the same facilities as the old institutes, and the new institute pays rent to the parent.

North American Aircraft Division (NAAD)

The North American Aircraft Division works on the design and production of military aircraft. NAAD is working on a two-year project with the Russian Zvezda Design Bureau for upgrade and testing of an advanced ejection seat. This is based on an existing Russian design which is superior to current U.S. designs. This program involves both the U.S. Air Force and Navy. NAAD plans to license the upgraded seat technology for second source manufacturing in the United States.

In the 1960s, the Soviet Union developed a supersonic transport, the Tu-144, to compete with the Concorde and the SST being developed in the United States by Boeing (which was subsequently cancelled). Although a few aircraft were built, the Tu-144 never went into serial production or commercial service before being inactivated. The Tu-144 was manufactured in a significant number of samples, though design was not completed and every next sample differed from the previous; it may be said that prototypes were manufactured in series. The aircraft was used commercially for flights between Moscow and Almaty. The program was canceled after a Tu-144 crashed at the Paris Air Show in 1973, though some planes had already been manufactured and were stored until today. Under the NASA High Speed Civil Transport Program, prime contractor Boeing, with subcontractors Tupolev, McDonnell Douglas, and NAAD, is refurbishing the prototype aircraft to use it as a test bed for key aerodynamic experiments that can best be conducted with full-scale flight tests. The aircraft has been heavily instrumented to make pressure, temperature, and flow measurements in flight. This is the only aircraft that allows this kind of realistic testing. Boeing is primarily doing analytical modeling and flow simulation. Rockwell is the lead contractor for the modifications to the plane.

Notes

¹ Moscow Times, September 28, 1996.

² The data collected in this study were gathered prior to Boeing's purchase of Rockwell divisions and it is unclear how this sale will affect these Russian ventures at this time. For the purposes of this report, the data remain relevant in terms of our examination of Rockwell's approach to and strategies of doing business in Russia.

³ Rockwell's aerospace divisions were sold to Boeing in late 1996. Boeing North American, Inc. is the name of the newly acquired Rockwell units.

⁴ ISTC, USIC, and CRDF are all U.S.-government funded programs. ISTC funds cooperative research projects between U.S. and Russian scientists, and USIC and CRDF fund cooperative programs designed to commercialize Russian technology.

Software Sector

Moscow Center for SPARC Technology

ParaGraph International

Typhoon Software

Trimble Navigation Limited

Ashtech Incorporated

Intel Corporation

Moscow Center for SPARC Technology

Michael Higgins, Elaine K. Wai

The Moscow Center for SPARC Technology (MCST) is a private Russian company that was formed in March 1992 by Boris Babaian, a leading figure in computer research and development in Russia. Babaian was concerned that the computer industry in Russia had been virtually destroyed by Western competition.¹ The company was founded for the purpose of entering into commercial contracts with Sun Microsystems, which has contracted with MCST for both hardware and software development work. MCST now has projects with other companies in addition to those with Sun.

MCST is a joint-stock company 100 percent owned by its principals. It has 280 employees in Moscow, St. Petersburg, and Novosibirsk, most of whom, like Babaian, came from the Institute of Precision Mechanics and Computer Technology (IPMCE), a Moscow institute that is part of the Russian Academy of Sciences. MCST was formerly housed at, and paid rent and overhead to, IPMCE.

Babaian, in founding MCST, was interested in obtaining funding to retain the core of a technical team in the face of drastic reductions in government funding. Though the numbers have fluctuated over the years, approximately 250 people had been working together for many years at the Institute, which was engaged in both computer development and application simulations for weapons and space programs. In addition to its own projects for the state, IPMCE also did design, contracting, and field support of computer hardware and software for several applications. From the 1950s until the breakup of the Soviet Union, the Institute was known as the premier developer of high-performance computers in the Soviet Union.² The Institute previously developed a line of Russian supercomputers, ELBRUS 1 and ELBRUS 2; the ELBRUS 3, designed under Babaian's stewardship, is to be the most advanced Russian supercomputer. Microprocessor design work on the ELBRUS 3 computer project is continuing.

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Babaian, the technical head of MCST, was involved in a hardware project with Sun on new chip architecture, though the project has since been discontinued. He was also the head of a division of 250 employees at IPMCE, a position he had held since the mid-1960s; he and other personnel had residual responsibilities and technical interests there even after the formation of MCST. The president of MCST, Alexander Kim, is in charge of all administrative functions and has also started other MCST ventures distributing and leasing Sun systems.

In 1996 MCST moved from IPMCE into facilities at the Moscow Institute of Economics and Statistics (MESI). In St. Petersburg the MCST facilities are in a building owned by the State University of St. Petersburg, and in Novosibirsk the MCST facilities are rented from a private organization. Many of the remaining IPMCE engineers moved into the new institute with Babaian's group. Some engineers remain in the old institute and are being paid little, if anything, by the institute.

Sun Microsystems, Inc.

Sun Microsystems, Inc. manufactures both computer hardware and software for network systems. Sun had \$7 billion in revenue in 1996, and spent about 10 percent of this on R&D. Sun is contracting for fifty-five MCST employees on Sun projects that include work on new compiler architecture, design of workstations, and Pascal and Fortran compiler design. Twenty Russian employees work on the design of operating systems. There are also partnerships between two Sun Microsystems divisions, SunSoft and Sun Microsystems Laboratories, for systems software and hardware. MCST also completed a project for testing and development of Spring, a Sun operating systems technology.

Complete teams like Babaian's that have been working together for years are rarely available in the United States labor market and would be far more costly to hire if they were. Sun has been able to retain the engineers by paying salaries that are high enough to compensate for the risk these workers face in the event that the contract with Sun dissolves. Though the departure of highly skilled scientists from research institutes for more profitable retail and trade positions has affected Russian science, MCST has not experienced the loss of many employees. This is due to the competitive wages it pays and the desire on the part of the Russian scientists to remain on their teams, which have been together for twenty to thirty years.

Sun's first projects with MCST were low risk in that they were peripheral to existing Sun products and were to be constructed with little guidance from the American side. Since 1992, several technical results have been achieved in the Sun/MCST projects and several have been employed in Sun's commercial products. In some cases the software that MCST has developed surpasses the original specifications in ways that Sun had not envisioned. This illustrates an advantage of utilizing personnel who have worked in a different technical environment with fewer hardware tools than those available to U.S. engineers.

The contract work between MCST and Sun has been successful, resulting in the completion of software work on compiler and other projects. These projects have been

accomplished successfully despite setbacks such as U.S. and Russian government restrictions, security issues, and general communications barriers between the two companies.

In order to undertake joint research work with MCST, Sun was required by the U.S. government to obtain prior export approval to enter into any research work involving munitions (the legal definition of which includes the exchange of classes of technical data) or the potential to compromise national security interests through the sharing of software technology. Sun's export license for its work with MCST took thirteen months to obtain. Many factors contributed to this delay, including the time it took to receive approval from different agencies and the lack of technological knowledge on the part of the U.S. government officials ruling on the application. In addition, when Sun wanted to install fast modems for communications in Russia, it found that these were restricted by the National Security Agency (NSA). Communication between Sun and MCST was also hampered when Sun wanted to use encryption software to secure its work. At first, Sun was only able to export a software encryption package offering minimal security. However, because of the weakness of this product, Sun considered using Russian encryption software instead.³ Sun contacted the NSA, explaining that the company would have to use a version of PGP (a U.S. encryption software program originally loaded onto the Internet illegally) obtained in Russia unless it was allowed to export its own encryption software. In 1994 the NSA agreed to sign off on Sun's use of its own UNIX DES encryption kit for Sun's three MCST Russian sites. Sun may be the first U.S. company licensed to export DES-based encryption software to a Russian-owned company in Russia.⁴

In general, export control issues had delayed project schedules by almost a factor of two, thus creating a technology lapse between the Russian and U.S. partners. In an industry with a product life cycle of mere months, this delay was significant. U.S. export control policy has been relaxed over the years; the level of performance threshold for computers exported to civilian end users in Russia rose from 1,000 MTOPs (Millions of Theoretical Operations per Second) in 1995 to a current level of 7,000 MTOPs. Sun has been able to secure licenses for its work with MCST more quickly than in the past since by now most areas of the project are decontrolled and much of the proposed work is public knowledge.

The lack of Russian hardware for the project created another significant problem for the Sun/MCST partnership. Because the Russian partners did not have adequate computers to conduct the research work, Sun had to send over machines and equipment and in the process pay exorbitant taxes and customs. Fortunately, all of the equipment that Sun might need to send to Russia for work on its projects with MCST is permitted, by the current policy, to be shipped.⁵ And, since MCST is now housed in MESI, which is an educational organization, there is no customs duty on hardware received.

Other issues that the Sun/MCST venture has faced are related to infrastructure and carry over from the nature of the Soviet command economy. MCST management was not up to speed on Western business concepts, including intellectual property rights, patents, and marketing, partially due to the absence of any framework in Russia for these concepts. Sun also found that the banking infrastructure in Russia was much different than in the United States. Even wire transfers, which are relatively straightforward transactions in the United States, were not commonplace in Russia.

While business communications in the United States can occur in a variety of ways, means of communications in Russia are limited to the capabilities present in the particular region. The lack of a dedicated line or local network at some of the office sites in Russia became another difficult issue for Sun. Though language differences have not significantly hampered communication in their work, Sun has helped to bridge this gap by funding English language instruction at its Russian offices.

From a technical standpoint, the work, which requires a great deal of sophistication and innovation, has been quite successful almost from the beginning. Bill Walster, the manager of the MCST projects on the American side, believes that the strong technical and personal ties between the engineers on both sides form the cornerstone of the venture's success. There is a strong emphasis on the work's reliability and quality. Since MCST engineers were accustomed to designing software for sophisticated weapon systems that required extremely high reliability, this has not been a problem. More than half of MCST's personnel are involved in quality assurance and reliability. In the beginning of the relationship, MCST engineers did not understand the end users' requirements, which necessitated additional communication regarding user interfaces. This is no longer the case.

Sun has taken software developed at MCST and integrated it into Sun's products with turnaround times comparable to or shorter than would have been the case if it had done all of the development in-house. Sun is in the process of securing patents for its software development work done with MCST. The tasks given to MCST have a large R&D component, and thus it is difficult to estimate the costs and schedules accurately in advance. Because of this, all of the work is done under level-of-effort contracts, and there are frequent and open communications about any problems that are encountered. Sun does not have any Western personnel stationed in Russia to manage or work with MCST. Despite different approaches to doing business and the delays in various aspects of the work, Sun views its venture with MCST as highly successful and more cost effective than similar research work that could be accomplished in the United States. Sun has other work in Russia in addition to its contract with MCST, including collaboration on a petroleum database with the Ministry of Fuel and Energy, a systems partnership with Incombank in Moscow, and systems sales to several large companies such as Gazprom and LUKoil. Sun has sales offices in Moscow, Novosibirsk, and Almaty, Kazakstan.

Additional Projects

In addition to the work with Sun, some of Babaian's associates had been involved in computer design work with a company called Compass, located in Florida. This work appeared to be progressing well, although the contract expired due to changing interests in the American company. This work was for the development of software for IBM machines, and was more routine programming rather than innovation as in the work with Sun.

EnergyLine, a California company that develops automation products and software tools for automation, initiated a software development project with MCST based on the contacts and assistance of Walster at Sun. The EnergyLine work was all being done in Novosibirsk, where the largest portion of Walster's work is also being done. The most interesting aspect of EnergyLine's work, from the standpoint of this study, was that it was

only employing four to five Russians, but it was able to make the project cost effective very quickly. It is clearly the fact that Sun had already solved many of the problems and gave its full and enthusiastic assistance that made this possible. Otherwise the overhead and interaction costs would have exceeded the savings in labor.

EnergyLine initiated negotiations with MCST in August 1994, and the project began in November. Here again this brisk start is due in part to Sun's help. Within six months of work, EnergyLine was incorporating MCST-developed software into its products. In 1995, however, the MCST project was canceled by new EnergyLine management, even though the project had been successful and cost effective.

MCST has an additional project with a company in San Jose, California called COMPASS Design Automation (which has no relation to Florida-based Compass, mentioned above). The project employs forty-five MCST employees on CAD tool work. MCST also has a project with a company in Israel employing eighty employees.

Babaian's MCST group clearly has the structure, expertise, and access to highly skilled personnel that would enable it to expand its business in a manner similar to that of contract research organizations or software producers in the United States. Thus, an opportunity exists for MCST to work with a U.S. company in the contract research business. This could create an alliance to market the Russian expertise and labor rates in the United States, as well as to market the U.S. company's capabilities in the long term in Russia.

The success of the MCST/Sun partnership owes itself to many factors, two of which are the lifting of U.S. export control restrictions on software technology and the strong commitment on the part of the leadership to the venture.

Notes

¹ In 1992, Babaian attributed the technical deficiencies of the Russian computer industry to the fact that too many decisions about technology development were made at high bureaucratic levels rather than by technical experts. Computer production in Russia had virtually stopped, since Russian computers could not compete in performance, software, reliability, or price with Western computers. As a result, some of the best computer scientists sought jobs elsewhere. Software development for Russian-built computers is hampered by the small installed base of Russian hardware. There is not much of a market for applications software except for Western platforms.

² Seymour Goodman, Peter Wolcott, and Grey Burkhart, *Building on the Basics: An Examination of High-Performance Computing Export Control Policy in the 1990s* (Stanford, CA: Center for International Security and Arms Control, November 1995), 17.

³ Although U.S. encryption products are strictly controlled for export to Russia, Russian encryption software can be imported to the United States. See John Harvey, Cameron Binkley, Adam Block, and Rick Burke, *A Common-Sense Approach to High-Technology Export Controls* (Stanford, CA: Center for International Security and Arms Control, March 1995).

⁴ Personal communication with Bill Walster, Sun Microsystems.

⁵ Sun provides equipment for MCST to use in its research, but the ownership of this equipment remains with Sun. The revenue from the Sun contracts is distributed in wages or paid to the Institute for services, so there are essentially no retained earnings. This could change in the future if MCST

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develops its own products, obtains royalties for licensed technology, sells substantial Sun hardware in Russia, or decides to retain some profits instead of supporting additional Institute personnel.

ParaGraph International

David Bernstein, Elaine K. Wai

ParaGraph International is a software company, founded in 1989, with headquarters in the United States. Paragraph has more than 150 employees (90 percent of whom are Russian) in an office in Moscow and its headquarters in Sunnyvale, California. The company is a world leader in virtual reality and digital ink software technologies and specializes in data compression and pattern and handwriting recognition technology. Its revenue has grown to \$7 million for 1996 from \$4–5 million in the previous year, and is expected to reach \$14 million by the end of 1997. With less than \$150,000 in seed capital, ParaGraph has built a strong team of software scientists and engineers who develop and license innovative software technology to original equipment manufacturers (OEMs) and develop software products for the consumer market. Its products have sold very well, and to date it has generated more than \$20 million in revenue, primarily in the Western market. Like many other Russian organizations, ParaGraph International has evolved from other ownership structures.

ParaGraph AO was founded on October 3, 1988 in Moscow by a group of scientists from the USSR Academy of Sciences who wanted to form an independent commercial R&D center to develop software for personal computers. In 1989 ParaGraph became a joint venture, owned partly by an American investor and partly by the Soviet Union. In 1989 ParaGraph's employees and the American investor organized an American company to become the sole owner of the Moscow R&D center, ParaGraph JV. Chief executive officer Stepan Pachikov located two Russian institutes to sign an agreement in order to qualify ParaGraph for joint-venture status.¹ A joint venture was thus organized between a limited liability company called Matrix and these two institutes; Matrix owned 50 percent and each institute 25 percent. In 1989 ParaGraph International was formed (as a partnership between Stepan Pachikov and Russian scientists and programmers) by Matrix and another limited

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liability company, MicroContour. MicroContour is owned by the original Russian founders of the ParaGraph company. ParaGraph International owns 100 percent of ParaGraph AO in Russia. Its current strategy is to market the company to potential investors and strategic partners.

ParaGraph sold software as its initial work because the company lacked marketing skills for its scientific work. Its exhibit at the U.S. Comdex computer show in May 1990 attracted much publicity both because of the public's curiosity about Russian companies and because of ParaGraph's developments in recognition technology, which was an area of particular interest at Comdex. Apple then signed a \$1 million contract with ParaGraph to license the recognition technology and has utilized it in its Newton hand-held computer for handwriting recognition. ParaGraph International has had many additional offers to develop software under contract. Its first such contract was for \$500,000. It also has received offers for investment, including a \$10 million offer from Motorola. The company decided that private investors were preferable, however, because they would not change the company's culture as much as a larger company would.

ParaGraph is currently focusing on the development of recognition, compression, and 3-D graphics for its virtual reality and digital ink technologies. The company has plans to organize a division to use the 3-D technology for a 3-D browser. ParaGraph has created two product groups for the Internet: Internet3D, utilizing 3-D technologies, and InternetInk, utilizing digital ink technologies. In late 1996, ParaGraph, along with Sony Corporation and Black Sun Interactive, announced its new Living Worlds Initiative, a 3-D supporting software package that offers the user a single avatar.² ParaGraph's mission is to be the leading provider of products using virtual reality and digital ink technologies, which allow users to communicate using text, voice, and digital ink. ParaGraph is working with a Japanese company, PeopleWorld, on an Internet-based virtual reality 3-D service for the Japanese market. ParaGraph is providing the virtual reality 3-D, ink, and networking technologies as well as the artwork. ParaGraph also is developing software with IBM and provides software to companies such as Adobe Systems, Corel, Disney Online, and Mitsubishi.

ParaGraph International has more than ninety scientists and engineers working on these projects in Sunnyvale, most of whom are Russians the company has brought to the United States. ParaGraph has had difficulty obtaining visas that will allow its employees to stay in the United States for an extended period. Issues of residency arise since employees may lose vital privileges upon returning to Russia if permanent residency is declared in another country. The Moscow office has one hundred employees, seventy of whom are engineers and scientists. The Moscow office performs R&D and the California office conducts the marketing and business development in addition to some R&D. The R&D in Moscow includes Newton applications, EKG research, and work on ink-technology-like compression with real-time diagnostics. ParaGraph's fields of work are highly diversified for such a small company. Thus far this has not been a problem, and for the future the company views it as an advantage.

ParaGraph International's goal is to be a technological bridge between Moscow and Silicon Valley. In Russia, its focus was on pure science, and it screened ideas that scientists proposed. In this way, it was able to gain technical expertise and the very best scientists and engineers if the ideas proposed were accepted. When 75 percent of the scientific research was

completed, ParaGraph International recognized the need to develop market value and focus on product development. Its main business, accounting for more than 90 percent of revenue, is licensing technology, as opposed to selling products or services; the remainder is contractual software projects.

Even though ParaGraph's initial salaries were quite low, the company found it easy to attract top scientists to the highly technical environment that it had established at its Moscow research center. Eventually these people left their institutes and universities and went to work full time at ParaGraph. In Moscow, according to ParaGraph, salaries in 1996 for entry-level employees were perhaps a factor of ten lower than in the United States; for programmers the factor is two; for product managers the factor is about two to two and a half; and for people with business experience the salaries are actually higher in Moscow. This is misleading in terms of the cost per person-month, however, because the overhead in Moscow is extremely high, perhaps as high as 500 percent.

In fact, with the exception of labor everything is actually cheaper in the United States than in Moscow since facilities in Moscow cost approximately three times more to rent than in the United States. Communications, banking, and other services are also more expensive in Russia. Another key issue is the time factor. While some labor may be less expensive in Russia, the time to bring research results to market is much greater there.

Upon establishing its office in California, ParaGraph International tried to spin off profit centers as separate corporations with outside investors. This idea did not work well because of the tension between the desire of the investors to emphasize commercialization of the technology and the desire of the key technologists to maintain their scientific/technical edge. This motivated them even more than financial incentives. The concept of spinning off applications fragmented the core technology team and also strained the long-standing relationships between engineers. Spinning off also requires bringing in Western engineers more oriented to commercialization, which further changes the structure and environment.

ParaGraph International appears to have excellent technological capabilities and an environment that fosters research. It is in a rapidly expanding, but highly competitive, sector. Bringing the Russian technology to the American market could be a highly successful strategy, but it remains to be seen if it can achieve greater commercial success in a way that is compatible with maintaining its technical edge.

Notes

¹ At that time, only state-owned parent institutes could qualify for joint-venture status, so it was necessary for Pachikov to go to parent institutes in order to qualify ParaGraph for this status.

² An avatar is an interactive representation of a human user in cyberspace. See PR Newswire article of November 4, 1996.

Typhoon Software

David Bernstein

Typhoon Software is an American company, founded in 1993 in Santa Barbara, California, that outsources software development work for U.S. companies to Russian computer programmers. Typhoon contracts the work to a Russian-American joint venture, Santa Barbara Ltd. (SBL), founded in 1991, and located in St. Petersburg, Russia. Arseny Berezin is the CEO of Santa Barbara Ltd., and Philip Myers is the CEO of Typhoon Software.

Typhoon was begun two years after the first meetings between Myers, an American lawyer and entrepreneur, and Berezin, a Russian physicist who was then employed at the Physical Technical Institute in St. Petersburg. After Berezin introduced Myers to software experts teaching at the Leningrad Polytechnic Institute, Myers and a team of investors formed Typhoon Software to take advantage of the wealth of such talent available in Russian institutes. The Russian staff of SBL comprises employees at several levels, including student interns.

Typhoon considers the choice of a good Russian partner—Berezin—as the key to its success. Berezin both understands the business environment in St. Petersburg and possesses broad technical expertise. He has learned to work with the banking system in Russia and tackled related problems that initially caused trouble for the venture. SBL is housed in the Polytechnic Institute, from which much of the staff is drawn, but there are no formal ties with the Institute. Berezin has excellent relations with the Institute, which has cooperated with SBL rather than merely overcharging on rents as some institutes have done. In return SBL has helped the Institute acquire Western equipment, which can be purchased in Russia from a Finnish venture for the same cost (including duty and overhead) that equivalent equipment is available in the United States.

Typhoon's current source of revenue comes from software development and translation of computer programs to newer languages. Most of the projects are in response to specific customers' needs, but some of the developments have the potential for multiple sales. SBL is

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starting to adapt some existing educational software for the Russian market, and some of Typhoon's customers are Western companies that are in Russia, but most of Typhoon's work is not related to the activities of its Russian customers.

Typhoon obtains contracts from Western customers and subcontracts the development work to SBL, which in turn employs the programmers. Most of these programmers have extensive knowledge of computer engineering and programming, and have backgrounds in mathematics, statistics, electrical engineering, and physical sciences. At this time, most of Typhoon's work involves short-term projects that employ teams of a few people for a few months, but these teams are growing.

The absence of program management capability in the Russian staff was the greatest of the venture's early problems. The skills of the programmers were quite high, but initially their productivity was not. Typhoon found it necessary to provide American on-site management (one American manager can manage about thirty programmers) and to train the Russian partners in project management. Some of the younger Russians learned quickly and were very entrepreneurial. Productivity shortly improved, and the customers were sufficiently satisfied to contract for additional work.

Project management, marketing, and customer relations is handled by Typhoon's American staff. In order to maintain the customer interface, Typhoon hired a strong program manager in the United States. To split the work this way, nearly forty programmers must be employed full time at SBL in order for Typhoon to carry the overhead and marketing costs and still break even. As the number of programmers increases, profitability increases, since a commensurate increase in U.S. staff is not required. In early 1996 SBL employed fifty programmers, and this number was expected to double by the end of 1996.

The basis of the business is that Russia is a country with a large number of sophisticated software programmers that are not employed. Since SBL has grown steadily, it does not have a staff downtime problem as yet. The wages make the costs advantageous compared with development work done in the United States. The employees are paid primarily in rubles. As of mid-1996 it was becoming harder to find skilled programmers since many are going into the commercial services businesses at higher wages, and fewer programmers are being educated; however, SBL still has sufficient applicants.

Typhoon's early experience working in Russia was similar to that of other U.S. companies in that the Russian programmers demonstrated the capability to perform tasks similar to their American counterparts but with much less powerful hardware.

In late 1995, Typhoon was running at nearly a \$1 million annual revenue pace with about 10–20 percent profitability. 1996 showed an operating loss based on start-up costs of a new venture; however, 1997 projections show greater than \$4 million in revenue with a return to profitable operation.

As of September 1996, Typhoon was planning to hire about five to ten additional programmers. It expects this to bring it to the breakeven point in current operations since neither this nor considerable additional expansion will require additional administrative staff. It is training some of its programmers to be project managers, and an apparently very workable project structure is being maintained. The operations will actually be easier to manage when some of its projects grow larger. In addition to growth based on increasing the level of the same type of business it is engaged in now, it plans to introduce children's

educational software into Russia from the West. A third form of growth planned is the development of software packages for sale in Russia. Typhoon/SBL is also interested in functioning as an incubator for spin-offs from various Russian research institutes, with the intent of later forming joint ventures with these spin-offs.

SBL is owned 60 percent by Typhoon and 40 percent by Russian investors, including Berezin. Typhoon was founded by a group of private investors (Opp2) who financed it, with \$250,000, specifically to enter into this Russian software venture. Opp2 is a U.S. seed capital fund interested in high-tech defense conversion projects in the former Soviet Union. Typhoon has not been able to raise financing through any of the relevant enterprise funds or the private capital sources that fund projects in Russia; however, there is considerable interest in second-stage financing in the capital markets. It has been successful at obtaining additional funding as the venture expanded. Typhoon Software continues to be financed by private parties brought in through efforts of the founder, and is also investigating outside offers of financing.

Trade shows in the United States have been Typhoon's most successful marketing technique. Its customers through the end of 1995 were U.S. companies; roughly half are Fortune 500 companies. These include IBM, Honeywell, Harris, and Xerox.

In its initial marketing to U.S. companies, cutting programmer costs by a factor of two compared with U.S. rates was only marginally interesting to its potential customers. Cutting them by another factor of two, however, was an extremely strong incentive to work with Typhoon. In general Typhoon has found that it takes about a year to bring a new major customer on board. The first year of work is characterized by a fairly low level of activity which then accelerates as customers pleased with the results of the small projects move to larger orders. Since Typhoon has been in business a relatively short time, it does not have extensive data on the growth of business with a single customer; however, the early indications are very positive. The customers weigh the cost savings against the risks, which include the usual list of potential instabilities in Russia as well as the fact that the output of this work generally is a part of a much larger activity in the customer's company, and any delays or failures will have a far greater impact than the software contract value.

The key is that the U.S. customers can hold Typhoon responsible, both technically and contractually, which allows for quicker feedback and response than than would be available in working directly with a Russian company. In this way the customers get the major portion of the cost benefits of using Russian programmers without worrying about the details of doing business in Russia. This makes it appealing for these companies to work through Typhoon even though the investment for working on software themselves in Russia would be reasonably low.

In about 85 percent of its projects, the customer provides detailed specifications for the job (e.g., migration to new platforms). In these cases the work can be done on a fixed price basis. Sometimes even in the well-specified projects there is innovation (e.g., devising more efficient algorithms that the customers had not even requested), and this makes a dramatic difference in the performance of the software. One problem is that the customers must give Typhoon explicit specifications of what they want. This cannot be only conceptual specifications unless the customer understands that the purpose of the initial work is to help define the project. In these cases, the customer outlines its general objectives and relies much more

on Typhoon to define the project; that work is performed on a time-and-materials basis, and Typhoon can negotiate some royalties on future use since it takes more of a creative role.

At the beginning of Typhoon's work, as a result of having only U.S. customers, payment was made in the United States to Typhoon, which transferred money to Russia for salaries and other expenses. Since no profits were generated in Russia, there was no problem of profit repatriation. In 1996, Typhoon started to generate revenue in Russia from the domestic market, but as long as more of the business is in the United States, the Russian revenue can be used solely to cover ruble expenses. This will also allow SBL to achieve profits so that the Russian investors can see a return on their investment.

The main sources of competition appear to be (1) the establishment of other similar ventures, the numbers of which will undoubtedly increase; (2) similar software development businesses in India, where software outsourcing is already a large business sector (in 1995 India exported about \$1 billion of software); and (3) software development in the United States and other countries when the wage differential with Russia decreases. In regard to viable competition from India, Typhoon has already secured an order from one company that was not satisfied with the work that had been done in India.

Virtually all of Typhoon's revenue is currently generated by its software development projects for U.S. customers. It is reinvesting its operating profits, plus some of its investment capital, on larger, long-term projects to commercialize various technologies developed in Russian defense enterprises and research institutes. Typhoon's role in these projects is that of an intermediary; it attempts to obtain support for R&D and commercialization of these concepts and projects in exchange for an equity position. The main projects currently being pursued involve a satellite-based measurement system that has the potential to predict major earthquakes; equipment for detecting the presence of explosives; a chemical disposal system for stemming and remediating oil spills; a cold welding technique that would not change the electrical properties of several metals; and solid-state activation system robotic controls. It appears that additional capital will be required to sustain the administrative and marketing activities necessary to develop one or more of these projects into a profitable commercial business so that these efforts will not detract from the management and growth of the software business, which is still in a stage that requires marketing and business development.

Typhoon Technologies, based in the Cayman Islands, is a sister company of Typhoon that works on commercializing Russian technology for detecting plastic explosives in luggage and parcels. The technology was developed at the Krylov Institute in St. Petersburg, and manufacturing is carried out in St. Petersburg. Typhoon Technologies contracts with Finnish, American, and Russian companies for portions of the work. Myers was given commercial rights to the technology for the purpose of establishing an international joint venture. Typhoon has received a verbal commitment for the purchase of two machines.

The software business at Typhoon differs from that of other U.S./NIS cooperative ventures examined in that it is a U.S. start-up, founded by an entrepreneur who saw a business opportunity with low capital entry and is working with a Russian-American joint venture. The work is for other U.S. companies on a contract basis, unlike other software development ventures studied in this project in which the work is for their own company activities.* In this way, Typhoon serves as a sort of conduit. Its success at matching its

* David Bernstein, *Software Projects in Russia: A Workshop Report* (Stanford, CA: Center for International Security and Arms Control, 1996).

Case Studies: Typhoon Software

management and marketing knowledge with brilliant technical talent has proved to be a profitable formula for success.

A key feature of this cooperative venture is the very close, trustful relationship between the U.S. and Russian principals. It is an entrepreneurial venture for both, as opposed to the asymmetric relationships in many cooperative ventures, and each brings specific talents and resources to the venture.

Trimble Navigation Limited

David Bernstein, Elaine K. Wai

Trimble Navigation Limited, founded in 1978, manufactures products that use global positioning system (GPS) data for navigation, tracking, and mobile computing. The global positioning system is a group of satellites that circle the earth and beam signals back to earth continuously. These signals can be used to determine positions on the globe to a millimeter of accuracy. GPS was a \$687 million industry in 1994 and is predicted to reach \$5.4 billion by 2000. Trimble, which has one thousand employees, had sales of \$160 million for the first three quarters of 1996. The company began its navigation work with Loran products, another type of navigational system, and later branched into the GPS arena by purchasing a former Hewlett-Packard GPS program. Trimble now holds more patents in GPS solutions than any other organization, and its products are used in a range of activities that include land survey, seismic exploration, and aviation. The fastest growing segment of its business is mapping, which amounted to more than \$100 million of the company's revenue in 1994. Trimble has offices worldwide, including the Middle East, China, and Russia; its Moscow office opened in 1994.

The company's work in Russia, which began in late 1993, resulted from its desire to find a less expensive, technically comparable alternative to developing software in the United States. Trimble found software engineers in Irkutsk by word of mouth and began to communicate with Ozero, a component of a private company there called Bacus. In the summer of 1995, the employees of Ozero left Bacus and became a separate, employee-owned company with ten employees, located in Irkutsk. At the time, Trimble had just begun to work in Moscow with PRIN, another software company. PRIN is also Trimble's sales agent in Russia. Ozero was more cost effective for Trimble's software development work because of its smaller size and the lower labor costs in Irkutsk than Moscow.

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The venture project is the development of software for Trimble's hand-held GPS receivers, which are used for navigational purposes, primarily for personal systems. Ozero is developing enhancements for software already developed at Trimble. The receivers, which retail for \$1,100 each, are touted as having better navigational capability than what is available in commercial aircraft today. This receiver has been designed to also be capable of receiving signals from GLONASS, the Russian counterpart of GPS.

As of April 1996, Trimble became Ozero's sole customer, providing essentially all of its income as well as computer equipment for the project. Trimble's desire was for Ozero to work solely for Trimble so that Trimble could have greater control over its work; however, Trimble is not interested in taking an equity position. Trimble has been able to fully employ the staff of Ozero, but in the future this may limit Ozero's options for growth. Ozero also acts as Trimble's sales representative in Siberia following a negotiation with PRIN.

In the beginning of the venture, communications with Ozero were inhibited by the language difference and by the lack of telecommunications. These problems were mitigated as the Russians gained proficiency in English and the two companies held quarterly meetings (one in Russia and three in the United States). Electronic mail is the companies' most reliable form of communication. It has also been difficult for Trimble to ship equipment to Irkutsk and to acquire visas for the Russians, as these must be obtained in Moscow.

The exceptional code-writing capability of Ozero's Russian programmers allows them to be more creative than their U.S. counterparts. Although the creativity and quality of the engineers' work was high, however, their output per unit time was initially about one-quarter of that of U.S. engineers. By April 1996 this had increased to nearly one-half of that of their U.S. counterparts. This gain has been realized through increased familiarity with Trimble's software and objectives as well as through improved communications. Trimble has found that granting the engineers freedom in how they undertake tasks leads to better solutions than the imposition of tighter control over the project.

Productivity of the operation, including the logistical expenses, is an important issue. Trimble initially paid the engineers \$600/per person-month, though as of April 1996 they were being paid twice that amount. The increase was due to inflation and also because Ozero significantly underbid some of the earlier jobs. In 1996 Trimble was able to employ ten Russian engineers for the price of one in the United States. The project manager doubts that Trimble could have afforded to do this development work in-house. On balance, the project has been very cost effective for Trimble, even taking into account such expenses as travel.

In 1996 Trimble won a contract from the World Bank under which it will supply GPS-based equipment to a large surveying project in Russia. Trimble will provide both the equipment and service, including Russian language software and product manuals, training, and support. The Russian Land Reform Implementation Support (LARIS) project will survey 6.6 million square miles and will be the largest automated land information system in the world. The World Bank has earmarked \$80 million for the project,* and Russia will contribute \$35 million to finance the hardware, software, and other equipment.

* Kristen Bole, "Local Surveyor to Divide Up Former Soviet Empire," San Francisco Business Times 10, no. 42 (June 7, 1996), 1.

Ashtech Incorporated

Elaine K. Wai

Ashtech Incorporated is a privately held telecommunications company located in Sunnyvale, California that develops, manufactures, and markets global positioning system (GPS) products and technology for a variety of markets and applications. Ashtech was founded in 1987 and employs more than three hundred people worldwide in offices in California, Montana, Virginia, England, Hong Kong, and Russia. Ashtech employs Russian engineers in Moscow to develop a portion of its products. In recent years Ashtech's sales have passed the \$30 million mark.

Ashtech designs and manufactures systems that provide precise positioning anywhere on the surface of the earth for use in accurate navigation and surveying. Ashtech is considered a leading provider of precision global positioning solutions, with customers worldwide in the governmental, geodetic, navigation, and research communities. Recently developed products include the Reliance Processor Version 1.40 and the Psion Workabout hand-held device for data collection. In September 1996, Ashtech signed an agreement with Matsushita Electric Works of Japan to create GPS products for worldwide distribution. Matsushita gained a small (less than 5 percent) equity interest in Ashtech. In May 1996, Ashtech introduced the first dual satellite receiver (GG-24), which utilizes both the U.S. GPS and the Russian GLONASS navigational systems, which were originally developed for military applications but are now available to commercial users. The receiver was developed in large part through contracts with Russian scientists but is being manufactured in the United States. The primary advantages of a dual system are (a) to provide more satellites in view by a ground observer at a given location, and (b) to provide increased accuracy of positioning when ground-based differential corrections are not being used.

Having more satellites in view is important because satellite signals can be blocked by trees or buildings, and a larger number of satellites is needed to get both high accuracy and fast acquisition of a position. The increased accuracy of the dual system also stems from the

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fact that the U.S. government may degrade the transmission accuracy of GPS to civilian users for security reasons, but this is not done with GLONASS. The result is an improvement in stand-alone accuracy from perhaps one hundred meters (GPS alone) to about thirteen meters when the systems are combined. The U.S. government has not raised any objection to this approach, and in fact agencies of the U.S. government have expressed interest in purchasing the product. The receiver is being designed for worldwide civilian use, and has been sold both in the West and in Russia. Major markets are predicted in both sea and air navigation, which are expected to switch increasingly to satellite navigation systems, as well as land surveying.

In 1994 Ashtech opened an R&D office in Moscow which today employs more than seventy-five scientists, engineers, and support personnel. This office performs design and analyses on a variety of GPS and GLONASS products and technologies in both hardware and software. Previously, the Moscow office had a consulting contract with the Institute of Precision Mechanics and Computer Technology, the parent institute of the Moscow Center for SPARC Technology.¹ Under this contract, a significant number of Institute personnel worked on a variety of hardware and software projects in Moscow, often in concert with Ashtech's Russian employees. This contract came about because the Russian government severely reduced funding to the Institute in its previous role, which forced the Institute to look for commercial work for private companies.

Ashtech no longer contracts with IPMCE. Currently it employs only individuals through its Moscow offices, and a few independent consultants from various universities. However, from time to time Ashtech purchases PC boards and/or board construction work from a segment of IPMCE on a project-by-project basis. The employees work on projects managed by a hierarchy of on-site Russian managers. In most cases a project manager is assigned in the United States to coordinate and facilitate communications with a Moscow program. For all projects, final quality control and document release to manufacturing is handled in the United States. Specifications provided by U.S. marketing personnel and frequent visits (in both directions), phone calls, and electronic mail exchanges help to keep the programs on course.

Ashtech rents space in two locations in Russia, both in Moscow. The majority of its employees are housed at Patrice Lumumba University. The remainder are at Park Place, a Western-style building in southern Moscow. Since Ashtech no longer contracts with or employs institute personnel, it has no obligations for rent or floor space with any institute.

Ashtech owns all the assets in its Moscow operation, including intellectual property. As in the United States, the inventors might have their names on the patent but the company reserves all rights to the product. Several patent applications are in progress for both U.S. and Russian inventors. The strongest aspect of the Russian work is in product design rather than manufacturing. No manufacturing is carried out in Russia. Ashtech shares its core technology with its Russian employees, and in addition creates key technology in Moscow. Ashtech's Moscow sales office, staffed by Russians, is doing well.

In addition to its receiver work, Ashtech is involved in software and hardware projects, a number of which have already been completed. It is working on projects involving scientific and mathematical problems.

Though Ashtech has not faced insurmountable barriers to its work in Russia, it has encountered several problems that hinder its work. Delays in shipping hardware to and from Russia have held up critical projects. Any items that are needed can be brought into Russia, but the time to do so can be lengthy. Second, learning to function with respect to government procedures for common commercial activities requires a knowledgeable Russian worker in the company. Such everyday items as taxes, permits, and contracts cannot be handled efficiently by an outsider. Another problem is obtaining supplies or components locally. Common parts or raw materials often are unavailable and must be shipped from the United States with substantial delays. Common services, like machine shop work, are similarly hard to locate.

As with most cooperative ventures, Russian and U.S. companies approach tasks differently. The average technical worker in Russia is unused to the tight project schedules of U.S. companies, especially ones with short product life cycles, functioning in a competitive market. Until trained otherwise, a Russian worker often tends toward a more academic work style rather than one directed toward immediate, predictable results. Russians also approach contracts differently; in a country where making a profit is still a relatively new concept, contracts can be negotiated without regard to performance, which rarely happens in the West.

Ashtech has observed that the Soviet environment did not prepare its technical workers with the industrial skills common in competitive commercial environments (although their technical education is superior to many Americans' in both breadth and quality). While labor rates for very talented people are low by Western standards, overall costs can be far higher than suggested by salaries due to a host of other inefficiencies.²

Methods of starting projects differ as well. In the United States, clear specifications are commonly believed to be necessary prior to starting a project. In Russia, they often are not considered necessary for work to begin, and can sometimes continue to evolve right up to the end of the job. This can quickly degenerate into both schedule and performance disappointments, as work has to be redone to catch up with the evolving specifications. Though Ashtech has found a high level of technical expertise and know-how in Russia, the ability to complete projects on schedule has been lacking. The company has found, however, that training and goal-setting have led to success in this area.

In developing products, the ability to communicate clearly is key to the success of the project. Communication between groups of engineers can be difficult due both to language misunderstandings and different general goals. Customer and schedule orientation, for example, can make a tremendous difference in the way two different workers assess what should be done next in a project. Ashtech has been trying to set up video conferencing to facilitate coordination, but until very recently was not able to obtain ISDN there.

Ashtech's work in Russia is progressing well and is contributing directly to some of Ashtech's products. The Russians' excellent capability in design is the primary attraction of the venture, but it must be properly managed in order to yield in a predictable time frame a finished product with minimal bugs. This is where the challenges most often lie. An additional challenge arises when it is necessary to design for Western manufacturing of a hardware product. There is not much experiential base in this, and considerable training is usually needed before achieving success.

Notes

¹ See the case study on the Moscow Center for SPARC Technology in this section.

² See the Typhoon case study in this section.

Intel Corporation

David Bernstein, Elaine K. Wai

Intel Corporation, a \$20 billion company, is the world's largest chip maker and produces networking, personal computer, and communications products worldwide. Intel has two principal activities in Russia: product sales and sponsored research. Its primary long-term objective in Russia is to increase sales of its microchips, but this market will take some time to reach its potential. Intel opened its first Russian sales office in Moscow in June 1991 and also has offices in St. Petersburg and Novosibirsk, Russia; Kiev, Ukraine; Minsk, Belarus; and Almaty, Kazakstan. For the first three quarters of 1996, Intel's sales in Russia amounted to \$100 million.

On the research side, Intel began working with the Russian Federal Nuclear Center (VNIIEF) at Arzamas-16 (now Sarov) in June 1992, giving them one small project. Initially there were ten people working on the project. The program, consisting entirely of software development (including the development of digital signal processing libraries), has expanded steadily. By 1995 there were thirty-five researchers engaged in this project. All the technical work is done by VNIIEF employees on contract. The contract is with the institute, and there is no subsidiary business entity at this time. The management at VNIIEF feels very strongly that U.S. companies should contract only with Russian institutes directly for projects of this type, and not with spin-offs or individual researchers. They believe that if the work is contracted to a spin-off or to individuals, the institutes and the scientific base in Russia will be destroyed, even if the institutes own a portion of a (private) spin-off and receive payments for rents and overhead services. Intel is trying to help VNIIEF establish an independent business that could have other customers as well.

Intel owns the results of the research, but VNIIEF has the rights to market binary versions of the software in the former Soviet Union. The workers have signed over their intellectual property rights to the institute, which has in turn signed them over to Intel.

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The technical work has been quite successful. Intel is very careful to maintain the highest quality in the software. The research budget at VNIIEF dropped 30 percent per year each of the three years prior to 1995. It has stopped most large science projects in favor of more labor-intensive software projects. Intel hopes to diversify and establish relations with other Russian institutes.

Intel is planning to begin a second software development project in Nizhny Novgorod. The company has offered to assist Russian computer manufacturers by providing its technologies and architecture for development of more advanced software; it has also assisted in advising various Russian banks and organizations on information technology.

Intel's sales office in Moscow is small and primarily handles liaison and facilitation. Its staff members, all of whom are Russians, are Intel employees.

Other Sectors

Leninets

Baxter International

Caterpillar

Istok Audio International

Obukhov

Svetozor

RAIES International

Svetlana Electron Devices

Science Applications International Corporation

Leninets

David Bernstein

This study differs from the others in that it focuses less on specific cooperative ventures than on the comprehensive restructuring process that one enterprise, Leninets, has implemented. This process enabled Leninets to revitalize much of its business and convert from military production, as well as to establish and operate several successful cooperative ventures.

Leninets, located in St. Petersburg, evolved from the consolidation of many small enterprises prior to World War II. Until the mid-1960s it functioned as separate state-owned enterprises with some degree of operational cooperation. In the mid-1960s the state policy promoted centralization. The general director of one of the enterprises, L. Zaikov, pulled Leninets together. (He was also mayor of Leningrad and went on to become a member of the Politburo.) In 1971 Leninets became the first legal scientific production association (NPO) in the Soviet Union. It started with the merger of two enterprises, and over the next few years several others joined. All of them were engaged in electronics. In the final stage a scientific research institute was brought in. This process was completed in 1974, and the enterprise was given the name Leninets, which previously was the name of one of the constituent plants. The constituent parts lost their individual legal status and became parts of Leninets, the sole legal entity. It then had the integrated capability to do research, development, testing, design, and production. In addition to losing their legal identity, the constituent parts gradually lost much of their operational and organization identities; some staff and activities moved across the (previous) internal boundaries.

In practice it was difficult to modernize the facilities and operations in the large centralized form because, in typical Soviet fashion, too much of the authority and decision-making was concentrated centrally at the top of the organization, far removed from the day-to-day problems and issues. In particular it was difficult to control and reduce costs (though this was an atypical desire in Soviet enterprises). Leninets decided that it was necessary to

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decentralize organizationally and economically, but not geographically, since it wanted to maintain the technological chain.

In the mid to late 1980s the Soviet Union began a push to increase the production of consumer goods. To modernize and better manage civilian production, some of it was transferred to the defense enterprises. Every plant within Leninets rearranged its activities to produce some consumer goods, on the basis of state orders. The general director, Anatoly Turchak, viewed conversion in the sense of complete factory conversion as far too expensive.¹ Instead, Leninets set up new business units to utilize some of the technology, manpower, and facilities of the old operations. By the end of the 1980s this conversion within Leninets was quite successful, whereas in many enterprises state-mandated conversion was unsuccessful, and the program had little macroeconomic impact. In 1989 Leninets began to reorganize the NPO, which had previously had a very stringent centralized administration. While the design bureaus and production factories had no independent legal status after this decentralization, they did have a considerable amount of operational autonomy. Any major enterprise reorganization involving the creation of legal entities traditionally was initiated at the ministerial level, not by the enterprise management. Soviet laws were strict in this regard, and ministerial approval was generally required for major reorganization. Leninets personnel estimate that it would have taken two to three years to obtain ministerial approval, especially since the proposed restructuring was counter to the Soviet philosophy of enterprise organization. In order to facilitate the process, they went ahead and decentralized the operations within the single legal entity while simultaneously entreating the ministry to approve decentralization into multiple enterprises, each of which would be a legal entity. During this two-track process, which appears to have accelerated the approval process, each plant was encouraged to become capable of producing finished products in anticipation of becoming a distinct (legal) enterprise.

On this basis Leninets set up groups of factories to start working toward privatization. It also changed its accounting, marketing, and management policies and procedures to be more suitable for operation in a market economy. Military activity accounted for less than 20 percent of production in 1995, whereas it was 90 percent as recently as 1991. Since this was long after the major reductions in military procurement, it implies that the civilian side has grown significantly. A large portion of this is probably sales growth of a joint venture with Gillette. Leninets attributes this success to several factors: the high level of its technology; staff discipline; and an effective staff education and training program, both on-the-job and external training, including some training in the West. The management's approach to integrating these assets was the major factor that differentiated Leninets from many other military amalgamations with comparable levels of technology. In particular, Leninets realized that conversion required training at all levels of management and operations.

By the end of 1990 the ministry had approved the restructuring, and Leninets split into thirty-two separate legal enterprises; this grew to forty-two by the end of 1995. They were united, however, through a headquarters entity. The main function of the headquarters was to coordinate activities so that the daughter enterprises would not lose their capability to produce as a result of the decentralization. Having realized that it was necessary to train the managers of the daughters, the management at headquarters started a comprehensive training program that included sending some managers abroad through various Western

technical assistance programs. The decentralization was more than symbolic in that Turchak gave the subsidiary managers much more autonomy of operations than was customary in Soviet enterprises. Headquarters set general goals and delegated considerable operational authority to the managers.²

After the Soviet Union passed a law in 1991 authorizing the privatization of some industrial enterprises, Leninet had its daughter enterprises privatized; this appears to have been a key factor in helping them to adapt to the changing circumstances.³ In privatizing, Leninet did not want to sell a controlling interest in any of the enterprises to unknown owners, so they chose to give the headquarters company controlling interest. This was unusual under Soviet law, which called for the public sale of all shares, but it was not actually forbidden. In general, headquarters held 50 percent of the voting shares; this was 37.5 percent of the total shares, since 25 percent was nonvoting stock that was given to the workers. These nonvoting shares had the right to a fixed dividend. The 37.5 percent enabled headquarters to influence major strategic decisions and to have a strong, if not dominant, role in elections to the boards of directors. Nonetheless, as noted previously they left most operational decisions to the managers of the subsidiaries. Thirty percent of the stock was sold in a closed subscription to pensioners and others close to the enterprise. Shares were sold for 70 percent of the nominal value. The balance of the shares were sold to the public. The headquarters' holdings were acquired from both of these two groups of shares. Many of the shares offered to the public were actually bought by the workers and managers, who better understood and held confidence in the daughter enterprises. Therefore, practically speaking, most of the stock stayed closely held even though the firms were each registered as open joint-stock companies.

Here again Leninet had to work with the (Soviet) state, in this case the State Committee for the Administration of State Property (Goskomimushchestvo, or GKI), to formulate the necessary legal mechanisms. Since the state was not willing to privatize such a strategic enterprise, Leninet suggested that the headquarters be constituted as a state-owned holding company, which would hold a majority share of the voting stock in each subsidiary. This would preserve the ability of the subsidiaries to function as independent business entities, which appears to have been Leninet's primary objective. It further offered to sell a few percent of the stock to the public.

Leninet's legal staff spent several months in Moscow explaining the approach to the GKI and persuading it to endorse it. Several other enterprises engaged in a similar process, and this became the basis for the legal structure of holding companies. In October 1992 the relevant legislation was finally enacted, and on December 11 Holding Company Leninet was registered as a joint-stock company in St. Petersburg. The holding company structure was based to a considerable degree on the German model. Since then Leninet has also established additional subsidiaries, and some outside enterprises have sought to be acquired by Leninet. The decision to incorporate a holding company in Russia was made on the advice of Coopers and Lybrand, which did extensive management consulting for Leninet, beginning in February 1991. McKinsey & Co. advised Leninet to decentralize its operations to make them more suitable for attracting foreign investors. This also provided a mechanism for Leninet to acquire many small enterprises engaged in consumer goods manufacturing

when the Ministry of Light Machine Building, which controlled these enterprises, was dissolved.

After the breakup of the Soviet Union, Leninets worked with the Russian government to formalize the privatization (and decentralization) steps that had already been accomplished and to complete the process. Completion of the privatization process was expected by February 1997. While the company has focused on creating the optimal organizational structure for business, it also has addressed subsidiary issues that include staff morale and the task of sorting out the tangible assets and intellectual property rights of the legal entities. For example, there are several scientific institutes under the holding company umbrella, but the commercialization of much of their technology is carried out by the production-oriented subsidiaries, which also utilize some of the facilities of the institutes. In addition, several of the enterprises were reluctant to join the holding company and had to be persuaded. Their participation was needed to maintain the overall technical capability. Problems of this nature have increased the reluctance of the (Russian) GKI to allow some state-owned enterprises to spin off privatized subsidiaries.⁴ Leninets' early start undoubtedly helped its case; in fact, much of the basis of Russia's privatization Option 1 is evident in Leninets' original approach to privatization. There have also been problems in the equitable allocation of real estate. Lastly, Leninets management had difficulty convincing the city government that St. Petersburg still needs an industrial base even though much of the commercial base of the city has shifted away from industrial production.

The holding company staff numbers about three hundred out of a total staff of somewhat less than twenty thousand. Leninets has organized the daughter companies, which remain legal entities, into six strategic business units along product lines (transportation, telecommunications, consumer goods/appliances, ecology, medical equipment, and financial services).

Each strategic business unit has a board to determine strategy. Strategies for the next five years are based on market research, analysis of competition, the nature of strategic partners, etc. Leninets also has a central strategic council to plan for the holding company as well as a science and technology council. Strategic planning is performed primarily by young experts trained in market-oriented business practices. In time the six units will all be legal entities as well. The holding company continues to operate its own college. In spite of the reductions of staff size over the past several years, Holding Company Leninets continues to hire new graduates. It also has established other organizations characteristic of a capitalistic business, such as a private pension fund, a medical insurance program, and a unit to handle stock registry.

It is interesting to note that the restructuring was begun in the mid-1980s in response to a demand shift (away from military products) within the command economy. Because many of the elements of restructuring were designed to respond to market forces, however, and because the management was flexible, receptive to change, and committed to extensive retraining of personnel, Leninets has effectively adapted to a demand shock and the virtual disappearance of the command economy.

Leninets realized in the late 1980s that its economic future depended to a considerable degree on finding foreign business partners. Its partners are from many countries, including Sweden, Hungary, Tunisia, Norway, the United States, Finland, France, and Italy. The

decentralized structure of Leninet contributed to its ability to attract and work with such partners.

One of Leninet's first cooperative ventures with a U.S. company was the joint venture Petersburg Products International (PPI), formed in 1991 with Gillette, an American manufacturer of shaving products. Gillette owns 65 percent, and Leninet 35 percent. The product, disposable razors, is sold mainly in the former Soviet Union. The technology for this venture, which was profitable after the first year, comes from Gillette. PPI employed 150 people as of May 1996. In July 1996 Gillette and Leninet made a strategic decision to bring several related product lines into PPI. To implement this decision Leninet placed its enterprises involved in manufacturing shaving products under the aegis of PPI, which expects to capture 80 percent of the Russian market. Through its wholly owned subsidiary, Gillette International LLC, Gillette is also marketing other consumer products in the former Soviet Union under the Braun, Oral-B, Parker, and Waterman trade names.

Leninet also has established ventures with Texas Instruments and with Rockwell International on projects sponsored by the U.S. government. It has a venture with Intelligence Resources, Inc., a small U.S. software development company, to develop and commercialize new technology-based software for management, production, manufacturing, or service.

In addition, Leninet has a joint venture with International American Products, Inc. to produce dental chairs. This venture is partially financed by the Cooperative Threat Reduction (CTR) program (sometimes referred to as Nunn-Lugar) of the U.S. Department of Defense; it is one of the so-called "Fast Four" projects established to assist in the conversion of Russian defense enterprises. The Fast Four were studied only peripherally in our project, but many lessons about cooperative ventures can be learned from them.⁵ The main lesson is that the Fast Four procurement, which provided partial financing as an incentive for the companies to undertake these projects, was the pacesetter in the initiation of the projects. As a result the partners formed neither a solid relationship nor a business plan on which to base the venture. For this reason this cooperative venture was not as successful as many of the others at Leninet. Although this lack of a sound relationship has caused Leninet some discomfort, it feels the project has added to its understanding of working with American companies.

While Leninet has placed considerable emphasis on establishing cooperative ventures with foreign companies and has been quite successful on balance, most of its mature cooperative ventures, with the exception of the Gillette venture, are with European partners.

Notes

¹ Anatoly Turchak became general director of Leninet in 1985, and he initiated these changes.

² See David Bernstein and William J. Perry, "Defense Conversion in Russia: A Strategic Imperative," *Stanford Journal of International Affairs*, Volume II, Issue 2, Summer 1993.

³ In July 1991 the Soviet Union Supreme Soviet passed a law establishing the basic foundations of denationalization and privatization of enterprises. Practically the identical law was passed by the

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Russian Supreme Soviet a few days later. These laws foresaw workers receiving discounted shares in the enterprise in which they worked.

⁴ See David Bernstein, editor, *Defense Industry Restructuring in Russia: Case Studies and Analysis* (Stanford, CA: Center for International Security and Arms Control, 1994), pp. 114–115 and TsAGI example, pp. 123–125.

⁵ See David Bernstein and Nicholas Carlson, *A Report and Analysis of the “Fast Four” Defense Conversion Projects*, U.S. Department of Defense, January 1997.

Baxter International

David Bernstein, Michael Higgins, Marnie Tobriner

Baxter International produces medical products and services in four primary business areas: biotechnology, cardiovascular medicine, renal, and intravenous systems and products. Baxter's total sales in 1996 amounted to \$5.4 billion, with the bulk of its international sales occurring in Latin America and Asia.

More than half of Baxter's sales comes from international business, so targeting the Soviet market was in keeping with its strategy of entering markets in developing economies. In entering a country, Baxter normally starts with distributorships, moves to direct sales and marketing, and finally sets up manufacturing after the existence of an adequate market has been established. In the case of the Soviet Union, it started with manufacturing. This was done partly because in 1989 Baxter consultant Cannon Associates felt that the potential market justified moving directly into manufacturing, and partly because this was expected to help facilitate its entry into the government-controlled market.

NIIAP

In 1989 Cannon identified for Baxter a potential partner, the Scientific Research Institute of Automation and Instrument Building (NIIAP), which is the research arm of the Scientific Production Association (NPO) of Automation and Instrument Building, located in Moscow. The NPO, under the Ministry of General Machine Building, comprises both an institute and a production plant, each with about eight thousand employees. Its main business before the breakup of the Soviet Union was the design and production of components for missile and

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space programs. The components included guidance, navigation, and flight control systems for a wide array of ballistic missiles, space launch vehicles, and spacecraft. The NPO also made a variety of civilian products including control systems for nuclear power plants, petroleum cracking plants, gas storage facilities, and other industrial facilities. In addition, it produced equipment for the health care field, such as precision electromechanical systems for eye surgery, artificial kidneys, blood circulation units, ultrasonic diagnostic equipment, and many others.* By 1993, state defense orders reportedly had dropped to only 10 to 15 percent of NIIAP's total revenue.

NIIAP's background in the medical field was a strong factor in Baxter's selection of it as a partner. Within the NPO, NIIAP's production during the Soviet era was limited primarily to unique products for onetime uses and therefore did not enter the commercial market.

Baxter looked at two other potential partners, but NIIAP was the clear choice because of its skilled labor, low-cost manufacturing capability, and experience in the medical field. Even more significant, NIIAP management seemed to have the most realistic idea of what it meant to adjust to a market economy and to cooperate in a joint venture.

MosMed

In keeping with its past approach to international expansion, Baxter created a joint venture with NIIAP, called MosMed, in September 1993, with Baxter holding a 75 percent majority interest. The decision to establish a joint venture was made at the top corporate levels at Baxter, and Thomas (Tim) Walsh, director of manufacturing and supplier management, who previously had set up Baxter facilities in Japan and Mexico, was asked to lead the effort. The negotiations started in 1990, and naturally involved the Soviet government. They were slowed by the attempted coup in 1991, but were restarted thereafter. A key Russian government official was involved in helping with the negotiations, but the government has not been involved much since the joint venture was established. In retrospect, Baxter wishes that it had kept the state more involved, since the government is still the primary customer for most health care products, and there are other issues involving relations with the government. For example, Russian taxes are high, and when Baxter agreed to the MosMed charter in early 1993 it was not supposed to be taxed on the charter capital. By the time the charter was actually signed, however, VAT was included. Even though it does not (as of mid-1996) have to pay VAT on its products, bills were being considered in the Duma to have the VAT applied to pharmaceutical supplies. MosMed started operations essentially on a handshake before the lawyers worked out the formal agreement. This did not involve a great deal of investment and resulted in little risk while providing momentum and a spirit of trust.

MosMed is located in a portion of NIIAP's facilities. Baxter's total investment in the venture was approximately \$5.5 million. At this level Baxter chose to put up the investment itself. Baxter provided the capital and product designs, and NIIAP provided facilities and equipment. The institute at NIIAP will not be privatized, although the plant is attempting to privatize.

MosMed began operations with six people from NIIAP. These employees ranged in age from about twenty-five to about forty. As the venture has progressed, most of these have

* U.S. Department of Commerce, Russian Defense Business Directory, 1995.

advanced to become group leaders and, in one case, a plant manager. The venture now employs about eighty Russians (twelve from NIIAP) and has very low turnover. Baxter brought the six original employees to the United States for twelve weeks of training in U.S. production techniques, and also used this time to help cement personal ties with them. This included the involvement of five Baxter employees who were native Russians. The Russian group also developed a work ethic and sense of pride in their work that has paid rich dividends. The mutual respect established is critical to the operations, and communications since the training have been smooth. Baxter has also placed a Baxter employee in the MosMed facility.

Production

MosMed started by producing ring handle forceps that conformed to a standard Baxter design and quality specifications. It has since expanded the product line to include about thirty-seven other surgical instruments. Baxter has worked to find suitable Russian sources of materials, such as the specific grade and quality of stainless steel needed. The venture uses German steel and forging but had (as of mid-1996) identified a Russian supplier and hoped to switch to it. This is partly for reasons of economy and partly because Baxter and MosMed want the plant to be self-sufficient using Russian inputs. MosMed has also applied for TUV (a rating system based on standards for the European market) certification of its products, which will give them the markings of internationally accepted standards and allow MosMed to sell them worldwide.

Production costs are considerably less than in the United States or Western Europe, but considerably higher than for products from Russian companies that do not meet these standards. As a result of this and of the lack of funds to purchase such products in Russia, Baxter exports about 95 percent of MosMed's output from Russia for marketing in the West, although the products were initially intended primarily for the CIS (Commonwealth of Independent States) market. In late 1995 MosMed was delivering about thirty thousand units per month, and had started a second shift.

NIIAP has proven to be a good partner in that it has tried to make the venture succeed in the interest of long-term profits rather than trying to extract maximum rents from the joint venture, as some Russian parent enterprises have done. NIIAP has been a rather passive partner, which gives Baxter a free hand; however, Baxter would actually prefer NIIAP to be somewhat more active since it is knowledgeable about the Russian business environment. There is some dividend stream to NIIAP, but Baxter feels that because of NIIAP's immediate survival problems it would have been wiser had they structured the deal so that NIIAP could have also had a modest amount of money up front. This arrangement could have been designed so that NIIAP would perform certain contractual tasks, and Baxter would have paid it for the deliverables. This may have stimulated NIIAP to be a more active partner. Baxter has since attempted to address NIIAP's cash concerns by arranging a favorable loan that NIIAP can repay through its share of future earnings.

In 1995 sales of MosMed products amounted to roughly \$1.5 million. MosMed expects to get a return on its investment in about three and a half years from the time that the joint venture started. This is about a year longer than originally expected, but is acceptable to Baxter. At a minimum Baxter feels that it has established itself in Russia for a reasonable

investment so that it will be in an excellent position to expand its activities when the market and supplier issues warrant it. The reversal of Baxter's usual entry strategy in a new country—that is, starting in Russia with manufacturing prior to opening a sales office—has been successful. MosMed is a highly successful venture for Baxter and it is eager to see production increase.

Additional Work

In addition, Baxter started a separate new company focusing on sales and marketing in Russia for all Baxter products and services. This company, Baxter Russia, is managed by an expatriate from the United States, and as of 1995 had annual sales of roughly \$7 million.

In the near term, MosMed will continue to produce only surgical equipment and products, and hopes to increase its production of current products. Baxter also is exploring the manufacture of a totally different product line at MosMed. Today, Baxter Russia imports a full range of finished products for sale in the former Soviet Union. As its market grows, it becomes cost prohibitive to import some products such as intravenous solutions, and therefore local manufacture is required. There is a great need for these products in Russia, but the money to pay for many of them is not yet available. This venture would require a much larger investment as it would involve a complete clean wet (solution filling) facility and supplies of various chemical constituents. It would also eventually require plastic fabrication facilities for the inert components of these products, such as fluid containers. All of the items produced would have to meet Baxter's purity and quality control standards. Even if the product were exported, the problem of finding suitable inputs would still exist, and much of the cost advantage would be lost if those inputs had to come from the United States or other Western sources. This investment could be on the order of \$20–30 million. For this venture Baxter may seek outside financing. This project is in an exploratory stage at this time because of the lack of a clear market and the magnitude of the investment. Nonetheless, Baxter is exploring possible partners for this type of venture, as it does not fit logically with MosMed.

Baxter also manufactures other medical equipment, and is considering the possibility of having some components and/or products manufactured in Russia. This is in the early stages of exploration. While these additional ventures are still tentative, Baxter continues to believe that it must have a presence in the Russian (CIS) market, and that it will be a market for much of the breadth of the company's product lines.

Caterpillar

David Bernstein

Caterpillar, Inc., headquartered in Peoria, Illinois, is a \$16 billion company that produces heavy earthmoving equipment, turbines, and diesel engines. Caterpillar has been active in Russia since 1992. International orders account for half its sales, and are growing faster than domestic sales. Sales to China and Russia offer considerable growth potential, and Caterpillar considers it essential to be in Russia early. It currently has fifty-four thousand employees worldwide, with forty thousand of these in the United States. It has marketing groups in eight countries, parts distribution centers in eleven countries, and manufacturing plants in fifteen countries. Caterpillar distributes its products through 186 independent dealers around the world. This dealer network employs another seventy-four thousand people. This infrastructure supports about 500,000 machines and 700,000 engines worldwide.

In the 1920s, Caterpillar collaborated with Soviet tractor manufacturers by supplying diesel engines. Caterpillar started selling tractors in the Soviet Union in 1929 and started negotiations with the Supreme Council of National Economy in 1930 to provide technical aid required to build three factories. In the late 1960s, Caterpillar and other Western manufacturers entered into agreements with the Soviet Union to provide large volumes of construction equipment. Caterpillar opened a business office in Moscow in 1974, and due to this early entrance in the market, secured a foothold as the leading provider of imported heavy equipment in the Soviet Union. In the early 1980s U.S. export controls prevented Caterpillar from fulfilling its contracts, resulting in damage to Caterpillar's reputation as a reliable supplier. These restrictions were removed in the late 1980s, and Caterpillar reentered the market in the Soviet Union.

Caterpillar currently has four offices in the former Soviet Union: in Moscow, St. Petersburg, and Khabarovsk in Russia, and in Almaty, Kazakstan. It has also started setting up dealerships for sales as well as for service, which is an essential component of a

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distribution network for its types of products. In addition to its sales and distribution work, Caterpillar has sought four joint ventures in Russia: Nevamash, UNOC Equipment and Supply, Novotruck, and Novodiesel.

Caterpillar's Joint Venture Strategy

As it has in many other countries, in setting up manufacturing facilities in Russia Caterpillar chose whenever possible to create joint ventures with majority ownership. This was done mainly to preserve Caterpillar's standards and quality control. It prefers that joint venture partners be privatized, but it recognizes that Russia differs from other countries, and it is examining this strategy in light of these differences.

The decision to try to enter the market in a new country is a joint decision of the business units (product lines) and marketing companies around which the company is organized. A multi-discipline team evaluates the options, negotiates the best alternative, and carries this through implementation. When this process is completed, the business units take over that operation and set up manufacturing in additional countries, such as Russia, primarily to assist their market entry. Caterpillar has adequate capacity worldwide, as does most of its industry, so it does not look to Russia to provide additional capacity. Caterpillar plants in Belgium and France, with 3,100 and 1,500 employees, respectively, handle most of its production for the European market and do so very efficiently. It does not think that finished products could be produced less expensively in Russia if the costs of technology transfer and the costs of downsizing other facilities that are currently doing that manufacturing are included. Therefore its manufacturing work at the Nevamash joint venture in St. Petersburg is limited, at this time (September 1996), to production of certain components for the European plants and to the building of a manufacturing foundation capable of providing domestic value added required by the marketplace. At mid-1996 production levels the Nevamash components shipped to Belgium for assembly did not have a substantial cost advantage. The high inflation and the rate of ruble devaluation caused much of this problem. The East-Central European countries are becoming more cost effective than Russia. Russia's tax structure exacerbates the problem. At the present Caterpillar looks at the former Soviet Union as an incremental market, although it expects greater growth in the future. Caterpillar is reported to have had sales in excess of \$200 million in the former Soviet Union in 1993.*

Nevamash

In the late 1980s Caterpillar was interested in establishing a production facility in the Soviet Union, and had been approached in 1988 by a Soviet ministry regarding a joint venture with a Russian enterprise, Kirovskiy Zavod. This did not materialize then because of the nature of

* "Caterpillar Forms Venture to Build Parts in Russia," Reuters Asia/Pacific Business Report, February 7, 1994.

the planned economy. After the collapse of the Soviet Union, Caterpillar reinitiated its effort to establish a venture with Kirovskiy Zavod, which had strong management and was making the transition to the market more effectively than many other Russian enterprises. Caterpillar did survey the industry for other possible partners, but Kirovskiy Zavod was the strongest non-competing possible partner. Its equipment and production processes for the tractor and tank lines appeared to be well suited for producing components of the quality desired by Caterpillar. Therefore, Caterpillar chose Kirovskiy Zavod because of the previous negotiations, its management team, location, and process capability. Nevamash is the joint venture, created in February 1994 between Caterpillar and Kirovskiy Zavod. Caterpillar owned 65 percent and Kirovskiy Zavod 35 percent. Kirovskiy Zavod's contribution to the joint venture was mainly plant space. This space required considerable renovation. Kirovskiy Zavod had previously produced both agricultural tractors and tanks. Nevamash is not producing tractors but is manufacturing base frames used in excavator production in the Caterpillar plant in Belgium. Historically, construction equipment plants in the Soviet Union produced 100,000 to 150,000 units per year, which was equal to the entire production in the rest of the world; however, the Soviet-built equipment did not last as long as units produced elsewhere. Estimates are that the future market in the former Soviet Union will return to only about 25 percent of historical rates, although adequate funds are currently not available for purchases at this level.

Nevamash is turning out a quality product, and by the end of 1995 it had met its objective of producing one thousand units with ninety employees, using Russian steel. The employees are not all transfers from Kirovskiy Zavod, although some who had left Kirovskiy Zavod returned to work at Nevamash.

Caterpillar is finding it difficult to develop a network of suppliers in Russia; primarily small suppliers, but even suppliers for the grades of steel called for in the Caterpillar designs. The old system's large vertically integrated companies are not yet able to fulfill small orders cost effectively with consistent quality. These companies may have the technology but not the cash to adapt their processes to smaller quantities and to be responsive suppliers. Caterpillar is working with several companies to develop them as reliable suppliers. Initially, Nevamash had to import the required steel plates from Europe; with Caterpillar's assistance, however, it has now been able to work with a Russian steel mill to obtain steel plate that meets Caterpillar's specifications.

As of September 1996, Nevamash production was conducted on a three-shift basis. It has shipped 1,500 excavator base frames thus far with no rejections. Although there would be economies of scale at higher production levels—more units and/or more products—it already has achieved a substantial cost advantage, even when its output is shipped to the Belgian plant for assembly. Nevamash's output is achieved with a total staff of one hundred. There is an office and management staff of fifteen which could support much higher levels of production. Production labor was only about 10 percent of total cost. Energy has been a very large cost factor. This was as high as \$40,000/month in the winter of 1995–96 because of Nevamash's building, which is forty-three meters in height whereas ten meters would be sufficient. These energy costs were incurred even though some days the building was only heated to about 0° C.

Like many Russian companies, Kirovskiy Zavod is faced with short-term needs for cash. Kirovskiy Zavod has about thirteen thousand employees, down from a peak of about thirty thousand. It has three basic product lines: tractors, turbines, and metals processing (rolled steel, forgings, etc.). The tractor production is continuing, as is the metal processing, but production is substantially below 1990 levels. In the turbine business it has negotiated a joint venture with General Electric, but operation is believed to be contingent on receiving orders, and apparently none have yet been received. Kirovskiy Zavod's other source of current income is services. This includes production such as tool making, which used to be solely for internal use but is now a service for outside customers. However, a large portion of the services income comes from rents. It rents space for warehousing and other purposes to cover two hundred different customers. Kirovskiy Zavod's location with excellent harbor access makes its vacant space attractive.

Nevamash is currently involved in one part of the value chain and as such its profitability is limited to component production. It cannot benefit from assembly, marketing, sales, or administration. In the short term this limits profitability. Longer-term profit should improve with added production volumes. The venture was structured such that each partner was to have made phased investments to maintain its equity share. Kirovskiy Zavod was unable to meet investment targets with cash contributions, and Caterpillar did not consider its in-kind contributions to be of adequate value. Therefore the venture, and its expansion plans, were at a crossroads. The equity split had to change, and other sources of financing would have to have been found if the venture was to survive. As a result of this and its business profile, Kirovskiy Zavod came to view the joint venture more as a rental opportunity in the short term than as a business worthy of investing in for growth. Caterpillar, on the other hand, wanted to increase component volume and expected Kirovskiy Zavod to make investments for growth. As a result of these conflicting objectives, both parties agreed that it made sense for Caterpillar to wholly own Nevamash. In agreeing to do this, Caterpillar repaid Kirovskiy Zavod for its previous investment and will rent space for the near term. Both parties will continue to seek other relationships with each other. Although Nevamash has made improvements at the current location, it is still looking for a more independent and flexible site suitable for future needs.

Caterpillar and Kirovskiy Zavod originally became partners because of product synergy. In retrospect this may not have been wise, or at least there should have been more of an understanding about the extent to which each partner's technology would be utilized. It would appear the partnership was not conceived with plans for expansion in mind. Additionally, it might have been better for Caterpillar to select a partner whose business was complementary rather than similar. A potential customer such as a mining company, a financial institution that could finance product sales in the former Soviet Union, or a supplier of steel might have been a far more suitable partner.

UNOC Equipment and Supply

UNOC Equipment and Supply, a joint venture located in Yekaterinburg and comprising a Russian enterprise, AO Uralmash; National Oilwell of the United States; and Caterpillar, produces drilling rigs for CIS and overseas customers. This venture, which is proceeding well, is a different type of joint venture than the others. It is a company that performs marketing and buys services and components from AO Uralmash and components from the other partners. Caterpillar provides the diesels, National Oilwell provides the pumping equipment, and Uralmash provides the oil rigs and does the assembly. They have an explicit agreement on the costs of production. Each partner provides components and has adhered to agreed-upon prices. The three have roughly equal shares in the value of the end product, which provides a common incentive for success. UNOC has built two such oil rigs for Gazprom for use in Uzbekistan; each sells for several million dollars.

Novotruck

Caterpillar's third joint venture, Novotruck, was originally agreed on in June 1993. It involves AMO ZIL, Caterpillar, and PACCAR/Kenworth. The registration of this venture is still in process as of late 1996 and the work has been delayed somewhat because of ZIL's financial and ownership issues. The Novotruck venture is located in Moscow and plans to produce Kenworth and ZIL trucks with Caterpillar engines. The venture will involve the purchasing of diesel units from another venture, Novodiesel. ZIL will do the truck assembly for Novotruck, which is basically a marketing company.

Novodiesel

Novodiesel, the fourth joint venture, was formed in June 1994 by Caterpillar and AMO ZIL for the production of 150–500 horsepower truck engines, though currently Novodiesel is not a registered entity in Moscow. Novodiesel's engines are to be used by ZIL. ZIL will build the trucks and sell them to Novotruck, which will sell them to customers in the CIS. This venture has experienced difficulties due in part to the very decentralized structure of Caterpillar. The Russian enterprises are very centralized and it has been difficult for the two structures to work together.

Summary

The Caterpillar partners have all been in the early stages of privatization in Russia. In itself this has complicated the situation. Few patterns exist for bringing the two cultures and

Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

business structures together in a successful venture. Further complicating this is the gradual development of legal and business codes needed for business to thrive. Economic conditions have been depressed throughout the life of these ventures, putting considerable stress on the resources of the Russian partners. This stress has resulted in an emphasis on short-term survival over longer-term strategies. Things should improve with more favorable economic conditions and continued improvements in legal and business codes. Joint venture partners will need to improve their understanding of the strengths, weaknesses, and synergies each brings to a venture. It is easier to do this before a venture begins rather than trying to adjust afterwards.

Istok Audio International

David Binns, Michael Higgins, Marnie Tobriner

Istok Audio International (IAI), a Russian-American venture to produce hearing aids, is a 50–50 joint venture between GNPP Istok, a Russian state-owned, high-technology enterprise, and Hearing Aids International (HAI), an American firm. HAI is owned jointly by Great-Union International (GUI) and three independent investors from the U.S. medical firm Head and Neck Specialty Associates.

GUI is a U.S. industrial development and investment company with significant involvement in high technology and defense conversion projects in Eastern Europe and the Newly Independent States. GNPP Istok, the Russian partner, was formerly engaged in research and production of microelectronics and guidance systems for Russian missiles and nuclear weapon triggers. Istok has more than five thousand employees, of which 167 are employed by the IAI joint venture.

Initial Venture Contact

HAI's strategy for entering the Russian market was to identify one or two major Russian defense enterprises with whom it could build a relationship. HAI hopes to develop a series of joint ventures with Istok as their relationship solidifies and a suitable business infrastructure is established.

Original contact between HAI and Istok was made as the result of a Moscow conference on hearing impairment organized by HAI in the fall of 1993. Nine months later, during a Defense Conversion conference of the U.S. Department of Defense in Washington, D.C.,

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representatives from the two companies met for several hours and agreed to do business together. They decided that their approach should be to develop one project in the medical field at a time, rather than attempt broad conversion. A business plan was agreed upon and money was sought from Nunn-Lugar Defense Conversion funds as one of the "Fast Four" projects.¹ Funds were granted in August 1994. The joint venture was registered in early 1995 and production began in May 1995.

Products and Market

In March 1996, IAI was manufacturing the Sonata-01, an older generation, behind-the-ear hearing aid targeted at the Russian market. Production was planned by Istok managers to reach 250,000 to 500,000 units per year over the next two to four years. In addition to manufacturing the Sonata-01, IAI also serves as a distributor for Electone (which designed the hearing aid) and 3M, American manufacturers of hearing aids.

In late 1995, shortly after production had begun, IAI began to seek a further association with 3M, for whom it hoped to become a high volume, low end manufacturer as well as a distributor. 3M is a major manufacturer of premium priced hearing aids and has a distribution system in place in ninety countries. However, 3M believes its key to growth is moving into third world and developing countries to produce high volume, low end hearing aids. In 1996 GUI was negotiating with 3M on behalf of IAI to bring 3M in as a potential funder of high tech microphones and telephone receivers required for new hearing aid models. The Istok general director and IAI co-director has worked with both Electone and 3M and values their experience. They have provided him with useful measuring equipment and advice.

In March 1996, the venture was exploring production requirements for two new hearing aid models for export and for a future Russian market, as well as microphones and receiver components for use in IAI hearing aids and for sale to other hearing aid manufacturers. At this point, IAI production levels exceeded Russian market demand, but IAI is taking steps to distribute its products more effectively. One of the new models, a miniaturized "in ear" device, is too expensive for the current Russian market, but IAI feels the market will gradually accept it. If the planned manufacturing and distribution arrangements fall into place, IAI optimistically hopes to be "the No. 1 hearing aid company in the world" in three years.

IAI is also planning to develop special products for the hearing disabled. It already distributes products such as a light to signal a phone call or doorbell, and plans to develop manufacturing capabilities as well. It is working on programs for this with both the Ministry of Labor and Social Development and the Ministry of Education in regard to special schools for the deaf.

Financing

As one of the first companies to receive Nunn-Lugar Defense Conversion funding, IAI was launched with a \$5.66 million Nunn-Lugar award. For HAI's 50 percent share in the joint venture, the American firm provided an additional \$1.8 million in the form of services. Istok received its 50 percent share by providing a thirty-year lease to IAI for the manufacturing premises.

Of the \$5.66 million award, only \$2.7 million was directly invested in IAI, and \$.92 million in equipment. According to Istok, \$137,000 of the award was directed to Deloitte Touche Tohmatsu for accounting software and \$800,000 to Electone as prepayment for development of new models. The rest went for other costs outside of IAI. According to Istok, an additional \$2 million is necessary at this point for expansion of design, production, and marketing operations if the venture is to fulfill its original business plan. It is seeking funds from Russian sources and additional American sources as well as the Nunn-Lugar program, including \$3 million for the microphone and telephone manufacturing operation.

Production and Operations

While IAI was going through registration in late 1994 and early 1995, 1,400 square meters at the Istok factory (located forty-five miles outside Moscow) formerly used in the production of ICBM guidance systems was converted into the new IAI production area. The primary production line was installed and refined, and production began in May 1995.

The main focus of the joint venture is "deep assembly"—i.e., making improvements to imported hearing aid components, assembling complete hearing aids, testing them, and providing sales and services. A key strategic goal is to diversify its sources of supply in order to reach optimal cost-performance ratios. Microchips, components, and other critical input is supplied from the United States, United Kingdom, Korea, Canada, Austria, and other countries. Given the significant capital investments needed to produce the hearing aids, IAI is concentrating its efforts on providing a quick turnaround on the imported components. It is provided with manufacturing credits from its Austrian supplier whereby it purchases the components on credit, makes its improvements, and sells them in time to pay the supplier within sixty days.

IAI calculates its overhead costs separately and pays Istok directly for its pro rata share of costs such as heating, cleaning, and security. This is important in that the joint venture has true operating independence from its Russian parent company. High energy costs present a problem. The security provided by virtue of the fact that the joint venture is located within the Istok compound is a big plus in terms of protection from criminal elements.

In the production of the Sonata-01 hearing aid, Electone supplies the outer shell and some parts and Istok provides the design team, software, assembly, testing, and inspection. The output of 1,500 units per month is of very high quality. Russian managers believe, however, that they need more models in order to offer a broader range of products as demanded by the market and to compete better with rival firms. In particular, they need a

model for more severe hearing loss. The two additional basic models on order from Electone could enable them to develop variations (for children, for example, or for various levels of hearing loss). The addition of new models would enable IAI to increase production to six thousand units per month, which is an important goal from the perspective of manufacturing efficiency as well as increasing employment levels. In addition to IAI's 150 employees, the joint venture has seventy dealers employed on a contract basis in various regions throughout Russia. The average salary is \$250 per month for workers, \$300 for engineers, and \$400 for managers. Dealers can earn up to \$20 per unit sold.

Shortly after IAI began operations, an obstacle was encountered in the form of a printed circuits manufacturing division at Istok. The division had been imposed on IAI as part of the venture, but no market for these particular printed circuits existed outside of the Russian government, and the division was unprofitable. After some time, HAI successfully convinced Istok that the division would prevent IAI from realizing a profit. It was eventually shut down, and twenty-two of the division's employees were transferred to a team of Russian marketing trainees or to the IAI production line.

IAI's manufacturing facility, including the space and equipment for new models, is modern, clean, and orderly—resembling a high-quality electronics facility in the United States or Japan. Each hearing aid is tested several times during production, in process and at the end, and the overall rejection rate is less than one percent. All rejects are repaired on the spot.

The IAI business plan calls for the venture to begin production on advanced design models. The new models require highly miniaturized telephones and microphones, which are now fully designed. The new models are being produced on a small scale with the telephones and microphones bought from a Russian producer for \$15 each (versus IAI's planned cost of \$8 when it begins full-scale production). The Russian producer can only provide fifty thousand units per year, however, while the plan calls for IAI to produce 200,000 per year.

The miniaturized telephones and microphones have been successfully produced at IAI on a very small scale. Mass producing them at IAI requires completion of a large, high tech, clean manufacturing facility which now appears to be about 75 percent complete but is missing the equipment for dust-free assembly workstations. The space is fully prepared and most of the required equipment is in place. Workers for the new facility have been identified and trained. According to Istok, IAI's microphones and telephones are now of equal quality with Knolles', the recognized world leader. Istok believes that in the future other hearing aid makers will buy these miniature components from IAI as well as from Knolles.

Organizational Structure and Culture

In each of its lines of business, GUI has established a technical side and a strategic business side. GUI believes that the strength it offers to its foreign partners is its strategic side. Each strategic team has specialists in finance, marketing, operations, and strategic planning. These specialists generally have experience with the country and industry, and often speak the language of their partner.

Although the co-director is legally responsible under Russian law for every action taken by the joint venture, HAI monitors the flow of capital into the venture and keeps a close watch on operations. GUI maintains an office in Moscow.

The general director and his plant manager run the day-to-day operations. Both appear to be very able and the workforce seems competent and highly motivated. The whole operation seems very businesslike, in a Western sense, and eager to move ahead.

Marketing and Distribution

Developing Marketing and Distribution Channels

In September 1996, IAI was selling 1,500 units per month, though production quantity could actually be much higher. IAI is continually working to introduce the product to the public and to develop a regional distribution system. IAI believes that developing a good distribution system will be the key to success for both increasing revenues and attracting additional outside investors. IAI has been building its own marketing and distribution network since August 1995, following the completion of the first production run. A primary challenge is to get doctors to recommend the product. The introduction of new models is critical in this regard so that doctors can count on them to meet a broad range of patient needs. Progress is slow in this market, but IAI's reputation for quality is steadily building and management feels that feedback from satisfied customers will soon help them increase sales through physician references.

When IAI began operations, 99.5 percent of hearing aids in Russia were being distributed by government agencies through clinics. Meditekhnika was the state distributor of medical items, but it no longer exists. Vestiges of Meditekhnika still operate in some regions, however, so IAI always approaches them first. However, they do not represent adequate distribution points and IAI has had to set up regional distributors even for government sales. This is a slow process, but developing a superior distribution network is a crucial strategic goal.

IAI is training a sales force of thirty-seven (included in the total 167 employees) to operate throughout Russia. The group of trainees was initially created from Istok employees from the printed circuits division. The venture also has relationships with seventy dealers in various regions. In addition to its sales force, IAI is using larger forums to introduce its product to the public. It presented the current and future models at a large Moscow conference on hearing aids in October 1995. An independent company, Sibley International, was hired to develop "a franchise type of distribution system plan incorporating hearing loss diagnostics and hearing aid fitting services,"² which IAI hopes to utilize. IAI's marketing efforts have also been assisted by a retired senior executive from American Home Products Co. who is now in the International Executive Service Corps (IESC).

The venture is working at both the federal and local government level with the aim of having the state funds that are allocated for hearing aids pass through IAI. Both Moscow

City and Moscow Region have agreed to buy all their hearing aids from IAI, and two large clinics elsewhere have done studies and chosen IAI as their supplier.

A distributor has been set up in St. Petersburg to develop government accounts. In addition to this government focus, IAI has trained separate dealers for commercial sales. It now sells its product in all eighty-nine regions in Russia. The venture is expanding into Ukraine, Belarus, and Azerbaijan. Istok estimates that IAI needs another year to assemble its distribution network to its satisfaction.

Currently the Russian government accounts for 90 percent of IAI's sales. (Hearing aids are still supposed to be distributed for free by the government, but that distribution system seems to have largely broken down.) IAI expects sales volume to the government to increase in the future, but selling to the government is problematic since it does not pay its bills in a timely manner.

Given the unreliability of the state as a client, IAI hopes to eventually reduce its reliance on state orders to 30 percent of sales by developing the private distribution network to boost commercial sales. The number of distribution centers for IAI's product has increased from two hundred to six hundred. Its goal is to have two thousand distribution centers through Russia, each selling five hearing aids per month. Its product has a one-year warranty and IAI has service centers in most regions to provide free adjustments of the product during the warranty period. As noted above, IAI feels that the rapid development of a distribution and service network is a significant competitive advantage for IAI and would use any additional funding to support this effort.

Competition

IAI was certainly not the first company to target the Russian market for hearing aids. Overall IAI has twelve competitors in the Russian market. The cheapest and most widely available model is produced by the Tallinn Electronic Plant in Estonia, which was the traditional supplier for the hearing aid market in the Soviet era. This model is considered to be of relatively low quality. Another competitor is a Danish company that offers a number of ready-made models. Its key competitive advantage is a broad range of products offered. It is hampered, however, by a weak marketing infrastructure and its inability to reach outlying provinces.

IAI has chosen to price its products identically for both state and commercial accounts. However, either type of vendor can receive volume discounts. The state organs place their orders at the first of the year, when funds are first allocated, and these orders are rarely altered. This is positive from a production standpoint—IAI receives early state orders for about four thousand units per month.

To expand its marketing niche, IAI attempted to acquire the Russian distribution rights for a hearing aid produced by 3M, but a U.S. company called ReSound purchased those rights from 3M. ReSound nevertheless proved to be helpful to IAI by introducing it to the Austrian firm that supplies it with components. IAI has also entered into negotiations with Siemens for the Russian distribution rights for two additional new models (different from those on order from Electone).

Customs and Tax Issues

IAI has faced many obstacles from customs and tax officials. Much of IAI's equipment and supplies, which was imported prior to start-up of operations, was detained at customs. Despite possessing a signed decree from the chief of the customs service that the original equipment for the venture (up to a total of \$5.66 million) could enter duty free, it took several months for IAI to prove that it was entitled to import the equipment and supplies in dispute. IAI now maintains a staff person who works closely with customs officials to ensure that both parties have a good understanding of the venture and what its import requirements are.

Custom rates traditionally are low for medical equipment but high for general purpose machinery (14 percent) even if it is to be used to make medical supplies. There is no VAT on hearing aids. When IAI's duty-free limits for importing equipment are reached it will continue to get some items from the United States, but only actual medical equipment. It intends eventually to be self-supporting for everything. The unpredictability of the domestic tariff and tax policies is a problem. Despite recent government decisions to rescind certain tariff exemptions, those exemptions still apply for medical products.

Lessons Learned

In many ways, the joint venture is successful. IAI has reorganized and streamlined its production lines, renovated production facilities, introduced new methods and technologies for developing hearing aid models, and produced high-quality hearing aids that are selling on the Russian market. The new hearing aid products will probably be saleable in both the domestic (Russian) and international markets, and IAI is in the process of developing an extensive marketing and distribution system for Russia. Both Russian and American partners are committed to the success of the venture and are actively seeking additional funding from several sources. Both partners have forward-looking views in terms of seeking new convertible technologies and continually expanding their markets. These positive developments set a good example for other joint ventures.

It is clear that IAI's recognition of and attempts to address the absence of a suitable infrastructure and distribution network for its products are key to the venture's future success. IAI has already demonstrated its ability to design and produce hearing aids. Tackling the marketing and distribution problem head on and restructuring to create a new marketing division was an important decision.

Many challenges remain for IAI. The venture currently employs 167, whereas Istok had anticipated that it would provide employment for five hundred Russian workers. In general there does not seem to be a good working relationship and in particular a good understanding between the partners on the contribution of assets and utilization of funds. This is to some extent the result of the procurement procedures for the Fast Four.³ Issues regarding communication between American and Russian partners about venture financing will also need to be addressed. Involvement of Istok in day-to-day financial decisions and issues may

increase trust between the partners and lead to the transfer of decision-making, which at any rate will be mandatory in the long run as the venture becomes self-supporting. Russian support is crucial for the company's future development and success. IAI must develop systems to regulate the communication and interaction between the American and Russian partners, so that each will have an understanding of the activities performed and value added.

Istok insists that if IAI had the new models available and funds to further enhance the marketing and distribution network, IAI could develop the market to absorb the planned output. It is not clear, however, that a market exists for the increased production of higher tech, more expensive models (IAI is not selling the full production of the initial model). It is difficult to assess if IAI is trying to meet a production plan without due regard to the market, or if developing the market is a function of having the new, superior products available.

While HAI and Istok have met with success in some aspects of their venture, HAI management acknowledges that part of their success was due to its good timing in obtaining U.S. government funding. GUI management believes that there is a window of opportunity for getting a joint venture or partnership off the ground, and, furthermore, that it is relatively easy to get potential American and Russian investors excited about a possible venture built on a good product or service; the difficulty lies in obtaining adequate financing.

Notes

¹ See David Bernstein and Nicholas Carlson, A Report and Analysis of the "Fast Four" Defense Conversion Projects, U.S. Department of Defense, January 1997.

² The Industrial Partnership Program Measures of Merit (A report on the economic and defense conversion effects of the Industrial Partnership Program submitted by the Defense Nuclear Agency to the Office of the Assistant to the Secretary of Defense [Atomic Energy]), May 1995.

³ See Bernstein and Carlson.

Obukhov

David Bernstein

Obukhovskiy Zavod (Obukhov), founded in 1863, is a large state-owned production enterprise in St. Petersburg that produced missile launching equipment and naval guns. In Soviet days it employed about twenty thousand people; this had dropped to about ten thousand by mid-1995 and seven thousand in mid-1996. Its primary capabilities are ferrous and nonferrous casting, forging, and machining. Obukhov still provides products to the Russian Ministry of Defense, but payment is not in cash, and it loses 30–40 percent converting to cash. Obukhov began its conversion program in 1989 in response to reduced defense orders and according to the dictates of the central planners. For the most part, these conversion activities are not producing much revenue, and the enterprise has a great deal of idle production capacity. Its attempts to diversify its production include several nonmilitary products, some of which are based on its core capabilities and others of which are in relatively unrelated areas. It has also attempted to form several cooperative ventures.

This case study deals primarily with two rather different cooperative ventures with U.S. companies, FMC and DA International. In the case of FMC, Obukhov is a supplier of semi-finished steel parts that FMC uses in some of its products, primarily oil field equipment. The second is a fully integrated design, production, and marketing venture producing wheel-chairs.

In addition, Obukhov has set up several small enterprises as separate, privatized joint-stock companies (JSCs). In general these are 10 percent owned by the employees/managers and 90 percent by the state through Obukhov, which is still state-owned. These JSCs produce consumer products, such as steam irons, agricultural driers, sawmill equipment, medical sterilizers, and various metallurgical products. Obukhov's problem in privatizing and setting up operations of these JSCs in the old facilities was that the facilities are state-owned, meaning that the state has contributed the "means of production" to some of the spin-off enterprises and therefore frequently wants greater ownership than subsequent

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investors deem reasonable. Other enterprises have solved such problems. About two thousand employees worked in the small enterprises in mid-1995, but these enterprises produced an insignificant amount of Obukhov's income.

In general, Obukhov is quite willing to break out an activity if a potential investor shows interest. It is also amenable to selling off more equity to an investor/partner. It uses this approach to keep down the overhead in the small enterprises. The parent enterprise was functioning far below capacity and maintaining large design teams. Much of Obukhov's business involves supplying steel components for power stations and similar facilities. This is not military business, but it is state business, and Obukhov is increasingly concerned about the sustainability of this business and the state's ability to pay. Conversion to Obukhov is therefore not so much military to civilian production as it is state to non-state customers, because it did not think it could depend on the state business even in very basic sectors like power plants.

FMC

FMC's cooperation with Obukhov began in 1990 and now involves five of FMC's product groups. FMC is one of Obukhov's largest customers. All of the work is done on a contractual basis. Although this is formally a supplier-customer relationship, FMC is taking a far more active role, including considerable technical assistance, than such a relationship normally entails. Without this role, Obukhov could not meet FMC's requirements. The economic benefits of purchasing from Obukhov are sufficient for FMC to be willing to take on this additional role. The primary benefit comes from the lower labor rates in Russia for skilled workers.

The initial objective was to produce specific steel alloy forgings for export from Russia to FMC plants in Western Europe. FMC has funded many R&D contracts in Russia that involve the development, testing, or certification of various alloys and metallurgical processes. This is generally done by a central corporate office in response to materials requirements of the product lines. When the results of the R&D prove to be beneficial to the product group, it takes over the project and utilizes the results as appropriate. FMC's relationship with Obukhov has followed this pattern.

FMC helped Obukhov bring its alloys into conformance with ASTM standards. The first trial orders were completed in 1992 and 1993. In 1994 FMC placed substantial orders with Obukhov and in 1995 these were increased. Even with FMC's assistance, however, Obukhov cannot produce as much as FMC wants to order. Since FMC is already selling some products in Russia, and would certainly like to sell more as the economy grows, it undoubtedly views this cooperation as a positive step toward maintaining its good reputation in Russia.

There is no intent at this time to negotiate a joint venture, primarily because Obukhov is not allowed to privatize, and the plant and equipment that the state would contribute would not be evaluated very highly by FMC for determining equity distribution. FMC is primarily buying forgings, most of which are for export to incorporate into its products—mainly oil-field equipment. FMC purchases the products in St. Petersburg and contracts for the

shipping by sea. Some of the forgings are partially machined, and FMC is working with Obukhov to have Obukhov do more of the machining in order to further utilize the labor rate differential. As of October 1996, FMC was looking for additional suppliers that could melt their own materials as well as forge them to FMC specifications. As of September 1996 the volume of FMC's orders was a few million dollars per year, and FMC will increase the level if Obukhov can increase production. The primary problem is Obukhov's current inability to increase production and meet delivery schedules, and FMC is working closely with it to improve this. Many of the problems that limit production had improved as of October 1996, largely because of FMC's technical assistance.

More than strictly a contractual relationship, the partnership between FMC and Obukhov is one of close cooperation. FMC is very pleased with the quality of Obukhov's work and is helping it place the operation on a more sound, businesslike footing. One of Obukhov's biggest problems is the lack of adequate cash flow to purchase raw materials, so FMC pays in advance to partially alleviate this. Much of Obukhov's equipment is very old (e.g., open hearth furnaces), but it manages. It is also limited to forgings of eight tons. FMC does not wish to finance completion of a half-built electric arc furnace because of the state ownership of the enterprise. With current equipment and procedures Obukhov has a material waste factor of about three in its forgings. While the scrap can be reused, this is very inefficient from an energy standpoint. Here again FMC is providing technical assistance to help reduce the waste factor.

Other parts of FMC, such as the Airport Products and Systems division, which produces airport equipment, are contracting for small amounts of production from Obukhov and will increase their orders as the Russian market for these products increases. FMC is also trying to help Obukhov find other customers.

DAB International

DAB International, a joint venture of several years' standing between DA International and Obukhov, is working quite smoothly from a production standpoint.¹ The main problem is marketing. The joint venture is a separate, privatized JSC. The state wanted Obukhov to start a wheelchair project. Obukhov's ultimate partner, DA International, was already in the wheelchair (and other durable medical products) business and came to the Soviet Union in the late 1980s looking for a partner. The state simply designated Obukhov as the Russian partner. DA International saw a possibility to reduce production costs and at the same time sell to what was then a large Soviet market. The Ministry of Social Services was to have been the purchaser for institutions and individuals needing wheelchairs. As the state lost the financial capability to purchase, the market shrank considerably, especially the market for individuals. The need in mid-1995 was 70 percent institutions and 30 percent individuals, but the demand is now 90 percent institutional. Sales, which are improving, are now to the regional governments. However, as a result of the venture's product development and improvement, it now feels that it has a product that meets Western European standards and can be very competitive in Western markets. DA International will do the marketing abroad,

and the joint venture will sell in Russia. It believes the wheelchairs could sell profitably in the West for as little as \$250, whereas similar quality units sell for \$800–900. Since it has not yet penetrated the U.S. or Western European markets with this product, it is not clear what the selling price could be in the long run; i.e., what the venture's marketing, distribution, and customer service costs would be. On the other hand, DA International has considerable practical and profitable experience, so its estimates should be reliable. Because of the ruggedness of its chairs, it had no trouble receiving certification in the West.² It now produces models using steel, aluminum, or stainless steel, with appropriate variations in price.

In mid-1995 DAB International had a production capacity of fifty thousand wheelchairs per year, making it the largest capacity wheelchair producer in the world. This output is based on a one-shift operation; the venture wants eventually to increase to multiple shifts, and to replicate the production line in other buildings.

Its principal technical advance has been development of a weldless wheelchair by using fiber-reinforced plastic pieces to join the sections of metal tubing. Production of the plastic parts is done with modern digitally controlled machines from Cincinnati Millicron. The need to amortize this equipment is among the factors motivating the venture to reach higher levels of production.

Notes

¹ Based on interviews in June 1995.

² In 1995 DA International staged a wheelchair race from Moscow to Almaty—9,000 km over standard Russian and Kazak roads. All participants finished the race without any repairs needed to their chairs.

Svetozor

Polaroid/Ministry of Atomic Energy and Industry Partnership

Michael Higgins, Marnie Tobriner

In the mid-1980s, the Polaroid Corporation explored possibilities for expanding its market worldwide. After performing a demographic and econometric market analysis of several countries, the company determined that the USSR, China, and India presented the greatest potential. A political, economic, and social risk analysis, however, yielded the same three areas as the countries of greatest risk. Nevertheless, the potential was so great that a new group was formed within Polaroid to focus exclusively on these three markets.

In 1987, the vice president of the Soviet Academy of Sciences, Evgeny Velikhov, approached Bill McKuen, then chairman of Polaroid, about the possibility of forming a joint venture with a Russian company. Velikhov had become familiar with Polaroid when Polaroid was doing the imaging for the Halley's Comet flyby. Velikhov explained that he was seeking Western producers of consumer goods to partner with Russian companies. If Polaroid agreed, the Russian Academy of Sciences would choose the most suitable Russian partner for the venture. Polaroid expressed interest, and the selection process yielded the Ministry of Atomic Energy and Industry (MAEI) and, in particular, three entities within it, including (1) SIGNAL, a factory in Obninsk that manufactured printed circuit boards, (2) CNIITFA, a research institute working on defense electronics and nuclear reactors, and (3) a factory in Estonia that made moldings.

At this point, plans were laid, and the companies began to build a relationship. In June 1989 Polaroid hired an American manager to run the new venture, which was named Svetozor. Svetozor was registered in July 1989 as a joint venture, and operations began with circuit board production and camera assembly. The cameras produced were primarily exported and sold abroad. Initially the main object was to generate convertible foreign exchange in order to be able to import film for sale in Russia, since the ruble was not

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convertible. Thus, the venture started off manufacturing circuit boards and moldings for export, although all the circuit board components were imported. It used the hard currency generated from the exports to import film, and in this way gradually began to create a market. It assembled fifteen thousand cameras the first year of operations and gradually built up production, matching local camera sales to the ability to import film.

After 1992, with ruble (auction) convertibility, Svetozor could import film by converting rubles earned from domestic sales, and the business grew rapidly. The focus changed to incorporate marketing internally in Russia, and in 1993 the venture became a limited liability partnership. By December 1995 Svetozor was producing 200,000 cameras per year, which represented about 20 percent of Polaroid camera sales in Russia plus fourteen million film packets. On average, each camera sold generates four to five film packet sales the first year and fewer in subsequent years. There are now enough cameras in use in Russia to generate sizable film sales, and demand continues to grow. Polaroid attributes its success in Russia to the venture's carefully fashioned and executed plan for growth in the domestic market. Today, more than two hundred people are employed in the partnership's operations.

Financing

The original Svetozor partnership (then a joint venture) was formed with \$6 million in registered capital, with Polaroid contributing \$3 million and MAEI contributing \$3 million mostly in the form of plant and equipment. Following the original capital inlay, no additional funds have been needed to date. If they are required for expansion at a future date, Polaroid/MAEI expect that needs will be funded from local profits.

Since World War II, Polaroid corporate policy has been to avoid seeking U.S. government contracts or funding for projects. Although the partnership might have qualified for Nunn-Lugar money, it did not apply for it. As custodians for its shareholders, Polaroid manages its investments conservatively. If a project meets the company's internally set hurdle rates, Polaroid believes it is worthwhile to invest the company's own capital in it, and does not involve itself with the complications of seeking U.S. government funds.

Ownership Structure

Although original expectations and ownership percentages have changed, the partnership is still strong. In the beginning, during the Gorbachev period, the Russian partners' primary concern was capturing government-granted credits for manufacturing consumer goods, which Gorbachev was promoting. By 1995, however, they were acting like regular business partners.

The original partners were Polaroid, CNIITFA, the SIGNAL factory in Obninsk, and an Estonian factory that makes moldings. Polaroid has now bought out the SIGNAL interest of 12¹/₂ percent and the Estonian minor interest (due to political problems between Russia and

Estonia, the Estonian factory became a burden). The Estonian factory now operates independently, the equipment having been purchased by some Estonians who are in the process of paying off the debt to Svetozor. The SIGNAL factory continues to make circuit boards for the partnership, but is no longer a part owner. By December 1996, Polaroid owned 75 percent of the venture and CNIITFA 25 percent. The Svetozor board has remained the same and is production oriented, but it trusts Polaroid and did not debate long over the major change in direction undertaken in 1992 (to produce for the local market). This was decided at one board meeting.

Profitability

Svetozor has paid dividends to CNIITFA every year since start-up except 1995, when several factors virtually eliminated any profit. Polaroid expected that CNIITFA would be disappointed, but that it would understand the realities of being in business. Factors contributing to this financial performance were:

- Corrupt Russian customs officials are allowing Western Europeans (mostly Dutch) to produce cameras less expensively by letting them pay only about 1/10 of the proper duties and VAT (paying 4 percent versus 42 percent).
- The laws were set up to favor exporting companies like Gazprom, so Polaroid had to pay 38 percent taxes on the exchange losses that resulted from aging receivables and declining rubles. It worked just the opposite for Gazprom and other exporters, who benefited from the exchange differentials.
- Because tax regulations limit the amount of pre-tax advertising costs, additional advertising expenses must come out of after-tax profit.
- In addition to the very high tax burden in general, Svetozor gets assessed arbitrary penalties from time to time. Non-American competitors often avoid these penalties by bribing officials.

Organizational Structure and Support

At the start of the venture, three Americans were installed permanently to work in Russia. Generally, at any point in time there are two to three additional temporary Americans at the Moscow office, supporting the venture in systems and/or business development roles.

The general manager of the partnership is an American (born in Estonia of a German father and Russian mother) who is fluent in four languages. He is responsible for all major day-to-day decision-making. Operations support generally originates in London at Polaroid's headquarters.

Operations

Following registration in July 1989, operations began with the production of printed circuit boards in order to generate hard currency. This has expanded, though the camera assembly, testing, and repair operation still appears surprisingly modest given the 1995 volume of 200,000 cameras per year. This operation occupies three large office-type rooms in the same CNIITFA building that houses the Polaroid and Svetozor offices. In one room, three people assemble the flash units by soldering and wiring the circuit boards (created at Obninsk, sixty miles from Moscow) into the flash unit housing. This is an operation of several steps at one workstation requiring less than a minute. Finished flash units are put into trays that are carried by hand into the camera assembly room.

In December 1995, no more than fifty people were involved in the entire camera assembly, testing, and repair operation, servicing 200,000 cameras per year. Overall Svetozor employs 125 Russians. Another 130 are employed by SIGNAL to produce the circuit boards, but they are not Svetozor employees. All components are still imported since it cannot get the quality and technical capabilities it needs from local sources. Even the plastic casings for cameras are not economical to produce locally. Svetozor is doing more local assembly of sub-units, but for now it has abandoned efforts to use local sources for components.

Marketing and Distribution

In May 1990, following the collapse of the Berlin Wall, Polaroid felt that the ten-month-old venture should alter its course. Up to this point, the venture's focus had been on exporting and obtaining sources of foreign exchange. Polaroid believed that the political and economic situation was rapidly changing, and that Russia's large population should not be overlooked as a serious market. Moreover, by then the ruble was convertible through auction.

Marketing has changed a great deal over the years. In September 1991, an American expatriate moved to Russia to serve as the venture's director of marketing. He hired marketing and sales managers locally and began to assemble marketing teams. By December 1995, Svetozor employed more than fifty people in marketing. Original Polaroid sales were to street photographers, then to traders from the provinces. In 1992, the Polaroid/MAEI marketing team started to work with local entrepreneurs and kiosks to sell product.

By December 1995, Svetozor had five to six dealers in Moscow who covered all of Russia and generated about 80 percent of sales. It also had forty to fifty regional dealers and planned to put some of its own people into the field during 1996 and 1997 to help with retailing. The Moscow Polaroid store from which product is sold directly to consumers is the only store of its kind worldwide. For a while it was Polaroid's sole Russian retail source, but is now largely symbolic. Prices at the store, which represents only about 1 percent of sales, are somewhat higher than can be found elsewhere. Original sales and the popularity of the Moscow store were greatly enhanced by the famous "ruble overhang" (vast ruble savings by individual Russians) but that quickly disappeared as the ruble lost value. In 1993, it became legal to be paid in U.S. dollars, so Polaroid/MAEI began to price its product in dollars. It still

was often paid in rubles, but rubles were now easily convertible, forcing it to price its products more competitively. Svetozor feels that it is difficult to accurately assess the potential size of its Russian market. With the improved marketing and distribution infrastructure, the company hopes to determine this more easily.

The Russian Environment and Security

Perhaps one of the largest obstacles faced by Polaroid executives was adjusting to the realities of everyday life in Russia and the pace of doing business there. They were also frustrated by the length of time it took to get anything done—communications were difficult and decisions took longer. According to Polaroid, it did not take long for its expatriates to adapt, but Polaroid's corporate directors in the United States and Europe, lacking firsthand experience of the environment, did not understand as easily. In 1995 and 1996, the biggest concern was safety, so the partnership assembled a highly skilled security staff which does a good job protecting both operations and employees. The venture has been "approached" by mafia-type characters, but has no problems with them because it has a "roof"* and a competent internal security staff.

Status of Venture and Outlook

Despite the outwardly positive signs for the venture, Polaroid felt in December 1995 that Russia was quite unstable and very little was happening that could be considered constructive. It had been very concerned that Russia would reverse market reforms if Yeltsin was not reelected.

In December 1995 Russia was the second-largest world market for Polaroid products, lagging behind only the U.S. market. Russian sales account for more than 10 percent of Polaroid's total product sales of about \$2.3 billion. Approximately half of Polaroid's products are sold to individuals/families, while the other half is purchased for use with security/identification products and services. Roughly one-third of all circuit boards produced for Polaroid cameras sold worldwide are manufactured in Russia.

The partnership has a contract with the Russian government for the Russian driver's license program. The contract was signed in 1992, and Svetozor began to issue licenses in 1993. Svetozor will produce about two million licenses in 1996, but there are about thirty million drivers in Russia. It does not know who produces the other licenses. It is looking into the passport business as well: both internal passports, which may be reimposed by the state, and external passports. Polaroid hopes to get a share of this market. Also, several smaller government offices want identification cards. The partnership believes this business will grow eventually, but it is not large now. It does have locations around Moscow that take passport-type photos (four at a time), which do a good business.

* For a definition of roof, see Appendix F, Effects of Crime and Corruption on Foreign Investment in Russia, p. 289.

Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

As the Russian operation has succeeded, Polaroid has successfully transitioned from its role as strategy and operations decision-maker to a senior board of directors member. Polaroid feels that it has taught its Russian partners a lot about good business practices and that the Russians are fast learners. Today, when the partnership has board meetings, it is often the Russians who question key profitability ratios and management issues.

RAIES (Russian-American Ionized Energy Services)

David Bernstein

Russian-American Ionized Energy Services (RAIES) is a joint venture that has been incorporated in the United States and in St. Petersburg, Russia as RAIES International Corporation. RAIES has worldwide exclusive rights to certain sterilization technologies to be used for sterilizing and reducing blue stain in timber. The joint venture project was cofounded by REM Capital Corporation of Virginia (REM), the Ministry of Atomic Energy (MINATOM), and the V.G. Khlopin Radium Institute (KRI) in St. Petersburg.

This cooperative venture is unique among those reported herein in several important respects. The primary difference is that both sides of the venture involve many different participants in both an equity and operational sense, and, on the Russian side, they have a novel working relationship. A second difference is the dependence upon regulatory approvals (in the United States) to open up the market. A third difference is that the operation will involve a major utilization of a Russian natural resource (timber).

RAIES International was formed in 1994 to utilize existing ionizing energy technology for sterilization of Russian logs to meet the U.S. Department of Agriculture's (USDA) standards so that U.S. wood processing industries could purchase the logs. The basic concept of the business is to utilize gamma radiation (from radioactive sources or accelerator-generated bremsstrahlung) to sterilize timber and to reduce blue stain fungus in timber. This decontamination is currently done chemically with methyl bromide (MeBr), but this treatment is being phased out in the United States (and Japan) on environmental grounds. In the initial stages of production, all of the timber will be for export. The potential market is many billions of dollars, but in order to generate any revenue there must first be proof of principle, process R&D, regulatory approval, construction of processing plants, the acquisition of timber, and establishment of a distribution infrastructure for exporting the processed

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timber. All of this requires considerable long-term investment capital, a wide range of participants and expertise, and comprehensive program management.

During 1993, REM, KRI, MINATOM, and several businessmen entered into discussions regarding the project with other organizations relevant to this work, including the USDA and Russian ministries as well as other U.S. government agencies. RAIES data showed that the ionization process was feasible and an excellent method for sterilization of Russian timber for use in the U.S. market. To accomplish this, two companies were formed in 1994: RAIES International and RAIES St. Petersburg. RAIES International is primarily responsible for obtaining the investment capital, securing regulatory approval, building the operational infrastructure, and managing the overall program. RAIES St. Petersburg is responsible for technology development, production design, and plant construction.

The investors, participants, and modus operandi have been selected in anticipation of many operational requirements and potential problems. The strategic investors chosen all have a major operational role. The primary investors and owners in RAIES International are REM Capital (a merchant bank experienced in investing in emerging economies), KRI, MINATOM, the OPIC-sponsored PaineWebber Russia Partners Fund, the Defense Enterprise Fund, Western Bulk Carriers (a shipping company), Failure Analysis Associates (for technical engineering and analysis), and Roslesprom, the State Russian Forest Industry Company. The venture has also secured under a U.S. Department of Energy/WIC grant five contracts from Sandia National Laboratories (SNL) for some of the required technical developments. Having these investors enabled REM Capital, which also serves as general manager, to attract other strategic partners. The project also has the endorsement of the Gore-Chernomyrdin Commission as a priority defense conversion project, and this has facilitated the direct funding approach on the Russian side.

The venture includes personnel from a variety of Russian institutes to perform the R&D (physical and biophysical) and the design of the processing plants. Funds are carefully managed to ensure that they go directly to the performance of these tasks rather than be badly diluted by covering excessive overhead costs in a host of economically distressed enterprises. Other ventures that have contracted with various Russian institutes have experienced such dilution of funds.

RAIES St. Petersburg is owned (50–50) by REM Capital and KRI, which itself is still a state-owned enterprise by virtue of its affiliation with MINATOM. RAIES St. Petersburg performs services under contract to RAIES International and conveys the intellectual property rights to RAIES International. RAIES St. Petersburg can also sell R&D to other customers, but it will only perform services in which the ultimate commercial product will be turned over to RAIES International for export. In addition to the technical development work, RAIES St. Petersburg will issue subcontracts for the design of eleven processing plants. It will also issue and manage subcontracts for the construction of these plants. These plants, the first of which is to be built in 1998, are located near the Baltic Sea, the Black Sea, and in the Far East. Because transportation in Russia is a serious problem, the location of the processing plants and choice of timber resources will be based heavily on minimizing internal transportation and shipping costs.

Perhaps the most important function of RAIES St. Petersburg is the coordination and oversight of all the work performed in Russia. RAIES St. Petersburg has only four employ-

ees, all of whom work in this role. Some of the participants from other institutes became employees of RAIES St. Petersburg. MINATOM has been instrumental in permitting RAIES St. Petersburg to subcontract directly with the personnel of various institutes, thereby reducing irrelevant indirect costs. In the case of the five contracts from SNL, RAIES St. Petersburg is the contractor and subcontracts directly with the individuals doing the work rather than their institutes. RAIES St. Petersburg may also sell processing equipment for export. The first production plant, which initially will be for the reduction of blue stain, is scheduled to be operational late in 1998 and thereafter will service the U.S. and Japanese markets.

In addition to the cross-ownership, the partners have established an excellent working relationship. This requires a major effort since the overall project involves many independent actors ranging from individual scientists to companies, institutes, and agencies of both governments. There are some issues requiring close coordination, and RAIES International has stressed the difficulties of organizing this in Russia. The commercial infrastructure in Russia (e.g., the banking and tax systems) also presents challenges.

The program has been designed so that when it is in full operation it will create thirty thousand jobs in Russia and an equal number in the U.S. lumber industry. If this goal, which is contingent upon successful completion of the early phases and full production, is met, RAIES International will be one of the largest U.S.–Russian cooperative ventures. This will be accomplished by having the wood for the U.S. market processed in the United States. The eleven processing plants will be owned by RAIES International, the local port authorities, and other local authorities. Here again the ownership has been structured to have the operational support and participation of the strategic partner.

It is too early to assess the success of this cooperative venture, but it appears to be running reasonably smoothly. The large number of diverse participants is an advantage in that they comprise many important skills and business connections; however, this also introduces a level of complexity that could be difficult to manage. Management and coordination of the many participants is an essential element if the venture is to succeed. In addition, it has a much longer timeline and a commensurately larger potential market than most of the other ventures studied. These factors make it an especially interesting case to follow.

The lack of other technologies capable of meeting USDA phytosanitary requirements for the importation of Russian timber into the United States, the lack of alternatives to methyl bromide as a timber quarantine agent (to allow neighboring Asian countries to continue importing Russian timber after methyl bromide's phaseout in 2000), and the lack of any competing technology that is capable of reducing blue stain ensures that RAIES will be in a strong position to serve the export market for Russian timber.

Svetlana Electron Devices

David Bernstein, Elaine K. Wai

Svetlana Electron Devices is a joint venture between the Svetlana Enterprise of St. Petersburg, Russia, and Svetlana Electron Devices, Inc., an American corporation in Alabama and California. The equity joint venture was established in 1992 between Svetlana Enterprise and Farid Rafiee and Charles Gray of R&G International in Alabama. The California office is responsible for product planning and marketing, and the production is performed in St. Petersburg.

In 1984, Rafiee and Gray established R&G International in Alabama to provide electronic components and equipment to the U.S. commercial and aerospace industries. They seized the opportunity to tap Russian and Chinese production facilities to meet the U.S. and Western demand for vacuum tubes, which were no longer being produced in the United States. U.S. companies stopped producing most vacuum tubes because of a growing interest in developing solid-state technology for applications even when tubes appeared to be more technically appropriate. The Russians and Chinese continued to produce vacuum tubes while U.S. manufacturers were cutting back. Rafiee located tube capability at the huge Svetlana Enterprise in St. Petersburg, which produced vacuum tubes, glassware, and ceramics. He convinced the Svetlana Enterprise to form a joint venture with him to broaden its production of tubes for the Western markets. Svetlana Electron Devices in St. Petersburg is a private company that manufactures these power tubes for the venture. The St. Petersburg factory produces approximately fifty products for the Western market, ranging in power output from a few watts to sixty kilowatts. It produces the tubes completely from raw materials, all of which are bought in Russia, and has been successful in maintaining a highly capable staff. It considers its relationship with Svetlana Electron Devices, Inc. to be excellent and a major contributor to their joint success. This is Svetlana Enterprise's only joint

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venture, although it has some international contracts, such as one for production of X-ray tubes.

Svetlana Enterprise was founded in St. Petersburg in 1889 and is the oldest electronic enterprise in the former Soviet Union. Early in its history and prior to its incorporation in 1962, Svetlana Enterprise was a small light-bulb factory. Its work broadened to include design and manufacturing of integrated circuits, high-power tubes, ceramics, and glassware. In 1992, Svetlana Enterprise applied to become a privatized open joint-stock company, but only portions of the enterprise, such as the high-power tubes section, were put on the market. The defense and ceramics divisions are still under state ownership. Svetlana Enterprise in St. Petersburg formerly employed thirty thousand Russians, of whom two thousand were engineers. Currently (mid-1996) that number has dropped to below ten thousand, but it still has two thousand engineers. Svetlana Electron Devices is one of six privatized daughter joint-stock companies of Svetlana Enterprise. Svetlana Enterprise does some manufacturing under contract to Svetlana Electron Devices. The remainder of the production is done by Svetlana Electron Devices in St. Petersburg, a partner in the joint venture. Svetlana Enterprise has also provided space for use by a small enterprise incubator, but it is not active in its operation.

The Defense Enterprise Fund (DEF), established by the Cooperative Threat Reduction program of the U.S. Department of Defense, discussed financing in 1994 to Svetlana Electron Devices for expansion of the joint venture. It had originally considered \$7 million, but this was later dropped to \$3 million. The DEF relieved some tax problems for the venture and also assisted Svetlana Electron Devices with its business plan, but the negotiations for financing had not been concluded as of October 1996. Whether the funding is held up in U.S. government channels or in other areas, the setback, accompanied by long negotiations and delayed financing, created costly frustration for both the U.S. and Russian partners.

The ownership structure of Svetlana Electron Devices is in flux due to the potential participation of the Defense Enterprise Fund. Rafiee and Gray, principals of the Svetlana Electron Devices joint venture, and the Russian government own the portion of the Svetlana Enterprise, Svetlana Electron Devices, that was offered for sale in 1992. The ownership split is 70-30, with the Russians owning the majority of the venture. The U.S. partners provide funding, product planning, marketing, and distribution.

There are several keys to the success of the joint venture from the point of view of Svetlana Electron Devices. Solid, committed personal relationships that are able to resolve otherwise daunting cultural differences are key. Svetlana Electron Devices, Inc. has invested a great deal of time in understanding Russian business culture. One of the founders, Rafiee, spends much time in Russia in order to improve communications. Svetlana Electron Devices (St. Petersburg) feels that the attention to the development of relationships and trust among management contributes much to the success of the venture.

Another point of success for the joint venture is Svetlana Electron Devices' ability to locate niche markets. Power tubes are increasing in popularity in the West in markets such as the guitar amplifier market and the high-end home audio market. The timing and location of this market entry has proven to be crucial to its strategy. Company sales have grown rapidly in the past three years, from \$100,000 in 1993 to \$600,000 in 1994, \$1.7 million in 1995, and \$1.5 million for the first quarter of 1996; however, Svetlana Electron Devices (St.

Petersburg) is not able to produce enough power tubes to meet the demand. The growth rate is enormous, even by the standards of American companies, and the manufacturing increase may be very difficult to maintain. Svetlana in Russia is producing the audio and guitar amplifier tubes faster than Svetlana Electron Devices' demand, but Svetlana St. Petersburg is unable to meet the demand for the high-end large ceramic industrial and broadcasting tubes. Though the production and assembly of the tubes is not as difficult as producing integrated circuits, it requires well-controlled processes and therefore it would not be easy to build another production line elsewhere.

The biggest problem for Svetlana Electron Devices is securing financing for increasing production and reducing manufacturing costs. The efficiency gains would come from consolidating the locations of the experimental (and small volume production) operation with the serial production operation since it has the facilities to increase production. Some of the investment is needed for advanced tooling also. In expectation of \$3 million in financing from the Defense Enterprise Fund, the joint venture spent considerable effort in producing acceptable financial records and a sequence of business plans. However, although the DEF spent considerable effort performing due diligence, the financing agreement was never consummated. Svetlana Electron Devices is prepared to match external financing with its own investment funds.

Svetlana Electron Devices (St. Petersburg) had 2,500 employees in 1996. Many of these are engaged in highly skilled hand-fabrication processes. It believes that it must keep this size staff in order to secure its technological chain. Both partners in the joint venture firmly believe productivity should be increased through an increase in production rather than a reduction in staff. Svetlana Electron Devices feels that it could increase production two- or threefold without increasing staff. To increase production beyond that point, however, Svetlana Electron Devices would have to add staff. About six hundred staff members are engaged in engineering design and scientific research, and ninety in testing.

The experimental production facility is reasonably sophisticated and is well managed. The equipment does not look modern, but it is on a par with Western vacuum tube manufacturers and therefore appears to be adequate. For example, old furnaces and vacuum pumps appear to be sufficient for the needs of this activity. Vacuum tube production is labor intensive, as it is in the West. Much of the work appears to be partly art and partly experience. Some of the processes (e.g., spot welding) look as if they could be automated. It is not clear why some of the components from the small volume production facility (grids, for example) are not made in the serial production line.

High labor-intensity is typical and optimal in vacuum tube manufacturing, so this is clearly a logical industry for Russia. When this is coupled to the fact that the joint venture serves niche markets, this conclusion is bolstered. It is further bolstered by the fact that many of Svetlana Electron Devices' sales are to large original equipment manufacturer (OEM) customers. Although these customers could consider building these tubes themselves, the investment is probably too large for either the size of the market or the percent of value in their end products. This is somewhat counter to the usual Soviet trend of extreme vertical integration, which may be another reason for Svetlana Electron Devices' success. It is a good example of a medium-sized spin-off enterprise.

About 10–12 percent of Svetlana Electron Devices' revenue is generated through the joint venture production facility. Production quantities of ten or fewer are done in the small volume production facility; larger quantities are produced in the Svetlana serial production facility. The time to produce a tube can be as much as two months for the higher-power tubes. Most of the production is for the long-term joint venture forecast and these are generally done in serial production.

Svetlana Electron Devices, Inc. has exclusive rights to sell Svetlana's products in the West. It concentrates on sales to OEMs, which enables Svetlana Electron Devices to get quick feedback on the quality of its products. This prevents recalls down the road and promotes efficient distribution of its products. Sales are also made through distributors, but only after qualification by the OEMs. Since the low-end tubes are basically a single-use product, there is no repair business within Svetlana Electron Devices, though there is some repair business for the higher-end tubes. Fifty percent of Svetlana Electron Devices' business is in the United States and most of the other half is in Europe. Its largest customer accounts for no more than 10 percent of its business. Its main competitors are Siemens, Thomson, CPI, and (on the distribution end) Richardson.

Though infrastructural issues such as the weak Russian legal system hinder its work in Russia, Svetlana Electron Devices' primary difficulty is the inability of Russian manufacturing to meet increased product demand. The joint venture's sales have risen at such a rapid rate over the past two to three years that the Russian manufacturers have not been able to keep up with demand. The venture has not suffered greatly as a result of this; however, slow production may cause problems in the future. There is also a need for additional capital to finance the rapid growth.

Svetlana Electron Devices, Inc. also sells products from other NIS manufacturers. It is working with Istok Electronics Plant* in Moscow, primarily for marketing microwave tubes, and the work is going well. Recently, Svetlana Electron Devices, Inc. and Istok have developed plug-compatible industrial heating magnetron products. They have already delivered components to U.S. customers. In addition to this project, Svetlana Electron Devices serves as Istok's exclusive distributor in North America for its product line and its worldwide distributor for industrial products. Early in this venture, Svetlana Electron Devices had difficulty obtaining timely responses on price quotations from its Russian counterparts. Svetlana Electron Devices, Inc. has developed and is selling products manufactured by Electronpribor in Ryazan and also sells products manufactured by Polyaron in Lvov, Ukraine.

* See Istok case study, p. 109.

Science Applications International Corporation (SAIC)

David Bernstein

SAIC is an employee-owned company that has more than three hundred offices and twenty-two thousand employees in more than twenty-five countries, and annual revenue of \$2.5 billion. It differs from many of the U.S. companies working in Russia in that its main line of business is performing consulting and research services for a wide range of customers rather than producing and selling a line of standard products and services. Its largest customer by far is the U.S. government. The financial conditions of such a business provide relatively little investment capital for developing new businesses. Therefore, for a company like SAIC to establish operations in Russia, the best strategy is for it to obtain contracts that can be performed at least in part in Russia. SAIC's Russian business program supports the U.S. government, commercial clients, and multilateral banks on projects related to business in Russia. SAIC also supports several U.S. government programs focused on Russia. It provides management and technical assistance to the dismantlement and conversion of nuclear and chemical weapons, gives technical assistance in several areas to Russian defense enterprises undergoing conversion, and supports many environmental and energy programs with various technical and regulatory policy skills. Researchers at SAIC actively conduct cooperative scientific research with Russian scientists on such topics as seismic research, Arctic oceanographic research, and the development of global monitoring technologies.

SAIC helps U.S. manufacturing companies access the capabilities of Russian scientific research institutes and supports Western oil/gas initiatives in the former Soviet Union with socio-political-economic assessments. The company also operates the American Business Center in Novosibirsk for the U.S. Department of Commerce to actively promote U.S.-Russian business development in Siberia.

SAIC supports World Bank programs focused on environmental policy development in the Urals, and the European Bank for Reconstruction and Development with assistance in

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the technical evaluation of candidate investment projects. In addition, SAIC has established partnerships with the Russian Ministry of Defense, Ministry of Atomic Energy, Ministry of Science and Technology Policy, Ministry of Environment,* Academy of Sciences, and several Russian institutes and enterprises. The company has offices throughout Russia, and an operating Russian subsidiary headquartered in Moscow, SAIC Global Technology (SAIC GT), is working to provide Russian scientists with improved business access to global customers.

SAIC is an extremely diverse company in terms of technical capabilities, types and sizes of projects, geographical locations, and markets/customers. As a result there are many activities within the company that have the potential to expand existing capabilities and services to new markets in Russia. There are also many projects to which Russian technologies and personnel could be applied. Many people in the company were already specialists on various aspects of the former Soviet Union.

The diverse nature of SAIC is manifested in the fact that most decisions to address new markets are generated at the divisional level. A division is typically one hundred people or fewer. Higher levels of the organization may, at a division's urging, invest modest sums of money in these new ventures, but the primary initiative usually comes from the lower levels. This has been the case in SAIC's efforts to establish a business in Russia. Instead of starting with an overarching objective and then finding the components to address that objective, the essential technical and human building blocks have been established first, and experience along the way has served to define the primary directions of the business. There have been some overarching principles, however, such as to undertake work in a way that will build business capability in Russia.

In establishing business in Russia, SAIC relied on a small core of people who knew the country and could help find an appropriate market niche with either American or Russian customers. SAIC has selected a leader from within the company but has hired mostly Russian employees. An example of finding a new service for an old customer was obtaining a Department of Commerce contract to open the American Business Center in Novosibirsk. This center was established to assist U.S. companies attempting to do business in the area. This may lead to other services that SAIC can market to the American companies on the basis of having on-the-ground expertise. For legal and tax reasons, SAIC has established wholly owned subsidiaries to conduct its Russian business. This also enables SAIC to pay its employees in dollars. The companies in Russia have been accredited by appropriate ministries in Russia, which greatly facilitates their operations. The diverse nature of SAIC's work in Russia has also been manifested by its cooperative engagement of a wide range of ministries, state committees, design bureaus and production associations, and research institutes.

As the Russian economy stabilizes and grows, a huge potential market should develop for many of the diverse services that SAIC presently provides in the United States. By establishing capabilities and operating entities in Russia parallel to those that SAIC has in the United States, the corporation hopes to be positioned to service these markets. The staffs for

* In mid-1996 the Ministry of Science and Technology Policy became the State Committee for Science and Technologies, and the Ministry of Environment was split into two organizations: the Ministry of Natural Resources and the State Committee for Environment Protection.

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these entities will be primarily Russian, which will make them more acceptable and affordable to the Russian customers.

SAIC started work in Russia early in 1992. The total level of business was only about \$1 million at the beginning of 1993, but it grew much more rapidly thereafter. At present about 85 percent of SAIC's Russia-related business is with U.S. government customers; however, the company expects this percentage to decline as other sources of funding grow. SAIC's business in Russia includes developing technical opportunities for American customers, conducting projects on United States–Russian military/technical cooperation, and consulting on enterprise restructuring. As of June 1995 SAIC was doing about \$19 million of Russia-oriented business with about \$3.5 million being spent in Russia. Here again the in-country percentage of the expenditures is expected to rise.

III. ANALYSIS AND CONCLUSIONS FROM CASE STUDIES

Analysis and Conclusions from Case Studies

David Bernstein

Introduction

This chapter contains an analysis primarily of the case study data, but it also utilizes data from other cooperative ventures (CVs) and enterprises that we have observed in related research. As mentioned in the Introduction, the case studies have been submitted to interviewees for review; however, conclusions or speculations in this section are my own, and the interviewees have not been asked to comment on them.

There are several possible ways to analyze the data from the case studies. The end result we want is a set of approaches that U.S. companies and Russian enterprises can use in planning, negotiating, and implementing successful cooperative ventures. No single method of examining the data appears adequate to reach this set of recommendations. Therefore we have chosen to analyze the data in two ways. First, we compare and discuss the cases in terms of various issues that pertain to all CVs, such as the reasons for seeking a CV; the choice of legal form; and identifying, selecting, and attracting a suitable partner. The second approach, which is complementary, is to group ventures by the type of activity involved; we first divide them between hardware and software and then by the type of project, such as research, product development, product manufacturing, and services. This results in some necessary repetition in areas of overlap. This chapter ends with some strategy considerations for U.S. companies and Russian enterprises seeking cooperative ventures and some conclusions about such CVs in general.

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The dominant feature of U.S.–Russian cooperative ventures is the asymmetry of the Russian and American partners, and the impact of this asymmetry on the ventures. Whereas CVs between two U.S. companies may involve varying degrees of symmetry, Russian-American CVs almost always involve asymmetry, in almost every respect: the conditions (financial condition, market position, history, etc.) of the partners, their objectives, and their ways of doing business. This is not surprising given the vastly different economic and political systems in which the organizations existed and operated, as well as the different economic conditions in the two countries. This asymmetry manifests itself in almost all of the ventures, in terms of broad objectives and investment philosophy as well as in more specific operational aspects.

From the perspective of an American company, these differences are in many ways a disincentive to seeking cooperative ventures in Russia. While they pose many problems, however, they also present a new, qualitatively different set of opportunities. In most of the CVs reported on, both the U.S. and Russian partners have attempted to turn these differences to their mutual advantage, though they have not always been successful in anticipating the manifestations of the asymmetry and adapting to it. In the remainder of this chapter these differences and their impact will be evident.

A word of caution in reading the analyses in this report. We frequently speak of the understanding, perspective, or attitude of a Russian general director toward some aspect of a cooperative venture. Such understandings, perspectives, and attitudes have undergone enormous changes between 1992 and 1996 (the time span of data collection in this project). Both business practices and cultural predilections are involved; the latter are sometimes harder to understand and less subject to change than the former, but they are just as important. Because we do not always know how these practices and predilections change with time, it has not always been possible to update them or their effects on the establishment and operation of a CV, but the likelihood at least of such changes must be kept in mind. There is also a difference between the understandings, perspectives, and attitudes of enterprise directors in Moscow or St. Petersburg and those in cities away from these centers. In some respects they differ only in that enterprise directors in Moscow and St. Petersburg have adjusted to the transition to the market a year or two sooner, but in other respects they reflect some of the differing attitudes toward the central government in the more remote areas.¹ Similarly, the understandings, attitudes, and perspectives of most American executives toward business in Russia have also changed considerably.

A. Issues Involved in Cooperative Ventures

General Attitude toward Cooperative Ventures

The Russian Perspective

Russian enterprises have been in an exigent financial situation caused by the sharp downturn in their economic prospects. Different enterprises have taken very different approaches to respond to these problems.² Many believed that the economic policies of the Gaidar government, in which military procurements were reduced by more than two-thirds, would not endure, and that the state would return to a heavy emphasis on military production. Most such enterprises tried to stand pat and lobby for state subsidies. Some continued to produce military equipment even without orders.³

On the other end of the spectrum, some enterprises continued and accelerated the restructuring and conversion programs that they had deemed essential during perestroika. Still other enterprises toward the middle of the spectrum started serious restructuring efforts in response to the decreased procurements in the early 1990s. Cooperative ventures played an important role in the plans of most of these last two categories of enterprises. Regardless of differences in restructuring programs and schedules, many Russian enterprises have sought CVs. As a result of their severe economic conditions, they often tried to find partners and negotiate agreements quickly. They expected investments to come quickly as a result of what they believed to be their advanced technologies and capabilities in a wide array of fields.

The U.S. Perspective

By contrast, most American industrial managers viewed the opening of Russia as simply one more opportunity to expand their business, and they examined it in comparison with other, better understood, opportunities; in most cases, opportunities for cooperative ventures in Russia occupied a small percentage of their busy agendas, whereas in many cases it was the first priority for many of the Russian directors. Very few American companies thought there was greater risk in going in too late as opposed to too early; the major exception in our study, in terms of corporate philosophy, was United Technologies Corporation (UTC). There was also a sectoral exception in space propulsion systems. Soon after the breakup of the Soviet Union, U.S. aerospace companies (e.g., Pratt & Whitney, Lockheed, Boeing Defense and Space Group [D&SG]) realized that there were large potential economic benefits to utilizing some of the Russian space propulsion technology and systems, and that it was important to establish strategic alliances before their competitors did. This would have been impossible during the Cold War.

Several U.S. companies in our study (e.g., FMC, Polaroid, and Caterpillar) had done business in the Soviet Union for a long time and found re-entry or increased involvement relatively comfortable based on their familiarity with the area and culture. These and others (e.g., Boeing [CAG], Baxter International) depend heavily on international revenues and place an emphasis on entering foreign markets as soon as they appear to be viable.

Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

There are, however, large sectors of American industry (e.g., automotive, machine tools, microelectronics, and electrical equipment) that saw, and for the most part still see, neither technological nor market reasons to move quickly toward investment in Russia.

Reasons for Seeking a Cooperative Venture

The Russian Perspective

The large reduction in the state's demand for its output and the lack of sources of investment capital within Russia was in almost all cases the primary motivation for a Russian enterprise to seek a cooperative venture. In some cases it was the sole or dominant way that the enterprises sought to adjust to the loss of demand; in other cases, it was only one of the ways, and those enterprises also attempted to use their own resources and state subsidies to convert some of their military production facilities to civilian production. Many enterprises assumed that, since they had good technology that had always been appreciated by the Soviet state, other countries would be only too eager to buy into their skills and products. This proved to be true only for certain isolated sectors such as rocket propulsion, where the enterprises had proven systems that could fill market needs.

Many of the Russian enterprises did not analyze how a cooperative venture could be built into a profitable business in a market environment. At least in the earlier years (around 1992–93) they simply assumed that, because of their technical skills, they could succeed as they always had, but with a different source of financing or demand. They understandably failed to appreciate the other factors necessary to turn technical skills into profitable businesses. This approach often emphasized securing revenue without regard to building a business proprietorship. In addition to compromising their long-term prospects, this left them as dependent on their new customer as they had been on their old one.

The U.S. Perspective

The motivations of American companies were far more varied and complex. Some companies (e.g., Boeing [CAG], Caterpillar, Intel, and Baxter) were primarily interested in selling their products in the emerging Russian market. Others (e.g., Sun Microsystems, Ashtech, Lockheed, and Boeing [D&SG]) were primarily interested in utilizing technology and skilled technicians to improve their own products and market position in the West. Some U.S. companies (e.g., FMC, Caterpillar, Sun) were particularly interested in utilizing Russia's lower labor rates to improve the efficiency of their research and production. In many cases companies were interested in some combination of these factors. Sun, for example, sought expert technological skills at cost-effective rates. Some sought a combination in a sequential fashion; Boeing (Commercial Airplane Group) sought the cost-effective utilization of technology while waiting for the aviation market to develop.

Another reason for seeking a cooperative venture with a Russian enterprise is Russia's highly trained labor force, much of it still located at the defense enterprises. Although many skilled technologists and workers have left the industrial sector, they are scattered throughout the economy so that it would be harder to utilize them than to work with an enterprise

that still has a strong labor force. Whereas the net benefits of the use of existing factories is open to question, the use of existing highly skilled workers from the enterprises is sound.

Expectations of Cooperative Ventures

The Russian Perspective

The command regime trained enterprise directors to have a view of cooperative ventures that was not at all conducive to understanding cooperative ventures in a market economy. They believed that, as marriages were made in heaven, industrial alliances were made in the Kremlin. Even now, organizational alliances involving state-owned and defense enterprises require legalization by presidential decree.⁴ Alliances were made to enhance production and were frequently only a form of vertical integration. Since the state owned everything, vertical integration was in many ways viewed the same whether it involved one enterprise or more than one. Efficiency, productivity, and profitability were not drivers, only production and secrecy. There undoubtedly were contests for power within the alliances, but power was not measured by profits as it is in a market economy.

As a result, the Russian enterprise directors had several unrealistic expectations about cooperative ventures with U.S. companies. They did not see preliminary negotiations as a lengthy fact-finding process, nor as an undertaking that leads to a CV only in a small percentage of cases. They also did not fully realize that U.S. companies have many investment opportunities, have the resources to pursue only a small fraction of them, and do not have access to state subsidies.

Many Russian directors did not have the background (or advisers) concerning such fundamental capitalistic issues as intellectual property rights, the different roles of debt and equity financing, the trade-offs between dividends and growth of stockholders' equity, asset evaluation, the time value of money and return on investment, and market-driven design and pricing. I have known enterprise directors who could not understand why a U.S. company would not simply loan capital for a risky investment if success would result in the payback of the loan in a few years, without expecting additional profit to reflect the degree of risk.

As a result of the nature of these misunderstandings and the dire financial conditions of the enterprises, when they did negotiate cooperative ventures the Russian directors generally looked for short-term results. These were not only return of profits but the provision of upfront working capital. And to them working capital often meant money to maintain payrolls and social services across the enterprise in addition to capital necessary to pursue the specific business of a cooperative venture. Their capital needs were based on their existing cost structures for the entire enterprise and not just the requirements of a business plan for the new venture.

In almost all cases the Russian enterprises wanted to be involved in high-technology projects, and frequently considered it an insult if it was suggested they work on low-technology consumer goods. Based on data on conversion in the United States, Jacques Gansler has shown that conversion projects have a greater chance of succeeding if they involve a level of technology comparable to that in the business's previous military projects.⁵ It may appear reasonable to believe that this conclusion is applicable to the Russian

situation, since like ours their defense enterprises were structured and staffed largely in terms of high technology. There is a large difference, however, in the market demand as a function of technology level in the United States and Russia, since production of low-technology consumer products had been relatively neglected in Russia in the past. In any event, the Russian approach to selection of projects for CVs too often tends to be driven more by technology than by market considerations. In Poland, conversion started to be effective when enterprises shifted away from high-technology products, which they could not produce competitively, and started producing lower-technology products that required less investment and that could respond competitively to market demands.⁶

In addition, the Russians tend to seek large projects. This is partly the result of their desire to save as much of their enterprises as possible and partly the result of believing that it is relatively easy to plan and organize large projects if only the capital is provided. Along these lines, some enterprises look to CVs primarily as a source of capital, with far less interest in the other contributions that an American company might make.

The U.S. Perspective

The American companies in our study had a totally different view of the potential utility of cooperative ventures. They were not trying to cope with a crisis, but seeking to enhance the future earnings of their companies. As a result they lacked a sense of urgency, and, in many cases, they were very cautious about even considering a CV. When they did decide to invest, they frequently proceeded slowly and cautiously by investing in increments. As they encountered, or heard about, the various structural barriers inhibiting business in Russia, they wanted to be sure that a CV could actually function legally and within reasonable cost limits before making substantial investments.

Since they wanted to see an integrated, functioning business, they expected to invest in training, communications, logistics, market research, and the like before plunging into a major operation. They spent far more time and money than they would have in better established economies on legal and accounting advice to be sure that their businesses were on a sound footing. In some cases they expected to be able to rely on legal/contractual protection more than is practical in Russia. Most U.S. companies have learned that trust; frequent, open communication; and personal relationships are far more reliable assurances of fulfillment of obligations. Once they understood and adopted these criteria, they expected to turn more attention to the actual venture and its operation and to gain experience to assess costs of operation. Only after that did most of them expect to make major investments in facility modifications, new equipment, etc.

During all of these stages, the American companies generally expected to follow up with additional investment if this would increase revenues and profits or other outputs of value, such as research data. In only a few cases did they expect to curtail growth; these were cases in which, for example, they had a specific limited research or testing project to be completed. The American companies recognized various barriers to growth, such as slow market development, but they did not expect growth to be inhibited by the limited willingness of the Russian partner to expand the operations, which proved to be the situation in some cases.

Legal Form of the Venture

Almost all of the cooperative ventures in our study have virtually all of their operations in Russia, but they have all been structured according to Western legal forms and operated almost completely in conformity with Western business practices. This in itself means that the Russians were on unfamiliar ground in varying degrees depending on their personal training and their experience with CVs.

The cooperative ventures can be divided into two groups, equity ventures and contractual relations, and, of course, there can be various combinations of the two. Neither of these is in the Soviet tradition. The contractual relations cover a broad range of agreements, from consulting or employment agreements with individuals to research, production, marketing, or licensing agreements with an enterprise. In our cases the choice of the form of the venture has generally been made by the American partner. The choice may be made on a case-by-case basis or as a matter of policy. While this choice is sometimes the result of a careful weighing of the alternatives, it is frequently made for relatively superficial reasons. For example, many cooperative ventures are initiated and negotiated by a mid-level project manager in the U.S. company without major input from the corporate management. In these cases, the project manager usually utilizes the means at his/her disposal. He/she, or his/her immediate manager, frequently has contracting authority but not the authority to execute an equity venture. Even though he/she may consider an equity venture to be more desirable, he/she often eschews that option because it takes a great deal of time and effort to push such a proposal up the organizational chain and more time to negotiate the agreement. In addition to the time and effort it takes to get an equity agreement approved, some project managers believed that their corporate management was less enthusiastic and more conservative about investment in Russia than they were. Forcing the issue could give the manager's project high visibility and involve more corporate bureaucracy, and this is frequently not what he/she desires. In all cases in our study where an equity venture was selected, the initiative for the project seems to have come from the top in the U.S. company.

In the cases in our sample where U.S. companies made the decisions about the form of venture at a corporate (or divisional) level, the choices, and the reasons for them, vary considerably. Many of these companies have an extensive history of international business in many countries, and that experience weighed heavily on their decisions. Some of them have fairly firm corporate policies; these tend to be the companies that do the same type of business in all of the countries in which they work. Other companies have varying types of international activities and tried to adapt more to the specific circumstances in Russia.

Russia differs from other emerging markets/economies (See II-A, Introduction to Case Studies.) in ways that require careful attention when the form and terms of the cooperative venture are established. Some of the principal differences and their impacts on the selection of a legal form of CV are the following:

Financial Condition of Partners

The disparity in the financial condition of the partners usually dictates that the American partner will provide, or raise, most or all of the capital for the cooperative venture, including virtually all of the working capital, while the Russian partner will make primarily nonmonetary contributions. A corollary of the distressed financial condition of most of the Russian

partners is that they do not have the financial resources to support their activities when there are unanticipated changes in operations or unexpected delays that result in lower than anticipated cash flow. On the one hand, the U.S. partner must be prepared to provide contingency funds, and this ability must be anticipated in the initial agreement. On the other hand, the U.S. company cannot afford to get into the position of constantly being asked for additional funding. A solution to this dilemma that some U.S. companies (e.g., Lockheed in LKEI) have adopted is for the U.S. partner to fund some additional contractual work to be done by the Russians. This work need not be closely related to the objectives of the CV, but because of the integrated approach of the U.S. program personnel it is generally in the same technical area. If this work does not have urgent schedules, it can be accelerated or decelerated to maintain some base level of support in combination with the CV's primary activity.

We have seen a very interesting unanticipated consequence of the financial condition of some of the Russian partners, and that is an inability to capitalize on success in the early phases of a cooperative venture. To an American company, success often calls for expansion, especially if the venture was started modestly, and expansion usually calls for investment. Investment at this stage tends to be financial rather than in-kind investments such as technology, but the Russian partner may not be in a position to provide such investment. This second-stage investment also tends to delay the realization of profits from the activity. All of this can lead to a situation in which both parties are pleased with the progress made but have very different desires (or capabilities) in terms of future operations.

Another frequent consequence of the Russian partner's financial condition is the utilization of any funds on hand to meet payrolls or other obligations, whether or not that was the originally intended use of those funds. This method of operation is partly a result of the business and staffing habits in the command economy, in which accounting systems, particularly cost accounting systems, were not set up to properly allocate direct and indirect costs throughout the constituent parts of an enterprise. As a result of these factors (and other management practices), when a cooperative venture is set up with a large enterprise, yet the part of the enterprise to be involved in the CV's activity is not financially and organizationally delimited, serious disputes concerning the assignment of costs (and even of preexisting debt) and application of funds have resulted.

Delimiting the enterprise subunit is one of the most important steps we have observed, and in many cases one of the most difficult to handle. In some cases the delimiting comes about through the voluntary establishment of a spin-off (e.g., Leninet, TsAGI,⁷ Khrunichev), the establishment of a joint venture, or the formation of a division or project group with separate management and accounting (e.g., Impuls⁷ and Santa Barbara, Ltd.). In other cases, subgroups split away from the enterprise and formed their own joint-stock companies (e.g., MCST, Ozero, and RR-Gateway). While this is one of the most crucial issues in setting up a CV, it is also one in which the perspectives of the partners are very disparate. It poses difficult negotiation problems because it is an area where previous experiences and culture are so different and so germane. The incentive structures for the two partners are based on these different perspectives.

From the U.S. company's perspective, the reasons for the delimiting are primarily to have a clear barrier for the utilization of funds and to set up an autonomous complete business

unit that can make and implement business decisions at an operational level. This all seems quite straightforward to an American executive because it conforms to standard American business practice. In addition, American executives are more familiar with alliances that are formed between viable companies that are seeking opportunities to expand their businesses through investment and set up such subunits as the most logical form.

To a Russian enterprise director, decentralization and delegation of authority are major departures from standard practice, and it is very difficult for him⁸ to contemplate all of the ramifications and potential outcomes. Decentralization has broader meaning as well, since it relates to issues of ownership and power within the enterprise; Russian general directors generally delegate far less authority than American CEOs do. In addition, the Russian directors frequently fear that if the most viable portions of their enterprises are separated out, the residual portions will not be viable. This fear is often well founded, but sometimes this represents the facts of life in a market economy, and efforts to save the whole can result in saving nothing.

Barriers

Both Russian and American companies have cited various barriers to establishing and operating cooperative ventures. These can be divided into two categories: those that the companies can overcome through their own efforts, regardless of how difficult this may be, and those over which they have very little control. In the former category the most often cited by the American companies are cultural differences, including different ways of thinking about and doing business; the banking system and the difficulty of completing what should be simple transactions; the lack of reliable and competitive sources of inputs; the absence of useful and reliable accounting data; and the problems in getting feedback on negotiations and proposals from American companies.

The second category are those problems that are beyond the control of the companies and relate primarily to legal deficiencies such as inconsistent and often changing laws relating to foreign investment; tax rates and customs regulations that are a disincentive to foreign investment; the inability of the state to control crime; the reluctance or slowness of the state to address issues that are key to foreign investment; and U.S. export control policies that are unrealistic in terms of global competition and availability of technology. Some earlier barriers, such as currency inconvertibility, have been removed.

Most of the cooperative ventures in our study have addressed and solved (or are solving) the barriers in the first category. The benefits of solving these are well worth the effort. While those in the second category are serious and frustrating, many of the companies find that they can be endured for the time being. Many other companies, however, are citing them as a strong deterrent to investing in Russia.

B. Types of Business Activity in Cooperative Ventures

In some emerging economies U.S. companies will go in and set up a complete manufacturing facility or an extensive marketing network, but thus far they seem to do so less often in

Russia.⁹ This is at least in part a result of the ways in which Russia differs from other emerging economies. The market for many products is not yet large, but the country has considerable residual industrial and technological base. For many products the market has not justified establishing extensive marketing networks. U.S. companies have also been quite cautious about setting up major manufacturing operations in Russia. The companies in our study base this caution largely on concern over stability in Russia. This appears to be less a concern over political stability, although that is a factor, than over having a stable and predictable legal and business environment. In addition, investment in Russia is generally done in cooperation with a Russian enterprise, whereas in other countries a company may come in and establish its own operation without a strategic partner. This is not done as much in Russia for several reasons. One is that property rights on land are neither favorable nor stable, and another is that there are existing factories (and their employees) that are idle and available. In retrospect it is not at all clear that the use of existing manufacturing facilities is more efficient than building a new factory. It is hard to be sure of this because in some cases where the old facility was very inefficient (e.g., Caterpillar [Nevamash]), the Russian partners seemed to have had more suitable facilities than those they made available to the CVs.

In the manufacturing sphere, many U.S. companies (e.g., Polaroid, Caterpillar, FMC) have started by having components rather than complete products manufactured in Russia. In other cases (e.g., Baxter), the cooperative venture initially produced a few fairly simple products in anticipation of expanding the number of products produced. In all cases, this production is done to U.S. designs and specifications. In many cases these are heavy components with a reasonably high labor content that use Russian sources of raw materials. In some of these cases (e.g., Caterpillar-Kirovskiy Zavod, FMC-Obukhov, Collins-GosNIAS, and Svetlana Electron Devices), the intent is to expand the production either to more volume, more components, or complete products, but there are frequently problems that delay or prevent this growth. Some of the major problems have been inadequate sources of supply, inability to meet production schedules, obsolete equipment, inefficient production control processes, or inability or unwillingness of the Russian partner to invest in expansion. In many of the manufacturing ventures the U.S. company does not need additional manufacturing capacity to supply its global markets. The rationale is more one of cost reduction and/or establishing the U.S. company in Russia in anticipation of growing market opportunities there. There are ventures manufacturing items between complete systems, like space propulsion systems, and components or small products. This occurs when the Russian enterprise has produced subsystems, such as aircraft engines, that were fully developed but were not up to world standards. There the CV produces the same type of product, but to the more modern designs of the U.S. partner.

There seems to be a strong interest in utilizing Russian brain power and technology in ways that do not require setting up manufacturing facilities or marketing networks. The interest in software development is a major manifestation of this interest.

In the cases included in this project, many types of businesses (e.g., research, production, sales) have been established. The type of business (sometimes coupled with the industrial sector/market) strongly influences many of the strategies of the companies and the decisions they make. Certain problems are also characteristic of particular types of activity. Therefore

it is instructive to compare ventures of the same type of business activity. For purposes of such comparisons, the CVs in this project have been grouped as shown in Table 2. Some CVs are shown in more than one box when there are different bases of comparison.

Hardware

Sales of U.S. Products in Russia

An objective of many U.S. companies is to sell their standard products in Russia. The markets for some products (e.g., soft drinks, candy, fast food, cosmetics) has grown very rapidly. Markets for some large products (e.g., commercial jetliners and major industrial equipment) will probably be very large but much slower to develop. There are markets for some products (e.g., oil field equipment) that should grow quickly because of the probable growth and strength of the industries they serve. There is also a need for smaller products such as computers and telecommunications equipment for which markets are growing rapidly.

Various U.S. companies, including several in our study, are positioning themselves to compete in these markets although the markets are not yet large. Many of these companies are doing this through cooperative ventures with Russian enterprises, even though some of the Russian partners may not engage directly in the manufacture or sale of products.

Civilian Aircraft and Subsystems

The market for commercial jetliners in the former Soviet Union is complex. In the days of the Soviet Union it was relatively simple; there was one airline, Aeroflot, and it "bought" only aircraft produced in the Soviet Union. After the breakup of the Soviet Union, Aeroflot ruptured into more than four hundred regional and international airlines.¹⁰ Many planes subsequently fell into the possession of whichever country they were in when the Soviet Union broke up. Several of the NIS have their own national airlines, and there are many privately owned carriers. In the commercial aircraft field we have data on Boeing, the world's leading supplier of civilian jetliners, and UTC (Pratt & Whitney and Hamilton Standard) and Rockwell (Collins), which produce major aircraft subsystems.

The products, markets, and competitors of Boeing, UTC, and Rockwell differ, but these companies face many of the same issues in doing business in Russia. Boeing has taken a gradual approach; it has sold and leased a few aircraft in Russia and other CIS countries. It received its largest single order to date in September 1996 when Aeroflot ordered ten 737s (as opposed to only four Russian-built jetliners ordered by all Russian airlines during the first nine months of 1996).¹¹ Although Boeing does not expect the market for civilian airliners to grow very fast, it could ultimately be very large: the Russian airliner fleet is quite old, with many planes having been cannibalized for spare parts; the country is very large; and there is growing international and domestic travel and commerce.¹²

While waiting for the market to expand, Boeing is conducting research and testing projects in Russia as well as qualifying some sources of basic materials. While these projects help Boeing establish a presence in Russia, they are also providing value for the money spent on them and do not require very large investments. Boeing has not as yet made any alliances

Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

Table 2: Analysis of Cooperative Ventures by Business Objective

Purpose of Venture	Case Study	Company(ies) and/or Cooperative Ventures
		HARDWARE
Sales of U.S. Products in Russia	Boeing Rockwell UTC UTC	Civilian aircraft and subsystems Boeing CAG Collins Hamilton Standard Pratt & Whitney
Use of Russian-made Components, Products, or Subsystems	Caterpillar Obukhov	Equipment for extractive industries Caterpillar FMC
	Lockheed Martin UTC Boeing	Utilization of Russian aerospace subsystems Lockheed/Khrunichev/Energia (LKEI) Pratt & Whitney/Energomash Sea Launch
	Leninets Baxter Polaroid Svetlana Obukhov IAI UTC	Production of consumer goods, equipment, medical products, and electronic components Leninets/Gillette (Petersburg Products Intl) Baxter/NIIAP (MosMed) Polaroid (Svetozor) Svetlana Electron Devices Obukhov/DAB Intl Hearing Aids Intl/Istok (IAI) Otis
U.S. Government-Sponsored Projects	IAI Leninets Rockwell	Formed to assist defense conversion HAI/Istok (IAI) Leninets/Intl American Products Rockwell/GosNIIAS
	Boeing Boeing UTC	Systems development contracts with Russian subcontractors Boeing CAG/Tupolev (Tu-144) Boeing D&SG/Khrunichev (Space Station) Pratt & Whitney/Energomash (RD-180)
Research and Development Contracts	Boeing Obukhov Lockheed Martin RAIES Intl Rockwell Rockwell SAIC	Boeing CAG/various institutes Obukhov/FMC LKEI/Khrunichev/Energiya RAIES Intl/Khlopin Radium Institute Rocketdyne/various institutes Rockwell Science Center/various institutes SAIC/various institutes

Analysis and Conclusions from Case Studies

Purpose of Venture	Case Study	Company(ies) and/or Cooperative Ventures
		HARDWARE (cont'd)
Services	Caterpillar UTC RAIES Intl	Caterpillar Otis (RUS Otis) RAIES International
		SOFTWARE
Facilitate Entry Into Other Product Markets	Boeing	Civilian aviation Boeing's CAG/various institutes
	Intel	Signal processing Intel Corporation/VNIIIEF
Provide Software to Integrate into Hardware and/or Software Products or Research Programs	Ashtech Trimble	Global Positioning System applications Ashtech Corporation/consultants/various institutes Trimble Navigation/Ozero
	Boeing Rockwell	Civil aviation Boeing CAG/various institutes Collins/various institutes
	ParaGraph Intl MCST Typhoon MCST Rockwell	Computer hardware/software ParaGraph International Sun Microsystems/MCST Typhoon Software/Santa Barbara Ltd. EnergyLine/MCST Rockwell Science Center/RR-Gateway
Marketing of Outsourcing Software Services	Typhoon	Typhoon Software/Santa Barbara, Ltd.

for production of aircraft components, which it often does in major market countries, especially those with a relevant domestic industry. As far as we know, Boeing's major competitor—Airbus Industrie—has not made coproduction investments in Russia either.

By contrast, Pratt & Whitney has already made three major investments in the aircraft industry in Russia. Its potential market is considerably different in that there are new large Russian aircraft going into production (Ilyushin-96M/T, which has Pratt & Whitney engines, and Tupolev 204, which uses Rolls-Royce engines), there are smaller aircraft and helicopters being produced that could benefit from more efficient engines, and there are older aircraft being considered for retrofitting with new engines (e.g., Ilyushin-86).¹³ Therefore Pratt & Whitney took a three-track approach to address these markets. It is investing in the development of the Il-96M/T, it is investing in cooperative ventures (with Perm Motors and Klimov) to manufacture engines in Russia, and, in the interim period before the manufacturing ventures reach production, it is marketing its U.S.-made engines in Russia.

In its first major investment, Pratt & Whitney invested \$50 to 60 million in 1993 to equip the Il-96M/T with its engines.¹⁴ This project is considerably behind schedule, so the investment has very likely increased. The second is the joint venture at Perm Motors (which has yet to be consummated), in which Pratt & Whitney has invested \$150 million. The first Il-96M/Ts will be equipped with engines built by Pratt & Whitney in the United States, but the intention is that engines built at Perm will be used for later production of the planes. The Il-96M/Ts, which are estimated to cost about \$80 million each, will initially have about \$50 million worth of U.S. components (based on using U.S.-built engines) in each.¹⁵ Because pressure to have greater content manufactured in Russia is anticipated, Pratt & Whitney may not expect to sell U.S.-built engines for very long. In addition, one of Pratt & Whitney's major engine competitors, General Electric, also has a jet-engine joint venture in Russia.¹⁶ The third joint venture is the Pratt & Whitney/Klimov partnership to produce engines for smaller aircraft and helicopters.¹⁷

UTC's decision to start large joint ventures reflects its strategy to enter Russia early with major investments, and is not solely a result of the market conditions discussed above.

Historically Pratt & Whitney and Boeing have not been direct competitors, as Pratt & Whitney was a supplier of engines for Boeing (and other) aircraft. They competed in the sense that Pratt & Whitney would support sales efforts by Boeing's competitors as well as by Boeing, since Pratt & Whitney often competed with other engine suppliers (General Electric and Rolls-Royce) regardless of which aircraft company received an airline's order. Pratt & Whitney and Boeing became more direct competitors in 1989 when Pratt & Whitney started negotiating to participate not just as a supplier, but as an investor in the Il-96 project, which would compete directly with Boeing aircraft in some markets. It is not unusual for U.S. aerospace companies to team on some projects and compete on others.

The competition was manifested in the debate over whether the U.S. Export-Import Bank should provide a \$1 billion loan guarantee for the financing of the Pratt & Whitney engines for the first twenty Il-96M/Ts. Boeing had opposed this guarantee initially. An agreement was ultimately reached whereby the financing would proceed with the guarantee, and in exchange the Russian government would remove the import tariff on foreign-built aircraft.¹⁸

Analysis and Conclusions from Case Studies

The Hamilton Standard division of UTC, which builds environmental control systems (ECS) for aircraft, is also involved in the Il-96 project. It established a joint venture, Hamilton Standard/Nauka, in 1995 to produce ECS for Russian aircraft. Nauka is a Russian designer and manufacturer of ECS. Hamilton Standard's investment was \$2 million for a 51 percent interest in the joint venture. Funding is also provided by OPIC and the Defense Enterprise Fund.¹⁹

The Collins division of Rockwell International, which designs and builds avionics systems, is also engaged in the Il-96 project, partly through its cooperative venture with GosNIIAS. Whereas Collins acts as a supplier in the United States, its strategy for entering the Russian market has been to invest in a cooperative venture that will manufacture in Russia. In addition to coproducing and servicing avionics systems for the Russian aviation industry, Collins is also performing R&D with GosNIIAS that will be utilized in future Collins products.

The Russian government has stated that the aircraft industry is one that it wants to preserve, but this may be very expensive, at least for the civilian component. The military aircraft industry has been reasonably successful in garnering foreign orders, although it remains to be seen if it can remain viable in the absence of domestic orders. The Russians seem to recognize that to be competitive in the civilian market, even domestically, they need (at a minimum) improved engines and avionics, and the only way to get these is through cooperative ventures utilizing Western technology. For a time Russian engines cost less to buy but more to operate than comparable U.S. engines. Now, the Russian engines are actually more expensive to buy.

The Soviets had been more competitive in airframe design and production, and the Russians believe they still are, as witnessed by the Il-96 and Tu-204 projects. Western airframe technology has been advancing very rapidly in the past several years (e.g., Boeing 777), however, but Russia's has not. So it remains to be seen if the Russians' confidence in this regard will be justified by the market.

The subsystem suppliers have made major investments in the Russian aviation industry, while the aircraft assemblers have not, at least as yet. Reasons for this include their general corporate strategies, priority given to faster growing markets (e.g., China), greater Western competitive forces for subsystems, and Russian policy toward the aviation industry.

Equipment for Extractive Industries

Industries to extract natural resources provide one of the best potential markets for equipment manufacturers since many of Russia's abundant untapped resources are being developed in cooperation with Western companies. Many of the ventures engaged in the extractive industries realize that they will need more modern equipment than Russian industry has to offer. This market is developing more slowly than expected, largely because of delays in negotiations between the Western energy companies and the Russian government, but it still presents an excellent opportunity for cooperative ventures between U.S. equipment manufacturers and Russian production enterprises. Caterpillar and FMC from our study, as well as others such as Dresser Industries and Baker-Hughes, are also pursuing this market. Both Caterpillar and FMC had done business in the Soviet Union for decades. Caterpillar has two

such ventures, one of which (Nevamash) has many similarities to the FMC venture at Obukhov.

Caterpillar's participation in the UNOC venture in Yekaterinburg is in many ways the most straightforward. It differs from the others in this study in that it produces a major integrated product, oil well drilling rigs, assembled in Russia. Caterpillar provides the diesel engines, National Oilwell (of the United States) provides the pumping equipment, and Uralmash provides the oil rigs and does the final assembly. The Caterpillar portion is a standard product that is imported into Russia, although Caterpillar has been in lengthy negotiations with Novodiesel to form a cooperative venture that could produce diesel engines in Russia. From Caterpillar's standpoint this provides an opportunity to sell a product which would be harder to sell directly to the end user, who would have to integrate the subsystems.

Another Caterpillar venture is Nevamash in St. Petersburg. Here they are set up to manufacture components—initially just excavator bases—for standard Caterpillar products. The output is shipped to Caterpillar manufacturing and assembly plants in the West (in Belgium in the case of the excavator bases) for integration into finished products. The venture initially imported its steel (the only material used) but has now developed domestic sources. FMC has taken a similar approach in its cooperative venture with Obukhov, also in St. Petersburg, which casts, forges, and machines various components, mostly for oil field equipment, and ships them to manufacturing plants in the West—primarily in Scotland at this time. Obukhov also uses domestic sources of materials.

Although these ventures are similar in the type of production, end markets, and export of components for assembly, they have significant structural and operational differences. Caterpillar entered into a joint venture with Kirovskiy Zavod with the initial intent of managing the venture, modifying a facility, and doing the complete fabrication of one component. The joint venture was expected to become a profitable operation. FMC chose to have components manufactured under contract and therefore did not have a formal management role, but it has been providing considerable technical assistance. In many cases the components produced at Obukhov are not finished there because of the limitations of the factory's capabilities. Both FMC and Caterpillar have invested money to enhance the production capabilities. Both ventures are reasonably successful to date, but have a way to go to reach their potential.

The fundamental economics of both ventures are marginally attractive to the U.S. companies, but in both cases substantial economic benefits are dependent on being able to expand production and achieve economies of scale. In Caterpillar's case it wanted Nevamash to both increase its production volume of excavator bases and to start producing additional components. In FMC's case it would like to be able to order additional components, including some made with other alloys than those currently being used, and to increase the value added of some of the components currently being produced; for example, by doing more machining to produce finished parts.

In both cases there are barriers to expansion. In Caterpillar's case there were two related barriers to expansion. The first was that the economies of production favored building a new facility rather than continuing to utilize the highly inefficient facilities at Kirovskiy Zavod. Partly because of this, Kirovskiy Zavod did not choose to make the investment in expansion

that would have been necessary to maintain its share of ownership. In FMC's case it would be necessary to modernize the plant's equipment, including completion of an expensive electric arc furnace. Since Obukhov is still state-owned, FMC appears reluctant to establish an equity joint venture and invest heavily in new equipment. In Caterpillar's case the choice of an equity venture (at least as it was structured) contributed to the breakup of the cooperative venture. In FMC's case the absence of an equity venture dissuaded FMC from making a capital investment that would have enabled the venture to grow. Caterpillar addressed its growth by reaching an agreement to buy out Kirovskiy Zavod's share; FMC is attempting to help Obukhov increase production by training its personnel in improved production control and efficiency methods. One must be cautious about drawing firm conclusions about the relative advantages of equity and contractual deals from these two cases because there are other important factors that must be considered, such as the role of the state, capabilities of particular partners, and the attitudes of the managers.

Utilization of Aerospace Subsystems

In our limited study this utilization only took place to a significant degree in space ventures. By far the largest near-term Western market for the Russian military industry that we have seen is in space propulsion systems. In the United States the market is both for government contracts and for commercial space launches. Several U.S. aerospace companies have attempted to negotiate cooperative ventures with Russia's space propulsion enterprises because several Russian systems have advantages of performance, reliability, and cost compared with their Western competitors. In this section we compare three such major CVs in the commercial space launch market—Lockheed/Khrunichev/Energia International (LKEI), the Boeing Sea Launch project, and the Pratt & Whitney/Energomash joint venture.

From the standpoint of how U.S. companies do business in Russia, there seem to be more similarities than differences in the three ventures. The first two ventures sell launch capability and integration for commercial satellites using Soviet-designed stages for the boosters. Pratt & Whitney is also taking the marketing role in its joint venture, but its customers (both government and commercial) are the launch system integrators as opposed to the end users (satellite manufacturers). Pratt & Whitney will therefore also have a lesser system integration role. In the Sea Launch case the first two stages are the Zenit rocket supplied by NPO Yuzhnoye, which is assembled in Dnepropetrovsk, Ukraine, although a substantial portion of the components are made in Russia. Russia and Ukraine have differing rates and forms of economic reform. Since the Zenit rocket has substantial Russian content, there may be issues of pricing, trade laws, and supply between the two countries over time. The third stage is built by NPO Energia in Russia, as is the fourth stage of the LKEI system. The first three stages of the LKEI system are the Proton rocket, which is built by Khrunichev in Russia. LKEI launches from land and Boeing Sea Launch will be launched from the sea.

The LKEI and Boeing ventures differ somewhat in the systems integration task. The LKEI launch system was essentially a fully developed system that had been launched many times from the Baikonur Cosmodrome. Lockheed's principal technical role was payload integration. By contrast, Sea Launch involved the coupling of two launch systems that had not previously been coupled,²⁰ as well as the very complex task of designing, building, and integrating a launch vessel—a totally new launch environment for the Zenit rocket.²¹ Boeing

will also do the payload integration. Lockheed and Boeing are performing the bulk of the marketing in their respective ventures. The overall task of coordinating the partners' roles and equipment appears to be considerably more complex for Sea Launch. Boeing's task seems more complex in two other ways: (1) Lockheed, especially after its merger with Martin Marietta, had far more experience in the satellite launch and operation field; and (2) The international legal issues faced by Boeing are more varied and complex. It must deal with the U.S. government regarding launch limits for both Ukrainian and Russian systems, and it must deal with the registry of a ship.

Although neither Boeing nor Lockheed has published data on the size of its investments, it appears that the investment in Sea Launch is greater because of the integration complexities, the amount of development work required, and the need to build the launch and command ships; however, LKEI must pay for the use of the Baikonur Cosmodrome launch facility.²² LKEI had its initial launch in April 1996, and Sea Launch is scheduled to have its first launch in mid-1998. As of late 1994, LKEI had already booked orders for eleven launches plus four options representing revenues of \$1 billion. Sea Launch has booked firm orders for eighteen launches. Based on this, both ventures appear to be marketing successes.

In each of the three cases, the joint venture contracts with the partners for the work that they do. In the early days of LKEI, Lockheed provided a small staff, and they were heavily involved in marketing. In addition to marketing and legal issues, the Boeing staff, which appears to be larger, is substantially engaged in project management and integration. The Pratt & Whitney/Energomash staff will be very small, and will contract (or subcontract) all of the production and technical work to the two partners. A major difference in this case is that both partners will manufacture the Energomash-designed RD-180 rocket; Energomash will do so for commercial customers, and Pratt & Whitney will do so for U.S. government projects. This introduces a far larger element of technology transfer than in the other two joint ventures.

These cases are interesting not only from the standpoint of comparing alternative strategies and approaches but also for illustrating what can be accomplished in Russian-American cooperative ventures when the necessary conditions are present. The most important conditions here are the presence of a large, and growing, market and the availability of Russian (and Ukrainian) technological systems that are superior to any others in the world on the combined bases of technology, performance, and cost. The market projections do not rely on customers within the CIS. Under these conditions, three major U.S. corporations have been willing to make long-term commitments of substantial capital. We are not aware of any other part of the military-industrial base in which this combination of conditions is present.

Production of Consumer Goods, Equipment, Medical Products, and Electronic Components
Several American companies in our study are producing some of their products (or components) through cooperative ventures in Russia. These products cover a broad range of sectors, markets, technologies, and origin, so comparisons must be made with caution; nonetheless, there are some comparisons that are illustrative. Consider the following CVs:

Analysis and Conclusions from Case Studies

1. Leninets/Gillette, Petersburg Products International (PPI). Leninets has chosen to establish consumer product joint ventures for the Russian market with Western companies that already have such product lines. PPI manufactures disposable razors and other shaving products for the Russian market. The venture has been highly successful, capturing about 80 percent of the Russian market.
2. Baxter/NIIAP (MosMed). MosMed was formed to manufacture surgical instruments using Baxter's standard designs. The surgical instruments were originally intended for the Russian market; however, the demand is not there due to the weak financial condition of Russia's health care system. The manufacturing has been sufficiently efficient that the output can be sold competitively in the West. The major challenges in the early stages were to qualify Russian materials (principally steel), to maintain Baxter standards and quality control, and to achieve low manufacturing costs.
3. Polaroid (Svetozor). Polaroid decided in the mid-1980s to expand to the Soviet market. It began with circuit board production and camera assembly with the output initially for export to generate convertible foreign exchange. In 1992 its activities were expanded to incorporate marketing in Russia.
4. Svetlana Electron Devices was formed to market specialty vacuum power tubes, produced primarily by Svetlana in St. Petersburg, in the West. These tubes supplied niche markets that were too small for the traditional Western manufacturers, which discontinued their production of vacuum tubes.
5. DA International. This venture was formed to build wheelchairs in Russia for the Russian (CIS) market. The product development and production phases of the program were quite successful, but reductions of state health care budgets severely reduced the demand for the product.
6. Hearing Aids International/Istok, Istok Audio International (IAI). IAI was formed to manufacture low-cost, less than state-of-the-art hearing aids to be sold in Russia.²³ In addition to a reduction in the potential state-funded demand for its output, IAI suffered from the fact that the Russian government ordered a quantity of hearing aids but failed to pay for them after they were delivered.
7. Otis Elevator. Otis has two major manufacturing joint ventures in Russia, one in Moscow and one in St. Petersburg. Both manufacture and install Otis-designed elevators. In addition, Otis has a network of thirty-three branch offices throughout Russia that maintain and service elevators.

Several observations can be drawn from these cases. One of the most significant is that several of them involve a much lower level of technology than the Russian partners were accustomed to in their military work. This is in contrast to the many Russian defense enterprises that eschew such work, arguing, among other points, that they cannot keep skilled technical personnel with low-technology projects. Of the cases in our study, Leninets has the most cooperative ventures (mostly with European partners) that deal in low-technology consumer products, and it has been successful in several of them. Leninets appears also to have been relatively successful in retaining top technical personnel. It is

difficult to draw conclusions from this with a high degree of confidence because the data involve a subjective judgment by the interviewees, we do not have many comparable cases, and it is difficult to determine the relative importance of various causes of resignations of employees of comparable technical expertise. We have not interviewed current or previous employees. Largely as a result of these CVs, Leninets is in stronger financial condition than many other defense enterprises. This strength seems to derive at least in part from its willingness to engage in low-tech CVs that have good markets, but it also results in part from the overall restructuring approach and performance of the enterprise. Leninets has not abandoned the quest for high-technology work.

In U.S. industry, many people doing managerial and marketing work were previously doing science and engineering. Many of the Americans who have been central to establishing the cooperative ventures in this study were formerly engaged in direct technical work. Enterprises like Leninets are also finding that some of its engineers and scientists are receptive to such challenges even when related to lower-technology business units. We have seen a similar phenomenon at enterprises that we studied earlier, although not in the context of CVs. For example, Impuls, a designer of advanced sensors for weapon systems, designed, produced, and sold a product for counting paper money, which has been a very successful venture; in fact, it has been the enterprise's principal source of revenue for some time. This product is of far lower technology than the advanced sensor systems that it had built for the military. Nonetheless, its engineers find interesting challenges in this work. Impuls also has reduced staff by offering higher salaries to the most creative and productive personnel. Through this series of actions it is able to keep some of its most talented technical personnel and have the resources to support other, higher technology, new product developments.²⁴

In addition to relative financial stability (or partly because of it), the fact that Leninets has several successful cooperative ventures makes it a more viable candidate for high-tech CVs because it has demonstrated an ability to work successfully with foreign partners. There is at least the possibility that its relative financial strength, the presence of different types of challenges, and its attractiveness as a CV partner give it greater flexibility to pursue high-technology work and hence retain and challenge its technical staff.

The other cooperative ventures in this group also seem to have retained at least some of their top technical personnel by presenting them the partially technical challenges of the business world, such as quality control and production efficiency as they pertain to commercial products. For example, since the MosMed venture is producing surgical instruments under the Baxter name, Baxter has logically insisted on meeting its usual standards of quality. Since Russian suppliers of materials such as steel had not previously worked to international standards, there was considerable certification and quality assurance work to be done. This proved to be interesting work for some of NIIAP's engineers even though the end product was of fairly low technology. In addition, Baxter brought NIIAP personnel to the United States for training in many aspects of business and production technology, and this also proved to stimulate these people to accept new, lower-technology challenges. The same seems to be true at IAI and DA International, where the technical personnel involved were more engaged in mastering production technology and control than in the more sophisticated engineering design work they had previously done. For a high-technology Russian enterprise to convert to production of low-technology consumer goods by the

methods and culture of the old command economy would not be very challenging to the scientists and engineers.

There are two types of technology to consider. There is the seed technology on which the product is based; in many fields the Russians were quite advanced in this respect. The other is implementation, or production, technology, and the Russians were far less advanced in this regard because the command economic system did not place much priority on efficiency, and because there were no market forces driving it. Production of low-technology products in ways that are internationally competitive through the use of modern manufacturing practices can be very challenging. When this is coupled with the fact that the Russian economy cannot absorb all of the high-tech production that the military-industrial complex could supply, and given the great demand for consumer goods of low to medium technology, a policy of engaging solely in high-tech projects seems shortsighted.

MosMed, IAI, and DA International all were established to sell to the medical equipment and supply markets in Russia, which were basically state supported. Following the sharp decline in the economy, the demand for their output dropped to very low levels, so this is not a good market to address at this time; however, in all three cases the companies have been able to produce the products at a price and quality level that give them an opportunity to export the products to other markets. Their ability to do so successfully depends on the market positions of their U.S. partners. In MosMed's case, Baxter is clearly well established in its markets worldwide, and the products were standard Baxter designs produced to Baxter's quality standards. Therefore they could sell these products through Baxter's normal distribution channels. DA International is also established in its market, but the product, while apparently of superior quality and competitive price, is not a standard design that is known and accepted in the West. Hence it may have a harder time penetrating export markets. IAI's situation is the most difficult of the three in that the product is at least a generation behind the state of the art. While this was a conscious decision in order to fill a need in Russia at a low price, it makes export very difficult. In addition, the American partner, Hearing Aids International, is not a supplier to the international hearing aids market.²⁵

Although Polaroid is in a very different sector, and it has been successful in selling within Russia, it also conforms to the Baxter model in that it is producing a standard (American-designed) product in Russia that can be exported on a favorable cost basis. Svetlana Electron Devices is selling products in the United States that are made at Svetlana in Russia. The tubes produced at Svetlana must be to American standards and be plug-to-plug compatible with American equipment, so designs have been made to conform to these requirements. However, these designs fall within the general envelope of capabilities and specifications of the tubes that were previously made at Svetlana. In all of the other cases in this group, the product was totally new to the Russian partners, but all were relatively simple products with which to start a manufacturing CV.

Of the manufacturing cooperative ventures studied in this project, there are some (e.g., Pratt & Whitney/Perm Motors) that have not yet gone into production and are having some problems. There are others (e.g., Nevamash and FMC/Obukhov) that, while successful, have

found limits to what they can achieve in these particular manufacturing CVs. However, there are many cases that prove that manufacturing of finished products can be done profitably in Russia. These include those building major U.S.-designed equipment (e.g., Pratt & Whitney/Klimov and Otis Elevator's joint ventures), major Russian systems (e.g., Khrunichev), and smaller consumer and medical products (e.g., Baxter/NIIAP and Polaroid/Svetozor) incorporating both Russian and U.S. elements of design.

U.S. Government-Sponsored Projects

Several U.S. companies in our study have worked with Russian partners on U.S. government (USG) contracts. These are of two types: (1) Cooperative ventures that were formed in response to USG programs initiated specifically to assist defense conversion in Russia, and (2) System development projects in which American prime contractors saw advantages in having specific Russian subcontractors.

There are also two subtypes of cooperative ventures in the defense conversion initiatives—direct contracts from the USG that provided partial funding for the CV without any quid pro quo in terms of equity or debt, and projects partially financed by the Defense Enterprise Fund (DEF), which took debt and/or equity positions. In most of the direct conversion contracts, the normal business processes of seeking and negotiating a CV were distorted because the availability of government funds was the impetus for the CV more than the business opportunity itself, and because the overlay of government procurement regulations, schedules, and objectives led to many decisions that were perhaps counter to those that would have been taken for purely business reasons. The most serious problem was that some of the alliances were established very quickly as the result of available government funding rather than having the two partners build a strong relationship and then obtain funding. A second, and related, problem was that some of the American partners did not adequately discuss financial plans with their Russian partners. There were four such contracts awarded, and three of these resulted in the actual formation of CVs.²⁶ Two of them, Istok Audio International and Rockwell/GosNIAS, are included in this study, and the other, Leninet/International American Products, involves a Russian company in our project. The projects involving financing from the DEF are typical CVs, and some of them are included in this study.²⁷

System development contracts with Russian subcontractors also figure in some of our case studies. The major direct ones (Space Station and the Tu-144 SST experiments) both involve Boeing as the prime contractor. In another cooperative venture, Pratt & Whitney/Energomash, the CV is actually a commercial venture, but Pratt & Whitney intends to use Energomash technology and products to strengthen Pratt & Whitney's bid as a subcontractor on future U.S. Air Force and NASA procurements. These projects are not very different from the purely commercial CVs except that there are government contract conditions that must be passed on to the subcontractors. In the Pratt & Whitney/Energomash case, the government required that Pratt & Whitney produce the hardware used on government projects. Therefore Energomash will produce the hardware for commercial applications, and Pratt & Whitney will do so for the government contracts. This is an interesting contrast to the Boeing Sea Launch project, for which Boeing questioned its ability to produce major systems that had been designed by other organizations.

Research and Development Contracts

Several U.S. companies in our study are funding R&D in Russia for various business reasons. The results of the R&D are usually to be incorporated into products of the U.S. companies, but in some cases the research is also done for the purpose of opening up market entry in the future. The research can be fairly fundamental (e.g., some of the aerodynamic research funded by Boeing), directly related to product design (e.g., for design of radiation sterilization machinery for RAIES International), for the design of future versions of a Russian system (e.g., the Proton booster funded by LKEI), or for the processing and certification of special alloys (e.g., FMC, Boeing, and Baxter).

The Rocketdyne division of Rockwell has funded a large number of R&D projects in the expectation of using the results of some of these on commercial projects and on future USG projects. Rocketdyne was one of the parts of Rockwell recently acquired by Boeing. In addition, the Rockwell Science Center will continue aerospace R&D work under a shared resource arrangement with Boeing.²⁸ Rocketdyne, the Rockwell Science Center, and Boeing all had extensive R&D work in Russia, and their alliance should result in a very strong participant in aerospace R&D in Russia with broad access to Russian technology. FMC has also funded a large number of materials research projects that are designed to support FMC's product divisions.

Finally, SAIC has teamed with Russian organizations on a large variety of research and consulting contracts for its Western customers.

Services

Some cooperative ventures are performing services as a part or the whole of their activity in Russia. To some extent, most, if not all, ventures perform some amount of services for their customers, but this section deals with those for which services are the core of their business. One such case is RUS Otis, which has thirty-three branch offices across Russia and employs six thousand people for the purpose of servicing and maintaining elevators. This type of business poses very different demands for a company than a centralized operation does. Thirty-three operations are working under the Otis name and are responsible for its reputation. This also requires a distribution network for spare parts, training for personnel in many locations, warranty operations, marketing of services, and record keeping, none of which were strong points of Soviet industry.

Caterpillar also is moving into providing maintenance and service as an essential component of its distribution system. Its products such as tractors and earthmovers will have a different geographic distribution than Otis's elevators, but many of the issues will likely be similar. Other manufacturing CVs selling products requiring maintenance and service will also have to deal with similar issues.

RAIES International is another type of service venture. It is one of the most complicated ventures in the study in that it involves many actors, R&D leading to production, various forms of approvals and regulations of both governments, major logistics of input raw materials and end products, etc. It is expected to become a special-purpose corporation applying the same technology, regulatory, financing, infrastructure, and operational techniques to a wide variety of product markets.²⁹ The service element will be the irradiation of

timber. RAIES St. Petersburg also performs services for RAIES International by contracting out for plant design and construction.

Software

U.S. companies have entered into software development projects with Russian partners for a wide variety of reasons. Five such reasons are contained in the cases that we have studied; some cases involve more than one:

Facilitate Entry into Other Product Markets

Boeing's CAG and Intel are the major cases in this category. The long-term interest of each is to sell its primary products in Russia. In Boeing's case its future market position will probably depend to some extent on the degree to which there is Russian content in its aircraft. The major form of this content could be the manufacture of components of some Boeing aircraft; however, another could be in the form of Russian participation in the R&D of various Boeing aircraft because this contributes significantly to Russia's ability to maintain its aviation R&D infrastructure. If Boeing makes a production alliance in Russia, it will be not only a major investment but also a major commitment in the selection of a partner. The decision to form such an alliance has not been rushed. In the meantime Boeing is funding a spectrum of research projects with aviation research institutes, and a good deal of this involves software. It has also set up a research facility with computer workstations where some institute research personnel can work.

Intel's primary products are microchips, and it has already opened several sales offices in Russia and other NIS. Contracting for software development not only enables Intel to utilize the extensive software capability in Russia, but could also help it to further establish its presence and credibility in the country. There are major differences between Intel's and Boeing's approaches. Intel is funding software development at a nuclear research institute and not at institutes more closely related to its basic industry sector. This may be because the computer and microchip sectors in Russia are in much worse shape than the aviation sector and its institutes. It could require a larger investment for Intel to make microchips in Russia than for Boeing to have aircraft components manufactured there. Another difference is that the research that Intel is sponsoring is less directly related to the design of its basic product. Although the Intel project appears to be less a reflection of corporate strategy than a program initiated at the project level, it nonetheless may have a positive impact on Intel's future business in Russia.

Provide Software to Integrate into Hardware and/or Software Products or Research Programs

Nine companies in our study are developing software in Russia to integrate into their products, and they represent several diverse models and sizes of operations. No one model of formation, operation, or objective seems superior. Rather it seems that software development offers a number of flexible ways for U.S. companies to work in Russia that are suited to their objectives and resources.

1. Ashtech employs approximately one hundred Russian engineers plus a few consultants. Earlier it had worked through an institute. It had looked at doing both design and

manufacture in Russia but decided only to do design work there for the present.

2. Boeing utilizes between 150 and 200 Russian researchers through contracts with several institutes. (Not all of these are engaged in software activities.) Their work is part of Boeing's overall R&D activity.

3. Collins (a division of Rockwell International) is doing research at GosNIIAS in conjunction with avionics product development on which Rockwell and GosNIIAS are collaborating.

4. EnergyLine is a small U.S. company that has contracted with the Moscow Center for SPARC Technology to develop software for its computer-based products.

5. Intel has contracted with the Russian Federal Nuclear Center (VNIIEF) at Arzamas-16 (now Sarov) to develop software. The work utilizes approximately forty scientists employed at the institute.

6. ParaGraph International is a California-based company that has a branch in Moscow where approximately one hundred employees work on the development of advanced proprietary software products.

7. Rockwell International's Science Center (RSC) has four software development contracts with a small (approximately ten employees) employee-owned Russian joint-stock company, RR-Gateway. The principals of RR-Gateway split out of the Institute for Control Sciences, which originally had the contract from the RSC.

8. Sun Microsystems has a major software development program, employing approximately 140 people, with the privately owned Moscow Center for SPARC Technology (MCST). Sun is its primary customer, and it develops software that is integrated into Sun's hardware and software products. The founders of MCST came from the Institute for Precision Mechanics and Computer Technology.

9. Trimble Navigation has a contract with Ozero, a small (approximately ten employees) private joint-stock company in Irkutsk. Ozero develops part of the software for a Trimble GPS product, and Trimble integrates its software with that developed in-house.

10. Typhoon Software has an affiliated company, Santa Barbara, Ltd. (SBL), in St. Petersburg which develops proprietary software products to be jointly marketed. SBL's primary business is software development on contracts marketed by Typhoon to U.S. customers.

Several conclusions can be drawn from these projects:³⁰

- A U.S. company can have software development done cost effectively, including the costs of interaction, in Russia utilizing as few as five to ten engineers (EnergyLine/MCST, Rockwell/RR-Gateway, and Trimble/Ozero).
- Software development projects can be successfully performed by major research institutes, small split-off companies, or direct employees under management models that vary from tight U.S. control to virtually no U.S. management control.
- Some institutes manage software contracts constructively without charging unreasonably high rates for overhead, facilities, etc., but others have provided a less constructive

interface, leading the U.S. companies to circumvent the institutes. Some institute managers deplore this practice of circumvention, even when it does not affect their own institute.

- Several U.S. companies have gained sufficient confidence to place these development projects on the critical path of their own products.
- A small minority of the U.S. companies in this study use these contracts to develop self-contained proprietary products as opposed to integrating the software into larger products.
- Most of the small Russian companies are formed for the specific customer and some have not yet tried to build a broader business (e.g., RR-Gateway, Ozero, MCST, Santa Barbara, and ParaGraph International).
- The U.S. companies give their partners varying degrees of access to their own proprietary software, from very little (e.g., Ashtech and Intel) to virtually all of the relevant programs (e.g., Sun). The U.S. companies have retained almost all of the intellectual property rights from their projects.
- The technical capability to compete on a global basis is present in Russia, and there are large numbers of engineers with the requisite skills. Many U.S. companies consider the skills of the Russians to be superior to those of their American counterparts in at least some of the qualitative aspects of the profession.
- Companies appear to be less reluctant to start these non-capital-intensive projects than they are to start manufacturing joint ventures. The probability of success in a software development project is apparently quite high.
- Large U.S. companies sponsoring software development projects generally establish a contractual relationship, rather than a joint venture, with their Russian partner (e.g., Rockwell, Boeing, Sun, and Intel). Companies that want software developed for their own internal use contract with the research institutes, hire software engineers directly, or encourage a group to split off. In some cases, the relationship between small groups of engineers and the parent institute becomes adversarial because of competition for the revenue generated by the project. In these cases, the U.S. company frequently encourages spinning off the small group or transferring its project to another institute.

Marketing of Outsourcing Software Services

Only Typhoon among our cases has built a business of providing cost-effective software services for third-party clients. Although Typhoon is a relatively small operation, it has demonstrated that outsourcing software work to Russia can be cost effective and technically rewarding both in comparison to keeping this work in-house and to outsourcing to other countries such as India, where outsourcing is a billion-dollar industry. This clearly demonstrates the business potential for a broker to offer outsourcing services from the United States to Russia.

SAIC enters into cooperative R&D contracts (for U.S. customers) with Russian collaborators, and these may involve an element of software work by the Russians, but neither SAIC nor any other contract research company that I am aware of has attempted to make a specific business of utilizing Russian software personnel as a component of its bids.

C. Planning, Negotiating, and Operating a Cooperative Venture

The case study data and the above analyses can hopefully be of some assistance to U.S. companies considering cooperative ventures in Russia and to Russian enterprises considering cooperative ventures in any market-oriented country, although it is important to be aware of differences between various such countries. In all cases it must be remembered that no two CVs are the same, and that there will be many important considerations and day-to-day decisions that are not contained in these brief case studies. Some of the most important things to bear in mind are the cultural differences between Russia and the United States. The handling of these differences is very case- and person-specific.

Many Russian enterprises have adopted the formation of cooperative ventures with Western companies as a key part of their restructuring strategies. Their primary reason is usually need of capital. Other important reasons are the desire for market access and marketing skill, technology acquisition, and general business assistance. The establishment of such ventures also holds appeal for Western companies, offering a position in a major emerging market; availability of low-cost, well-trained labor; access to advanced technology; plentiful natural resources; and underutilized manufacturing facilities. In spite of these incentives, fewer cooperative ventures have been formed and less money has been invested than might have been expected. Of those that have been formed, many have been much harder and slower to implement than anticipated. Even when successful, the participants, Russian and American, frequently speak of disappointments and partial fulfillment of goals. Some ventures have been disbanded after a few years of operation, and, most interestingly, some of these are being abandoned on the heels of successful operation because the partners cannot agree on how to proceed.

Our research has uncovered many causes of problems as well as many steps that have contributed to success. No two cases are the same, and every potential partnership will require careful planning by both parties; however, analysis of other cooperative ventures provides many guidelines for both sides in deciding whether to seek a cooperative venture; identifying and attracting an appropriate partner; negotiating the venture; and operating the venture. In addition, there are some guidelines specifically for American participants and some specifically for Russian ones. At all stages it is important to view the procedure as a positive-sum game. If one partner attempts to secure benefits at the expense of the other, there is a high likelihood that the venture is either doomed or will perform well below reasonable expectations.

1. Deciding Whether to Seek a Cooperative Venture

An American company considering a cooperative venture with a Russian enterprise will view the possible venture as a business opportunity, assess the risks and potential rewards (both of which are often high), compare this opportunity with many other investment opportunities, and make a decision. That decision is sometimes to wait or to start at a very modest level, which is understandably frustrating to the potential Russian partner. Russian enterprises often must find a partner for a cooperative venture to ensure the very survival of the

enterprise or a key portion of it, or at least to prevent the enterprise from shrinking further. The Russian enterprise rarely has multiple offers pertaining to one specific business opportunity.

Most Russian defense enterprises seek foreign partners because of the rapid decline in state orders and financing. In contrast to American companies, which are looking for the best opportunities in which to invest their capital, Russian enterprises are seeking any source of investment capital. Alliances with foreign companies offer the possibility of market access, technology, and management expertise, in addition to capital. Since sources of domestic capital have been scarce, and since many foreign sources of capital, especially publicly funded sources such as enterprise funds and some of the international financial institutions, require that a foreign partner be involved in the venture, many Russian enterprises are almost forced to seek cooperative foreign ventures.

In looking at partnering decisions of American companies, we first divide the opportunities into two categories—those made at an internal project engineer's level and those made at a corporate or divisional level. The project-level ventures generally involve smaller investments, although they may be substantial in terms of the project's overall budget. They are also usually made on the basis of technology and cost that can improve the project's performance as opposed to attempts to penetrate new markets, develop new products, or establish new production facilities. Many of the project-level ventures involve the utilization of Russian technology and technologists. Software development and metallurgical process development are two examples, but there are likely others in sectors that we have not studied. As a result, the decision is usually made predominantly on technological grounds. While advanced technology may be a necessary condition, it is not a sufficient one. In most of these cases, the group performing the technology is a specialty group embedded in a much larger research institute or production enterprise. In this case, the attitude of this parent organization toward the venture is critical. It is extremely helpful if it is supportive of the venture, but if it views the venture primarily as a vehicle for extracting rents for activities not relevant to the venture, this can be destructive. The choice to extract rents is sometimes a result of the Russians' unfamiliarity with the value of equity appreciation. Understanding the attitude of the Russian parent should be a key factor in the American's decision of whether to invest.

Corporate-level decisions more often involve the strategic business objectives of the American company and may involve manufacturing and entry into new markets as well.³¹ The pursuit of corporate goals will sometimes be executed through project-level investments that would possibly not be initiated if there were not larger, longer-term objectives in mind. A company seeking long-term market penetration, for example, may fund several research projects in Russia. To be sure, there are excellent technical capabilities in the Russian institutes doing this work, and the costs may be lower than at home; however, these would not normally be sufficient reasons for a major U.S. corporation to contract the work out at all, let alone in a foreign country that is undergoing a major economic and political transition. Keeping this work in-house simplifies coordination and project management, contributes to the in-house technical foundation, and prevents the inadvertent disclosure of proprietary information. However, the company may have an overriding objective of

establishing working relations with organizations in Russia and with the Russian government to facilitate future marketing there.

More often, corporate-level goals result in the establishment of major cooperative ventures as opposed to isolated projects. Several of the U.S. companies in our study depend on foreign markets for a substantial and sometimes growing fraction of their sales. In order to stimulate this growth, they consider it essential to establish manufacturing ventures in the countries in which they seek it; they use in-country manufacturing as a marketing tool. Funding short-term projects and establishing good working relations is a logical precursor to establishing such cooperative manufacturing ventures.

2. Establishing Goals for the Venture

In the case of project-level investments the Russian and American goals are frequently quite compatible, even though they may be very different. When the investment is made at a project level within the American company, the goals are generally shorter term and tied less to major long-range corporate goals directly than to technology utilization and/or cost reduction. For example, the American project managers may want certain services, such as R&D, and the Russian manager may want to maintain support for the staff that would provide those services. The specific work involved may not be of particular interest to the Russian manager or staff.

In the case of corporate-level investments, however, this is less often true. The short-term goals may also be different but compatible; however, the long-term goals are sometimes apt to be incompatible. Sometimes this incompatibility is not apparent, at least at the onset of negotiations. In many such ventures there may be a basic difference in the initial long-term objectives of the two partners that threatens the long-term viability of the partnership (though not necessarily of the business). In these cases the U.S. partner usually provides most of the capital and seeks an investment that adds to its ongoing business. It views these ventures more strategically than the project-level ventures. By contrast, the Russian partner is seeking financial support to withstand economic collapse and gladly engages in new ventures that fit its capabilities but that are not a part of its ongoing (or former) business, if indeed it still has an ongoing business. In other words, the Russian partner's view of these ventures may be the same as its view of the project-level ventures.

Because of the substantial risk and complexity involved for an American company to make a major investment in Russia, the company (for corporate-level decisions) usually asks how the investment can contribute to the fulfillment of long-term corporate goals. These goals are generally couched in terms of revenue, profit, new markets, and/or market share. In the strategic ventures the U.S. company frequently starts with a modest investment and a commensurately modest activity as a hedge against failure. It recognizes that this scale of operation would not in itself be worth the effort, and it implicitly expects to expand the operation if it succeeds. The American partner tacitly assumes that if the initial effort is successful, the Russian partner will also be pleased and also want to expand the operation. But this may not be the case, so it is also important for the American company to hedge against success as well.

If the venture is successful in its early phases, it makes a qualitatively different contribution to the business prospects of the two partners. On the American side the basic ongoing business benefits, but the greatest profits to the company may come from portions of the value chain that do not include the partnership's activity. For example, the CV may involve the development of a key technology that improves the efficiency of production or market appeal of an end product, while the CV per se was not structured to benefit proportionately to the success of the end product.

On the Russian side, the short-term benefits may be primarily the provision of employment and funding to sustain the ongoing development of the technology. But the near-term success will not necessarily contribute to other activities of the Russian enterprise since it was not originally part of the value chain of an ongoing business in the enterprise. Sharing in the rights to the technological advances, perhaps in CIS markets, may have some present value, but it may also require substantial financing, which the Russian partner cannot provide, to become of value.

As a result of this discrepancy, the two partners could have divergent incentives relative to the subsequent phases of the partnership activity. The American partner may not be concerned about the profits of the CV per se; in fact, the venture may not even be set up as a profit center. In cases where both partners are interested in profits of the CV, their time horizons may differ. The American may want both partners to invest in expanding the CV to achieve future profits, but the Russian may not be in a position to invest further and prefer instead to maintain and distribute current profits. It may also be that the Russian's initial investment was in the form of facilities, technology, and key personnel, whereas the American's investment was cash. The second-stage investment requirements may include a far greater percentage of cash, which the Russian partner does not have and cannot raise. The Russian partner may prefer to seek rents and divert the technological or other skills of the partnership to other enterprise programs.

The evolution of a cooperative venture between a Russian and a U.S. company can be fundamentally different from one between two Western companies, and it may be in the interest of the American partner to structure the deal initially with a different regard for both the long- and short-term interests of the Russian partner. In a U.S.-U.S. partnership, both partners enter the deal with the expectation that it will contribute to their ongoing businesses. Frequently neither is in desperate economic straits; if one is, it is more likely simply to be acquired.

For the Russian-American case, the divergence of interests following early success poses an interesting challenge in the initial structuring of the deal. American companies generally have broader knowledge of the spectrum of structures and deals possible. In that case it can be in the best interests of the American company to raise the issue in the initial negotiations rather than considering it to be something that the Russian partner should look out for. This is actually an opportunity for both partners to plan the subsequent phases. It is possible not only to provide incentives for both sides to continue and expand a successful operation, but to do so in ways that will improve the operation from the start. In general, the objective is to provide the Russian partner with an incentive plan in which specific achievements can be considered at least a partial match of the future capital investments by the American partner.

There are many possible plans, and the partners should try to find one(s) that suit their circumstances. One example would be to reward the Russian partner for reductions of cost and/or increases in productivity. These must be defined carefully to be sure that the plan is clearly based on elements of cost and productivity that the Russian partner can control and that do not jeopardize the future prospects of the venture. If such elements can be specified, this plan not only provides the desired incentives and improved operations, it also provides practical experience in sound business practices for the Russian partner.

Other approaches could provide the Russian partner with means to pay off investment for growth through a portion of future earnings. There are undoubtedly many approaches, and the choice depends on the nature of the business and the business and financial positions of the two partners. Different approaches may depend on whether the partnership is contractual, is also an equity deal, or may be phased between the two.

Another approach is to fund other projects that need not be directly related to the principal cooperative venture but which provide employment and revenue for the Russian enterprise. To be of lasting viability, such projects should be economically sensible for the U.S. partner.

It is possible to structure partnerships that increase the compatibility of the partners' long-term goals in many cases, but to do so, it is important to discuss the long- and short-term goals prior to consummating the partnership, and to structure it in ways that increase their compatibility.

The quest for short-term revenue frequently takes precedence, for the Russian partner, over reinvesting earnings or making other forms of investment to improve or expand operations. Under these conditions it is difficult to build a proprietorship and to avoid becoming simply a supplier of services. Worse still, if the cost advantages predicated on lower labor rates erode, Russian companies could even lose their advantages as suppliers of services.

3. Legal Form of the Venture

In general, ventures can be divided into equity ventures, contractual ventures, or a combination of the two. Of the equity ventures, we have not included mergers and total acquisitions because they seem rarely to occur, and because they are not truly cooperative ventures involving the ongoing cooperation of two (or more) legal entities. The only form of equity venture that we have considered in this study is the joint venture.³² Contractual ventures can be contracts for manufacturing, R&D, marketing, services, and/or licensing. Either form of CV can, of course, also involve debt.

It is essential to remember that all of these forms are Western concepts. A joint venture is based on the concept of divided private ownership that can be bought and sold at variable prices. A contract is based on the concept of financial interest and liability being attached to cost, quality, and speed of performing tasks.

In the cases we have examined, the choice of the form of the cooperative venture is most often made by the American partner. The Russian partner may be in disagreement in the beginning, but it usually acquiesces. When the CV is initiated at a corporate or divisional level, the choice of form is frequently a matter of company policy and experience. In some

cases the policy is that the company virtually never enters into a joint venture (e.g., Sun Microsystems and Rockwell), and in others it is that the company always tries to establish a joint venture when going into a new country (e.g., Baxter, Caterpillar, and UTC). When a joint venture is the policy, majority ownership is almost always a subpolicy. In several cases of joint ventures, the U.S. company representatives told us later that insisting on a joint venture may have been a mistake because of the unique circumstances in Russia. For example, if a U.S. company's long-term objective is penetration of the Russian market, it may choose to engage in other, nonmarketing activities in Russia while waiting for the market to mature. Another reason is the desire to go slowly with a series of projects of increasing size. Some companies realized after some time that they may have chosen the wrong partner, or they should have worked with multiple partners.

If the Russian enterprise has not had much experience in cooperative ventures with American companies, it is frequently desirable to proceed slowly, starting with a contract, because the attitude and desires of the Russian partner may change as it becomes more familiar with the meaning and implications of a CV. Russian enterprises entering into joint ventures frequently try to extract the maximum profits and rents out of the joint venture in order to improve the near-term financial condition of the parent rather than nurture the joint venture for future long-term appreciation and revenues. This is understandable given the desperate financial circumstances that many enterprises are in, but it is not conducive to building a successful long-term joint venture.

The combination of a joint venture and contractual relationships has often proven to be a good one. The combination can be simultaneous or it can be sequential, with a joint venture being formed after a successful contractual relationship. In that case, it is usually a matter of a growing level of comfort and trust between the partners leading to an increasing level of cooperative activities. When the two forms are simultaneous it is frequently to accommodate the Russians' need for near-term operating revenue when a joint venture's revenue may be delayed for some time.

It is key that the structure be based on the objectives, and the agreement be tailored to maximize the chances of achieving them, even though the objectives of the two partners may be different, and, in particular, may diverge in the long term. Both partners must have an incentive to continue their participation at every step of the way. With forethought and a complete discussion of objectives, the CV can be structured to accomplish this. If the form of the venture is dictated excessively by previous company practice and policy, without full regard for the unique circumstances in Russia, it is not apt to meet this criterion.

4. Identifying Potential Partners and Selecting the Most Appropriate One(s)

The identification of partners for a Russian-American cooperative venture is difficult because of a mutual lack of familiarity with the industrial sectors in each other's countries, insufficient sources of information, and different experiences in the formation of (domestic) CVs. The lack of information about American companies is caused mainly by the previous isolation of the Russian (Soviet) managers from the Western world. Once these managers are given exposure to and opportunity to travel to the West, they quickly gain an understanding of the American companies of primary interest to them; however, gaining an understanding

of Western business practices, especially those relating to the formation of cooperative ventures, takes considerable time.

Attaining information about the Russian enterprises is more complex. There are still some security barriers, as there are in the United States, but even if the security barriers are overcome, there is a lack of available information. The average Russian knows far less about the profile of Russian industry than the average American knows about American business. In the United States there have always been major sections of the media devoted to business information. There are massive amounts of financial and product information published both in resource publications and in advertising.

Since many Russian enterprise managers are disproportionately influenced by their need for capital, they will often consider the amount of capital available as the primary, or even sole, factor in selecting a partner. This frequently shows a lack of understanding of what is required to succeed in a competitive market environment. Some of the Russians that overemphasize the financing factor believe that all they need is money. Granting the importance of capital, there are, however, other factors that are very important. The Russian enterprises that have emphasized the business synergies of a CV seem to have been more successful, and as the potential American partner sees these synergies, it is apt to be able and willing to find the financing.³³

Some of the factors that are at least as important as capital are market access and marketing skills; technology for product design and for manufacturing; management skills; and the long-term prospects for building a self-sustaining business. The most successful CVs are those in which the partners have a compatible set of objectives for building the business from the marketing, management, product development, and financial perspectives. In other words, it is important that the Russian enterprises seek a strategic partner rather than just a financial investor.

Since the Russian enterprises have a very short history of operating in a market environment, American companies seeking a partner cannot rely on historical performance data to judge the soundness of a Russian enterprise; however, some Russian enterprises have gone further than others in restructuring and in working with American (or other Western) partners. When the enterprise has other CVs, it is possible to ascertain whether it nurtures these in an effort to make the businesses grow or it attempts to extract revenue and rents from them to the detriment of the CVs.

The principal restructuring steps needed are decentralization, cost reduction, initiation of Western accounting procedures, and establishing business-oriented departments such as marketing, finance, and corporate development.³⁴ Privatization is also an important indicator of positive restructuring, but sometimes this is forbidden by the state. This does not necessarily mean that a successful CV cannot be implemented. In some cases it is possible to have the CV be a joint venture that is privatized but has a state-owned enterprise as one of its owners. Contractual CVs with state-owned enterprises have very often been quite successful. When major capital investments in equipment are required, it is often desirable that the U.S. partner retain ownership of it and that it be fairly general-purpose portable equipment, such as computers, that can be utilized independent of the CV.

Some other characteristics of a good potential partner are its practice of reducing costs, including unneeded labor and social services; good relations with suppliers and government

officials; retention of key employees and their availability for working on the CV; and active programs to train personnel at all levels in essential elements of doing business in a market environment.

Some American companies have made a specific effort to find a partner in the same business, especially for manufacturing cooperative ventures. This has proven to be a mistake in several cases, for various reasons: (1) Management capability or restructuring performance are sacrificed to find a partner in the same business, (2) The Russian partner wants to inject its technology and product design in situations where market considerations dictate staying with the U.S. designs, and (3) It may be more costly to use outmoded, energy-inefficient facilities and equipment than to start fresh. In some cases a better partner could be a potential customer, a supplier, or conceivably a bank that could finance the purchase of the product in Russia.

5. Attracting Potential Partners

Perhaps the most important thing is for the potential partners in a venture to have extensive discussions and personal contact before entering into a venture. These should cover all aspects of the relationship, a thorough discussion of present and potential problem areas, the goals of both partners, and both long-term and near-term plans and objectives. Openness and mutual trust are among the most important harbingers of success in many cases.

For an American company to attract a particular Russian partner, it should be sensitive to the condition (especially the financial condition) of the enterprise and what is needed to meet its near-term objectives. In many cases the Russian enterprise will only be in a position to make noncash contributions to the CV and, in fact, will want to secure some operating capital from the arrangement. Since many ventures will have a delay before revenues start being generated, the U.S. partner should be prepared to supply some operating funds up front.

Another incentive that an American company can provide is training for the Russian managers at various levels, including some training and indoctrination at the American company's facilities. This will also work to the advantage of the American partner because the venture will be far more effective and communications far better if there is such training. The Russian partner can also be attracted by the opportunity to do some high-technology work. Even if the basic business of the CV is not high technology, it may be advantageous to provide some higher tech development work in parallel. This can and should be a good investment in its own right to be mutually valuable.

One of the biggest problems many American companies have when trying to decide on an investment in Russia is the inability to make reliable financial projections about the amount of investment required, the costs of operations, and the potential profits or losses. This results from the inability to translate Russian accounting data into Western form, especially for past operations, and the inability to project costs because of a lack of organizational segregation, cost allocation, and the previous lack of productivity and efficiency criteria in the Soviet system.

Therefore the prospects of a Russian enterprise attracting a desirable partner are greater when the enterprise has already started a decentralized restructuring program that enables

subunits of the enterprise to pursue specific businesses with a high degree of independence. Many American companies are concerned that all decision-making is done at the highest levels of a Russian enterprise, and they are favorably impressed if the managers of the subunit have a substantial degree of authority. When this is combined with solid backing by the parent enterprise's management, it creates a structure more similar to that of most American corporations and is generally better received by the potential American partner. The further delimiting of a privatized spin-off makes this form more attractive than a segregated division within the parent enterprise.

Another thing that the Russian enterprise can do to attract a partner is to go as far as possible with the business concept prior to having a partner. This can include various forms of product design, production, and marketing within the bounds of available resources, and less tangible activities such as the development of training programs, business plans, and proposals.

A prospective U.S. partner will be favorably impressed if the Russian enterprise has already entered into other cooperative ventures, especially with other American companies. It is therefore important for an enterprise to seek a variety of ventures, even if some of them are quite small. The small ones are quicker to negotiate, and they provide an opportunity to learn and display success in CVs. They can also lead to larger ventures with the same partner. Some enterprises will only consider large production CVs, but this can be a losing strategy. It is also useful to be willing to accept lower technology CVs; this will show that the enterprise values the business potential of new markets, and it will be quite instructional as well.

6. Negotiating the Venture

The negotiation of a Russian-American cooperative venture is very different from the negotiation of a U.S.-U.S. cooperative venture. The Russian partner will often have limited or no experience in negotiating a Russian-Russian CV under market conditions. In former alliances between Soviet enterprises the state made most of the major decisions, and the command system obviated many aspects of a market-oriented alliance. The primary difference was that both enterprises had the same owner—the state. In addition, agreements were not formalized in as much detail through contracts in the way that Americans understand contracts, and certainly not through the exchange of stock.

This lack of experience in negotiating with Americans places many requirements on the U.S. partner. In a U.S.-U.S. negotiation, each party assumes that the other understands the rules of the game and will take whatever steps are necessary to protect its interests. This assumption does not carry over to U.S.-Russian negotiations. It would be counterproductive for the American company to choose to take advantage of the Russian; the agreement would be very apt to come apart later if the Russian believed that the American had taken advantage of its lack of experience. This puts the American in the strange and difficult position of looking out for the interests of its negotiating partner.

This problem is exacerbated by the fact that Russians tend to consider negotiations as a zero-sum game, whereas an American will treat the negotiation as a positive-sum game. He will believe that the outcome must be beneficial to both parties or else it will not be a viable agreement. The Russian may feel that any benefits to the American are at the expense of the

Russian.³⁵ The situation is further complicated by the psychological difficulty of coping with the decline of the Soviet Union/Russia. The Russian is apt to believe that Americans want to take advantage of the distressed circumstances in Russia.

A resolution of this problem can be achieved by suggesting that the Russian enterprise have a business adviser that can explain the fundamentals and dynamics of American types of business negotiations and advise the Russian on how to protect its interests. The American company can even offer to help pay for such an adviser. In addition to facilitating a mutually beneficial negotiation, this can help build the level of trust that is so important in a CV.

Other aspects of the negotiation process can be difficult. Several U.S. companies have complained that the Russians will often try to reopen points that have already been agreed.³⁶ There are other cultural differences that are troublesome. One is that the Russians are accustomed to having more decisions made at higher levels than Americans are. Therefore the people who are actually negotiating on the two sides will have different degrees of decision-making authority. This can be an indicator of similar potential problems in the operation of the venture.

The Russians tend to attach greater significance to the personal relationships built up between partners. This being the case, it is in the best interests of the Americans to spend time nurturing these relationships. It is also important to be sensitive to this characteristic when there are changes of personnel.

One of the most important aspects of a negotiation is anticipating the nature of the venture beyond the first stage. In the most successful cooperative ventures, both partners have an incentive to work for the growth and success of the venture at all stages of development.

Some Russian enterprises have not given adequate attention to protecting their intellectual property rights beyond the scope of a given venture. They have granted licenses to previous technology that are not sufficiently restrictive (in terms of geography, markets, applications, duration, etc.) as to exclude the option of pursuing other ventures (cooperative or independent) that do not conflict with the CV being negotiated.

Another way in which some Russian enterprises do not protect themselves is by failure to build a proprietorship in the business. This relates primarily to contractual cooperative ventures. In some cases the enterprise will not secure any residual business rights if and when the contractual activity ceases. These rights could be in terms of use of intellectual property developed during the work. If the U.S. partner pays for the contractual work, it is logically entitled to these rights; however, it may be willing to part with them for applications or markets that go beyond its interests. In some contractual software CVs in particular, the Russian partner should attempt to develop business with other customers as long as it avoids conflicting with the interests of its partner.

The American partner will usually take the lead in finding outside sources of financing; however, it is important to have the Russian partner involved and fully informed about the financing proposals. In some ventures studied the Russian partner has been dissatisfied during the operational phase with the decisions about expenditures of resources. It is better to have these understood and agreed to by both partners before the financing is proposed.³⁷

7. Operating the Venture

After both parties have made all of the decisions leading up to the CV, the task of operating the venture is still a formidable one. No matter how well the parties have planned and communicated, there are apt to be many unanticipated problems. The first step is to establish a management team with personnel from both partners. This not only brings in a spectrum of talents and backgrounds to deal with management issues, but it also ensures that the Russian parent will be kept informed.

Management teams that have representation of both partners in roles of responsibility function with a sensitivity to the concerns and traditions of both sides. Operations are smoother if the core management team that makes the day-to-day decisions is on site. Each partner will have personnel above this level in oversight roles; again, it has proven helpful to have these personnel work together and meet periodically even though they are not on site. There are some ventures in which on-site representation of the American partner is either impractical because of the small size of the venture³⁸ or unnecessary because a sufficiently strong understanding and sense of mutual trust have been built up to obviate such presence. In the latter cases we have seen a tradition of almost daily communications and frequent reciprocal visits. The management roles of the two partners will often change with time. The role of the Russians frequently increases as they become more familiar with the operations of a market-oriented business. This is in keeping with establishing the venture in Russia, and it is cost effective to reduce the number of American expatriates utilized in the venture.

The partners must maintain active communication with each other throughout. This is more difficult in the face of this evolution of management roles and changes in personnel, but it is an identifiable factor in most successful CVs. Communication of two types is important. The first deals with operational issues. The second is an ongoing process of planning the future course of the venture. This is not only sound business practice, it is also a mechanism for periodically comparing the plans for the venture with the objectives of the partners. An evolving incompatibility of the partners' objectives that can be a major source of serious future problems in a CV can be spotted and addressed early.

A second type of evolution in the operation of successful ventures is the introduction of a spectrum of Western business practices. One of these is the introduction of Western accounting systems and, more importantly, the underlying practice of cost control.³⁹ In the early stages of many CVs, especially those engaged in manufacturing, some of the costs of operation may be understated. Existing equipment, while not as modern as desired, may be unrealistically valued as an asset and depreciated accordingly. Some input materials may be taken from supplies on hand, and their costs, which were preferentially set, will not be indicative of current market prices. Intangible assets such as patents are frequently not valued realistically.⁴⁰

Many of the cooperative ventures in our study do not involve a marketing operation because the output is utilized by the American partner for incorporation in its products or development projects. In some of these, however, the plan is to go from production of components to production and/or assembly of complete products. In these cases the venture may market at least some of the output in Russia (or more broadly in the CIS). Then it is

important to develop a marketing capability in the venture. Some ventures have opted to have Americans do most of the marketing for the simple reason that Americans have more experience in marketing; however, many ventures recognize the importance of having sales and marketing personnel from the country in which the products are sold.

In summary, operation of a cooperative venture in Russia requires attention to four major areas:

- (1) General day-to-day operational aspects of a new business in an unsettled environment.
- (2) The evolution of the venture into a self-contained business in which the Russians take an increasing role in all aspects of management.
- (3) The evolution of business plans to ensure that the objectives of the two partners, while different, remain compatible.
- (4) Careful attention to personal and cultural issues and differences.

D. Conclusions

A major objective of this study was to gain some understanding of the factors leading to successful cooperative ventures. None of these CVs have been in operation long enough and the political economy in Russia is not yet stable enough, however, to deem any success as more than interim. While it is dangerous to generalize, some conclusions appear quite clearly and should provide some help to companies involved in or contemplating CVs. First, let us give some criteria for success. These must of course be tailored to the original objectives, and they are different for the U.S. and Russian partners, but we can generalize to some degree.

For each partner there will be various categories of criteria. For the U.S. partner a major criterion will usually be a financial one. This can be in terms of profitability or return on investment of the CV or the cost-effective performance of certain tasks (R&D, manufacturing, etc.). Another criterion is the furtherance of the company's general business. This can be in the form of new market penetration, introduction of new technology, or improved competitive position. Finally, there are criteria relating to the establishment of relationships in a country that will undoubtedly be a major actor on the global political and economic scene.

The Russian partner in a very general sense shares all of these criteria, but its time scale and international orientation may be different. In spite of these shared criteria, the circumstances of the two partners are different in terms of their economic condition, their objectives, and their ways of doing business. The Russian's primary near-term criterion is apt to be survival as manifested by employment. It will also look for market penetration, but to it this may be a domestic market initially with export markets to follow. Another criterion should be the building of a business proprietorship so that it will not forever be dependent on a partner to decide how and where the business can be expanded. Another criterion is whether the CV provides training and managerial experience in market-driven business practices.

Analysis and Conclusions from Case Studies

If care is given to understand the objectives, problems, and opportunities of the cooperative venture, there are many detailed models that can lead to success. While every CV is different, there is great potential benefit to be derived from studying the experience, both good and bad, of other CVs. The following are some of the major conclusions from this study:

- Perhaps the main factor for success is the development of a sound personal and business relationship between the partners. This should cover a deep understanding of each other's goals, problems, and priorities as well as an understanding of each other's cultures. Building this relationship requires patience.
- The circumstances of the two potential partners are different in terms of their economic condition, their objectives, and their ways of doing business. A Russian's near-term criteria are apt to stress survival as manifested by employment and the maintenance of high-technology research and/or production, whereas an American's focus may be more on the long-term business development.
- It is important for the Russian partner to make structural changes conducive to the formation and operation of a cooperative venture, such as decentralization of authority, governance, and financial management; the adoption of market business practices such as accounting and cost control; the training of personnel; and a willingness to choose products and services that are based on market demand rather than just on existing technology.
- The American partner should take the necessary steps (and get the necessary advice) on the handling of the myriad legal and infrastructural issues of doing business in Russia; provide extensive training for the personnel of the Russian partner; and structure the cooperative venture in ways that will maintain compatibility of goals of the two partners.
- Much of the Russian manufacturing technology, equipment, and facilities are outdated. Some, such as highly energy-inefficient facilities, should be abandoned and replaced.
- Some of the enterprises that have been most successful in establishing and operating cooperative ventures are the ones that are willing to produce medium to low technology products. This gives them greater opportunities for near-term revenue, experience in market economics, experience and a reputation in cooperative ventures, and opportunities to train personnel in new sets of skills necessary in business.
- U.S. companies are generally more interested in a cooperative venture to produce components, subsystems, or technology to incorporate in their existing products than they are in developing totally new products or investing in existing Russian products.
- There are a few areas, such as space propulsion, in which a cooperative venture can utilize Russian technology that is superior to that in the rest of the world.
- If a cooperative venture is dependent upon sales in Russia, the relevant market as a function of time must be analyzed carefully to determine if and when there will be adequate ability to pay for the products/services; this is true for both state and private customers.
- The legal and commercial infrastructure in Russia is incomplete and inconsistent, and the government has not moved as aggressively as it might to improve it and to make the

climate more conducive to foreign investment. The financial and resource sectors have had the political power and desire to prevent this.

- Pandemic crime and corruption, which the state either can not or will not control, is among the strongest barriers to investment in cooperative ventures.
- Both software and manufacturing ventures can be quite successful. There is probably greater flexibility and easier, less expensive, lower-risk, and faster entry possible in software, but both can be made to work.
- Strategic alliances based on market considerations and other factors that contribute to the overall business are more likely to succeed than those based solely on financing.
- Successful cooperative ventures can be built either through contracts or by formation of an equity alliance, but the choice should be made after a careful analysis of the specific case and not just by long-standing corporate policy that may not be as applicable in Russia as in other countries.
- There are many detailed models that can lead to success, and the establishment of a Russian-American cooperative venture can often serve the objectives of both partners.

Notes

¹ It was not the purpose of this project to investigate such regional differences, but they may affect some of the conclusions. For a discussion of some such issues, see C. Gaddy, *The Price of the Past: Russia's Struggle with the Legacy of a Militarized Economy* (Washington, D.C.: The Brookings Institution, 1996).

² See K. O'Prey, *A Farewell to Arms?* (New York: The Twentieth Century Fund Press, 1995) and D. Bernstein, ed., *Defense Industry Restructuring in Russia: Case Studies and Analysis* (Stanford, CA: Center for International Security and Arms Control, 1994).

³ C. Gaddy, *The Price of the Past: Russia's Struggle with the Legacy of a Militarized Economy* (Washington, D.C.: The Brookings Institution, 1996).

⁴ Ksenia Gonchar, private communication.

⁵ J. Gansler, *Defense Conversion: Transforming the Arsenal of Democracy* (Cambridge, MA: The Twentieth Century Fund Press, 1995).

⁶ Pawel Wiczorek and Katarzyna Zukrowska, *Conversion in Poland: The Defense Industry and Base Redevelopment*. Bonn International Center for Conversion, November 1996.

⁷ See D. Bernstein, ed., *Defense Industry Restructuring in Russia: Case Studies and Analysis* (Stanford, CA: Center for International Security and Arms Control, 1994).

⁸ I have never met a female general director of a Russian defense enterprise.

⁹ There are exceptions, such as in areas of retail food products, but these were not the subject of this research.

¹⁰ Agence France Presse, October 13, 1996.

¹¹ OMRI, October 17, 1996 quoting Interfax October 15.

Analysis and Conclusions from Case Studies

- ¹² “1996 Current Market Outlook,” The Boeing Company.
- ¹³ Aviation Week and Space Technology, “Aerospace Source Book,” January 1996.
- ¹⁴ Kommersant, June 16, 1993.
- ¹⁵ Flight International, August 28, 1996.
- ¹⁶ General Electric declined to be interviewed for this study.
- ¹⁷ Just recently the Pratt & Whitney–Klimov joint venture was formally terminated, although the companies will continue their collaborative operations. See “Canadian and Russian Engine Producers Suspend Their JV,” RusData DiaLine–BizEkon News, 20 February 1997.
- ¹⁸ “Ex-Im Bank to Loan \$1 Billion to Aeroflot for PW2000s,” Aerospace Propulsion 7, no. 3 (February 1, 1996), 4.
- ¹⁹ We have not studied Hamilton Standard in this project, as it declined to be interviewed. The information used is based on Aviation Daily, December 1, 1995, and Flight International, January 3, 1996.
- ²⁰ Although Zenit and Energia’s Block DM had never been flown together, they were designed for that purpose.
- ²¹ Ballistic missiles have been launched at sea from submarines, but the launch mode is very different.
- ²² Russia has signed a twenty-year lease for the Baikonur Cosmodrome for \$115 million/year (Aviation Week and Space Technology, September 19, 1994). We are not aware of the fee charged for a Proton launch.
- ²³ This is a somewhat artificial cooperative venture in that it was formed in response to an offer of partial free funding by the U.S. government in a competitive procurement, and it is not clear that it would have been formed in the absence of such funding.
- ²⁴ See case studies of Impuls and TsAGI in D. Bernstein, ed., Defense Industry Restructuring in Russia: Case Studies and Analysis (Stanford, CA:Center for International Security and Arms Control, 1994).
- ²⁵ Hearing Aids International was not a hearing aid company producer of long standing, but one formed specifically for this cooperative venture.
- ²⁶ For a description and analysis of these contracts, see David Bernstein and Nicholas Carlson, A Report and Analysis of the “Fast Four” Defense Conversion Projects, U.S. Department of Defense, January 1997.
- ²⁷ RAIES International, Nevamash, and Hamilton Standard/Nauka were partially financed by the DEF.
- ²⁸ Aviation Week and Space Technology, August 12, 1996.
- ²⁹ Ronald E. Mueller, “U.S. National Security, the Global Environment, and Poverty in Emerging Markets: Forging Public-Private Sector Initiatives to Tap Global Capital.” Presentation at the Aspen Institute Congressional Conference: The Convergence of U.S. National Security and the Global Environment. Lisbon, Portugal, November 14, 1996.
- ³⁰ Our study contains a fairly small population, and it does not include any of the major software development companies in the United States. These conclusions may not be applicable to cooperative ventures with these large companies.
- ³¹ UTC has been the most aggressive company in this respect in our study; the Boeing Defense and Space Group, Gillette, Polaroid, Caterpillar, and Baxter have also been quite active.

Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

³² We have seen cases in which a U.S. company has taken a minority equity position in an existing (private) Russian joint-stock company, such as Sun Microsystems' position in Elvis+. See D. Bernstein, ed., *Defense Industry Restructuring in Russia: Case Studies and Analysis* (Stanford, CA: Center for International Security and Arms Control, 1994).

³³ The managers of several of the larger funds established for financing U.S.-Russian cooperative ventures have asserted that they have more investment capital available than good ventures to finance. This point was made repeatedly at "Investing in Russia's Securities Market: An Independent Assessment of the State of Play," a December 1996 conference of the Geonomics Institute, Middlebury, Vermont.

³⁴ For a more detailed discussion of restructuring, see D. Bernstein, ed., *Defense Industry Restructuring in Russia: Case Studies and Analysis* (Stanford, CA: Center for International Security and Arms Control, 1994).

³⁵ See Raymond F. Smith, *Negotiating with the Soviets* (Bloomington: Indiana University Press, 1989).

³⁶ A. Baev, M. Von Bencke, D. Bernstein, J. Lehrer, and E. Naugle, *American Ventures in Russia: Report of a Workshop on March 20-21, 1995, at Stanford University* (Stanford, CA: Center for International Security and Arms Control, 1995).

³⁷ This was a major shortcoming in the implementation by some of the U.S. companies of the so-called Fast Four defense conversion projects funded by the Department of Defense under the Cooperative Threat Reduction program. By law, the USG funds were contracted to the U.S. corporate partners rather than to the cooperative ventures. This in itself could work, but some of the U.S. partners failed to have complete and open discussions of financial issues with their Russian partners. See Bernstein and Carlson, *A Report and Analysis of the "Fast Four" Defense Conversion Projects*.

³⁸ Small software development projects, for example, would lose their cost benefits if an American expatriate were stationed on site.

³⁹ See Tatiana Krylova, "Principal Differences in Accounting Systems in Russia and the United States," in D. Bernstein, ed., *Defense Industry Restructuring in Russia: Case Studies and Analysis* (Stanford, CA: Center for International Security and Arms Control, 1994).

⁴⁰ See Tatiana Krylova, "Principal Differences in Accounting Systems in Russia and the United States." In David Bernstein, ed., *Defense Industry Restructuring in Russia: Case Studies and Analysis* (Stanford, CA: Center for International Security and Arms Control, 1994).

IV. APPENDIXES

A

Caught in the Middle: A Comparative Analysis of International High-Technology Alliances in the Russian Federation (1990–1995)

Judith B. Sedaitis

The legacies of the Cold War leave former Communist countries such as Russia in the paradoxical situation of being a generally poor country with a disproportionately well-endowed technological sector. One of the most militarized in the world, the Russian R&D sector was funneled extensive resources and funding throughout the history of its competition with Western weapons production and now consists of the potentially most competitive firms in Russia (Shlykov, 1995). The capability and low cost of Russia's extensive research and development sector have not going unnoticed among potential foreign partners, either (Oxford Analytica Brief, 7.28.1994). In lieu of domestic support, foreign investments and grants have provided an infusion of badly needed funds that staved off the disintegration of Russia's science base by stimulating civilian research and the development of small, new private technology firms (Schweitzer, 1996; Sedaitis, 1996). In turn, the low cost of sophisticated Russian technology makes it attractive to firms in both the developed and developing world.

Despite the potentially mutual advantages of Western investment, however, the increased openness of Russia's former military R&D units has also raised concerns over access by less developed countries. Alliances have helped facilitate the sale of arms to China and other developing countries (Cheung, 1993) and may open the door to sale of Russian arms and technology to unfriendly, rogue states (Shlykov, 1995; Sapir 1996; von Hippel, 1995). In addition, spin-offs from the large former Soviet state R&D organizations that foreign investments may facilitate raise concerns for both Western and Russian policymakers (Bernstein, 1994, Sedaitis, 1996). While these new daughter companies provide flexible, low-cost partnering opportunities, they may also increase the risk of lapsed security and easy access to

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dangerous nuclear or chemical materials that are housed in these institutes (Marten-Zisk, 1995). In turn, Russian observers fear they are a vehicle for Western exploitation and “cherry picking” of Russian technology (Kayukov and Silliman, 1996).

With which countries and in what sectors have technology alliances in Russia actually taken place over the last five years? To what extent are they an avenue for mutual research, as they are among firms in developed countries? Or does their value simply lie in providing access to new markets and cheaper goods to less developed countries? Finally, what are the ramifications of the new, Russian daughter firms for global technology-sharing? This chapter seeks to address these questions by comparing the emerging relationships of Russia to industrialized nations and to less developed nations. First, an overview of global technology partnering will be presented which shows how patterns of technology alliances in Russia fall between those in the first and third worlds. Then the link of foreign investments with the creation of spin-offs is examined by considering the advantages to foreign investors of partnering with them versus their larger and older parent institutes. Finally, a model of knowledge sharing will be applied that tests the difference in approach between foreign high-tech alliances in Russia with firms in developed countries versus developing countries.

Between First and Third Worlds

By comparing the sectoral distribution of international alliances, it is clear that the focus on new technologies is largely limited to alliances among firms in developed countries. More than 65 percent of technology alliances among firms in the “Triad” countries (Western Europe, the United States, and Japan) involve one of the three “core” technologies (biotechnology, information technology, and new materials). In contrast, core technologies constituted less than one-third of the alliances in the developing world. The pattern of foreign technology investment in Russia falls in the middle. About 36 percent of all alliances in Russia involved a core technology which was mostly information technologies, including those related to networking telecommunications. Partners included major telecommunications firms in both the United States and Europe, as well as computer firms such as Intel and

Table 1: Sectoral distribution of international strategic technology alliances of companies within the Triad (USA, Europe, and Japan) and in Russia

Sector	Within-Triad	Triad-Russia	Triad-LDCs
New core technologies	65.1%	36.1%	27.1%
Aerospace-defense	8.0%	9.9%	12.5%
Other sectors	26.9%	54.0%	60.4%

(Source: MERIT: CATI. + from 1980–1989, n=4192;* from 1990–1995, n=271.)

Sun Microsystems in the United States, who were among the early players to discover the cost-effective value of talented Russian programmers.

The number of international alliances has skyrocketed over the last decade and suggests a real shift in the organization of research and development (Harrigan, 1988; Osborn and Baughn, 1990). Historically, industrial R&D has largely been conducted in-house by integrated research divisions. Current pressures to lower costs and shorten development time have fueled technology partnering across firm boundaries, as firms seek to supplement their knowledge and keep abreast of new developments, especially in the rapidly evolving core technologies. As firms in the Triad countries have come to transfer technology among themselves, they seem also to engage more in the contractual form of alliances and less in the equity joint-venture form (Hagedoorn and Schakenraad, 1992). When organizational learning and knowledge are the goals of an alliance, the contractual form of organization is generally seen as more productive (Teece et al., 1994; Osborn and Baughn, 1990). Learning involves continuous and complex judgments that are hindered by formal or hierarchical arrangements (Kogut, 1988; cf. Maitland, Bryson, and Van de Ven, 1985).

Conversely, the proportion of equity ventures in the developing world is increasing. Developing countries have shifted from reliance on international credits after the debt crisis of the 1970s and are now generally more open to foreign direct investment. As Table 2 indicates, equity joint ventures appear to dominate the form of high technology collaboration in these countries, even as their numbers appear to be shrinking among firms in the developed world. The relatively low levels of human capital and education in the less developed countries make it unlikely that Western firms will find partners with similar needs and abilities there. Instead, technology collaboration between first and third worlds involves the transfer of older technologies already well known in the West as firms seek to expand into new markets (Mowery and Oxley, 1995). As such, the level of research is relatively unsophisticated and often limited to purposes of adapting Western production processes to the peculiarities of local markets and tastes (Freeman and Hagedoorn, 1994; Frank, 1990). Since sales and not learning are at issue, contractual alliances will not be as efficient as more integrated forms of organization, such as the equity joint venture. Standard transaction cost analysis (Williamson, 1975 and 1985) suggests that integration is preferred instead in order to minimize the appropriability hazards and cost of monitoring and keeping control over long-distance agreements that involve specific assets (Dunning, 1993). When alliances involve a high commercial risk or cover a large part of the overall production chain, firms prefer an international joint venture to an international contractual relationship (Ring and Van de Ven 1992; Hagedoorn, 1993).

The pattern of joint research in Russia stands somewhere in the middle between the dominance of contracts among the developed nations and the dominance of equity ventures in developing ones. Table 2 indicates that equity investments by the developed countries in Russia are higher than among the developed nations, but lower than the relative percentage in developing nations. In terms of contractual alliances, the reverse is true. Close to half the alliances among developed countries in the Freedman and Hagedoorn sample were contractual, while only about 11 percent of alliances between the developed and developing countries were governed solely by contract. The relative percentage of research-oriented

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Table 2: Distribution of different forms of cooperation of high technology alliances by international regions

Form of cooperation	Share for developed countries ⁺	Share for Triad-LDC ⁺	Share for Triad-Russia [*]
Joint ventures	27.7 %	67.2 %	42.8 %
Joint R&D	43.2 %	10.9 %	32.6 %
Minority investments	16.3 %	1.6 %	--
Other (co-production contracts)	12.8 %	20.3 %	21.6 %

(Source: MERIT:CATI. + from 1980–1989, n=4192;* from 1990–1995, n=271.)

alliances between developed nations and Russia is about 33 percent; less than the former, but greater than the latter.

The interpretation of this distribution commonly invokes an alleged link between the organizational form of alliances and the level of their knowledge sharing. High levels of investment in education and research in the past make Russia a fertile ground for knowledge-based activities (Nelson, 1995). The need of Soviet scientists to compensate for the historical inefficiencies of their industrial base stimulated their legendary ingenuity and the development of unique skills and tools, especially in key areas such as space technologies and computer programming (Amann and Cooper, 1982). Rather than innovate on their own, however, Russian scientists were masters at adapting to their needs inventions made elsewhere (Holloway, 1982). This past reliance on imitation left Russian research institutes with organizational structures finely tuned to the procedures of searching for and appropriating new technologies (Sabel and Prokop, 1996). Such skills lie at the heart of successful technology development and commercialization. Hence, a substantial number of Russian alliances with U.S. firms in particular currently focus on joint research, such as the Science Center created by Boeing and the research on magnetronomy by Rockwell International with new spin-off companies it encouraged (Sedaitis, 1995). Through flexible, contractual arrangements, these U.S. companies are able to access highly trained researchers for a fraction of the cost in Western countries.

However, the risky climate requires more than potential research results to justify the high costs of equity investments. Excessive taxation; arbitrary, shifting legislation; poorly developed capital markets; organized crime; and the unfamiliarity of Russians with capitalist business practices make organizational control difficult for foreign investors in Russia. Russian market institutions do not provide adequate support and protection for investor rights, such as enforceable intellectual property rights and contract law. Nor is the judicial

system capable of effectively arbitrating the securities law, breaches of contract, or other potential conflicts. Thus the high risks of equity investments require clearer justifications than the unclear benefits of shared knowledge. Case studies suggest that such investments typically involve concrete production with inroads to new markets or distribution systems. Often an equity investment is the price paid by Westerners in exchange for the exclusive global rights to the particular assets in question, such as Lockheed Martin's contract with the Khrunichev design bureau (Sedaitis, 1995). This research, therefore, proposes that international alliances in Russia exhibit the same tendency of forming manufacturing-oriented alliances as equity joint ventures evident in developing countries. Research-intensive alliances, however, should tend to take the contractual form as among research-oriented alliances in the Triad countries. Hence, our first propositions:

Proposition 1: Contractual alliances in Russia with firms from developed countries will most likely involve more mutual knowledge sharing than alliances that take the joint-venture form.

Proposition 2: International alliances in Russia focused on new technologies will most likely involve more mutual knowledge sharing than alliances in more mature sectors.

Case study and journalistic accounts of investment by less developed countries in Russia stress the continued, if not growing, reliance on Russia for access to cheap weapons and military technologies. Revenues from Russian arms sales to the third world, and to China in particular, have allegedly surpassed those of both the United States and France in 1995 to those same countries (Philip Shenon, *New York Times*, August 20, 1996). China has become Russia's most important partner and is now the third largest importer of Russian goods and services, among which arms, military aircraft, and technology allegedly constitute the lion's share (Cheung, 1993; Roskomstat, 1996). While Chinese and other firms from developing countries are driven by the lower costs of goods and technology licenses, they do not face the same incentives for lower production costs that prompt Western investors. Neither do they have the hard currency reserves required for equity investment. Thus, most alliances from developing countries should be in the form of licensing agreements or other contracts, but not for the same reasons as outlined above for Western firms. In fact, if contractual alliances by firms in developing countries are motivated mainly by cost effectiveness, they will involve minimal technology transfer and only toward the firms in developing countries. Chinese and others gain technical knowledge by acquiring Russian hardware and licenses, for which the cash-strapped Russian firms receive only income. Hence,

Proposition 3: Alliances between Russian firms and firms in developing countries will not significantly involve mutual knowledge sharing.

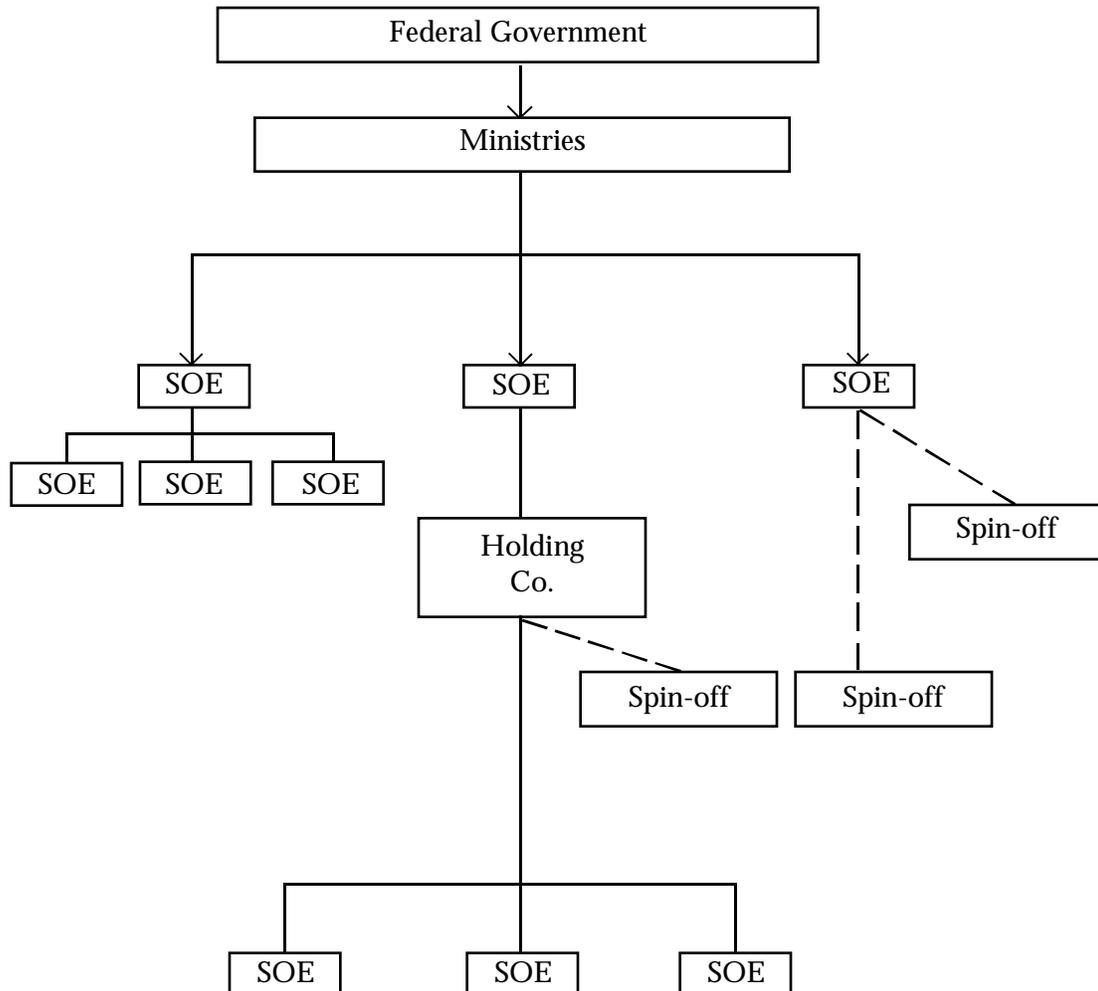
The Relative Advantages of Small versus Large Russian Technology Partners

As foreign firms partner with Russian organizations, do they indeed facilitate the process of institutional fragmentation, as some Russians charge? With the demise of the USSR and its administrative-command system, the organizational landscape of Russian R&D offered a potential range of forms from which the Western investor could choose future partners: extant firms that remained state-owned, those that privatized, those smaller parts of extant firms that could spin off as new private ventures, or in the rare case, the new start-up firms. I suggest that there are different sets of advantages to partnering with large traditional institutes than with collaborating with new, smaller firms. The relative benefits and drawbacks of each stem from the institutional history of Russian R&D organizations and their process of market transition.

In the wake of the world's largest privatization program, over 60 percent of the Russian economy was privatized by June 1994, from only 4 percent at the end of 1992. Even the traditionally more conservative executives in the defense and high technology centers have generally come to recognize the inevitability of marketization and have started to privatize (Kuznetsov, 1994; Gaddy, 1994). The dominant tendency among the privatizing form of defense and research-oriented enterprises, as well as among privatizing state firms in other sectors, was to create a holding company structure (Optiz and Pfaffenberger, 1994) or to otherwise begin a decentralizing process (see Figure 1). The result was generally a shell parent company which held stock in its former subunits, in which the most resourceful or endowed units would subsidize the less-profitable ones through their contracts with foreign investors. Outside investors can choose, therefore, whether to work with older and generally large former Soviet organizations, or contract with the newer smaller ones. Each type has particular strengths and constraints.

Secure access to material goods and property gives older firms an important advantage. Once they are allowed to privatize, they generally face uncontested claims to own the state assets they administered. In addition, former Soviet executives often have easier access than newcomers to state credits that are necessary in order to pay for energy and other maintenance services and inputs. As described in Appendix D by Andrei Baev, the Russian state reserved the option of controlling strategic sectors such as energy, technical research, communications, and defense by requiring them to reserve from 25.5 percent to 51 percent of common, voting shares for federal ownership or issue a "golden share" which grants the state veto power over fundamental managerial decisions for at least three years (Sanchez-Andres, 1995). The best way of hedging against government intervention, therefore, is for the foreign investor to become an equity owner whose own contributions and commitment are valued by the host state enough to protect the interest of the investor. Similarly, larger firms have the advantage of economies of scale important to investors interested in production or sales. Thus alliances involving manufacturing and marketing goals should target older, extant Russian firms. At the same time, however, these firms have institutional obligations that generate unforeseen externalities and make the older host firm, even in its privatized, holding company form, an unstable, high-risk partner.

Figure 1: Organizational Forms of Transition Economies



The higher organizational internalization of older forms substantially increases their administrative costs by providing for a greater labor pool, supply inventory, and a whole range of other goods and services that are paid for by shifting profits from the profitable foreign collaboration (Jorgensen et al., 1986). In addition, enterprises in developing countries are also often responsible for providing entire municipalities with substantial day care, housing, medical, and other social services which can be divested only with great difficulty, if at all (Bernstein, 1994). The important role played by older, formerly state-owned firms thus makes them prey to external demands and controls by their state and community (Hendley, 1994), as was the case when Lockheed's main partner, a state-owned manufacturing firm, was caught in a growing dispute with another state-owned firm. The Russian government

stepped in to dictate the solution and required that Lockheed's partner absorb its antagonist (Sedaitis, 1995).

In contrast, the overhead and administrative costs of the generally smaller, new spin-off or start-up firms are minimal. New spin-offs generally use the office space and equipment of their parent firms at minimal cost, if they compensate at all (Sabel and Prokop, 1996; Boycko et al., 1995; Kroll, 1992). While their contract form of access to space, equipment, utilities, and energy keeps the overhead costs at spin-offs competitively low, however, the security of their access depends on the goodwill of often resentful state management and is generally shaky at best (Bernstein, 1994). Thus, manufacturing-oriented collaborations are less likely to partner with firms that have only tenuous control over their assets, while research-intensive alliances will appreciate the freedom, initiative, and innovation that these new organizations allow. Hence,

Proposition 4: International alliances in Russia with new technology firms will most likely involve more mutual knowledge sharing than alliances with older, extant host firms.

Sample and Method

Our model was applied to a database of 215 international strategic alliances with Russian firms. The sample consists only of collaborations, which are defined as those alliances wherein partners were not connected through majority ownership. In addition, this sample consists only of those collaborations that involve strategic use of technology, which includes joint participation in R&D or the transfer of new technology or technical information from at least one of the partners, such as through licensing agreements, that can reasonably be assumed to affect their long-term positioning.

The database was compiled from two original sources, the Russian sub-sample of the MERIT-Cooperative Agreements and Technology Indicators (CATI) database and the Center for Security and Arms Control (CISAC) database at Stanford University. The method for gathering cases was essentially the same for both sets of data (for details, see Freeman and Hagedoorn, 1994). In the first stage, initial electronic search of a variety of media, the most important of which were newspapers and journals, revealed sources of information about cooperative agreements with Russian firms. This information was collected and gleaned for data regarding a number of categories, including their organizational form of cooperation, technology transfer, and distance to market of their main activity. In the second stage, a research team on the ground in Russia was employed to track detailed data on the host Russian firms of the sample. Because information on some variables was not available for all alliances, the analysis of the directionality of technology knowledge sharing relied on the sample consisting of 185 firms.

There are several drawbacks with a literature-based method that have already been discussed in detail elsewhere (Hagedoorn, 1993). One of the main limitations is the possible bias in favor of Anglo-Saxon firms and underestimation of certain modes of cooperation, such as licensing, or illegal cooperation involving sensitive or defense-related technologies.

Thus, almost half of the sample involved U.S. firms, which makes inferences regarding collaboration by European and Asian firms suggestive at best. These shortcomings would plague even larger scale data collection, however. In addition, the second stage of the research improves over some of the shortcomings of solely literature-based data by checking the empirical validity of reported alliances. The more difficult problem is the potentially illicit nature of the trade and the high probability that illicit behavior is not reported and not evenly distributed between Russia and firms in other countries.

The model is centered on the mutuality of technology learning, or more precisely, knowledge sharing, which was measured as an indicator variable which assumes the value of 1 when there was multilateral transfer of technology and the value of 0 when the transfer of technology was unilateral from Russia, to Russia, or when there was no technology knowledge sharing at all between the partners. To test proposition 1, the form or organization was coded 1 when the alliance was contractual and 0 when it was an equity joint venture. The model predicts a positive relation for this indicator variable, which would confirm the proposition that contractual alliances are more likely to involve bilateral transfer of technology than equity joint ventures.

To test proposition 2, the model includes an indicator variable that distinguishes between high-tech, research-intensive industries that we include in the “new core technologies” category on the one hand, and more traditional industries such as automotive, chemical, consumer electronics, and the like on the other hand. Russian alliances in industries oriented to the new, “core” technologies are expected to be more engaged in mutual knowledge sharing, as they are in alliances among firms from the Triad countries.

The model also makes a distinction between companies that existed before the beginning of reforms in the Soviet Union and new companies that emerged during the turbulent process of political and economic transformation. The indicator variable used to test proposition 3 is coded as 1 when the Russian partner is new and 0 when it is an older, formerly, or currently state-owned organization. The sign of the coefficient on this variable is expected to be positive. Finally, the research intensity of an alliance may affect the propensity for mutual knowledge sharing and was controlled for by an indicator variable which was coded 1 for alliances involved in upstream research and development but 0 where production and marketing were also involved.

Descriptive Statistics and Findings

It is interesting to compare the sectoral distribution of alliances in the sample. Table 3 indicates that the majority of alliances from firms in the developed world are in mature technical sectors, which in this case are largely chemicals, oil, and metals processing. On the other hand, when alliances involve joint research and mutual knowledge sharing, about 43 percent are in the core technology sectors of biotechnology and information technologies particularly. In contrast, over half the alliances with firms from developing countries, such as China, Malaysia, Vietnam, Bulgaria, and other post-communist states, involve aviation and aerospace technologies.

Table 3: Distribution of international strategic technology alliances by the type of alliance

Types of Alliances	Bilateral		Non-Bilateral		Total		TOTAL
	Triad (n=82)	LDC's (n=4)	Triad (n=79)	LDCs (n=19)	Triad (n=161)	LDCs (n=23)	
Contractual alliances	67.1%	25%	39.2%	52.6%	53.4%	47.8%	n=97
Joint ventures	17.1%	25%	25.3%*	10.5%*	21.1%	13.1%	n=37
Other	15.8%	50%	35.5%	36.9%	25.5%	39.1%	n=50
TOTAL	100%	100%	100%	100%	100%	100%	n=184

Note: *—Pearson χ^2 is significant at the 5% level

The majority of propositions outlined were supported by the multiple logistical regression model. As assumed, the more knowledge-sharing collaborations were more likely to take a contractual form, but only in cases of investment from the Triad countries. The coefficient on the contractual versus equity joint venture is positive, as predicted by the theory, and statistically significant at the five percent level (one-tail test). Asian firms were not expected to show a similar relationship and indeed the relationship to bilateral sharing was negative and significant at the one percent level. The relationship of industrial sector and knowledge sharing was also as predicted by proposition 2, which suggested that alliances in Russia were likely to be more mutually research intensive to the extent they involved newer, core technologies. The surprising result concerned the foreign partners' choice of which type of R&D organization to partner with in Russia.

The negative and statistically significant coefficient on the relationship of host firm to technology sharing indicates that older and formerly or currently state-owned enterprises were more likely chosen than new spin-off companies or completely new firms as research collaborators. The control variable of research intensity was also significant and in the predicted direction, indicating that research oriented alliances were more likely to be mutually beneficial.

Conclusion

Any data set that tracks potentially illicit technology sales will be problematic. As such, conclusions drawn from this data need to be treated as preliminary and suggestive only. Nonetheless, a number of patterns emerge to suggest the relevance of current global trends to alliances in the Russian Federation, as well as the specific concerns of Russia's role with developing countries therein. Overall, Russian firms appear to occupy an intermediate position between firms in developed and developing countries.

Russian firms often act as equitable technology learning partners to Western firms and follow patterns similar to those among firms in developed countries. Given their advanced level of research and sophistication, particularly in defense relevant technologies such as aeronautics and radio electronics, many Russian firms have become low-cost research

Table 4: Direction of technology transfer in international strategic technology alliances

	Bilateral Technology Transfer (n=184)
Contractual form	.69** (.35)
Newer technologies	.75** (.37)
Underdeveloped countries	-1.76*** (.60)
New host firm	-1.16** (.54)
Research intensive	.64** (.37)
Constant	-1.79

Note: standard errors are in parentheses.

** = significant at the .05 level, one-tailed test;

*** = significant at the .01 level, one-tailed test.

collaborators with U.S. and European firms. As expected, bilateral technology transfer, or mutual knowledge sharing, was particularly prevalent among those alliances active in newer technology sectors such as the information technologies. In addition, the bilateral relationships also tended to take the looser contractual form much as they do among firms in developed countries. As such, this suggestive finding adds further support to the growing body of evidence suggesting a link between looser organization and greater inter-firm learning.

The association between international learning and flexibility is contested by the transaction cost economic analysis of international alliances, with its focus on the risks of partnering. The economic approach emphasizes transaction cost as key in the decision to integrate and suggests that vertical integration is more effective than contractual, market relations when costs of monitoring, enforcing, or regulating are high, as they are under the shifting, unclear processes of collaborative research (Buckley and Casson, 1988). In addition, joint research and development often requires that both parties share sensitive information with each other, creating a situation ripe for opportunism and violation of intellectual property rights. These potentially high costs make the joint venture equity form preferable for the greater security and control it affords over the looser form of long-term contracting (Williamson, 1981). Nonetheless, the results here suggest that only control over physical assets merited equity ventures in Russia. Perhaps research-oriented alliances in Russia do not require equity to ensure the needed level of control given the leverage Western firms have in developed countries (Jorgensen et al., 1986). Simply by virtue of their greater wealth and experience, Western firms need few structural controls built in since their presence is highly valued. An alternate explanation is that of organizational learning, which stresses the importance of inter-firm knowledge transfer rather than cost, to technology alliances. From this perspective, Russian alliances follow similar patterns to alliances among developed countries by favoring looser, contractual organization. This form is better suited to organizational learning because it encourages the open communication, flexible coordination, and continuous feedback that are important to successful technology research (Kogut, 1988).

At the same time that Russian firms collaborate as equitable research partners with Western firms, they stand as distinctly alternative and more accessible technology trading partners to firms in developing countries. Given the peculiarities of their situation, Russian firms can offer technology products and knowledge at considerably lower prices than can Western firms. First, many of the especially large, extant enterprises are strapped for cash in light of fallen state funding. Second, these are the same organizations with the best access to allegedly huge stockpiles of arms and defense technology (Blank, 1995). In particular, this research suggests that firms from developing countries are not partnering with Russia to the extent of creating equity joint ventures, either in Russia or elsewhere. The bulk of these alliances tend to involve contracts or component part supply, particularly in aircraft and avionics. Certain Russian policymakers have made no secret of their desire to reclaim a larger share of the global arms trade and these data suggest that military aircraft constituted a significant proportion of the technology trade between Russia and governments in China, Vietnam, and other developing countries. The turn to (often illegal) arms and components sales to these countries suggests the difficulty many Russian R&D firms face in making the

transition to commercial applications and points all the more to the benefits of supporting greater Western ties and support to the private technology firms in Russia.

References

- Amann, R., and J. Cooper (eds.) (1982). *Industrial Innovation in the Soviet Union*. New Haven, CT: Yale University Press.
- Bernstein, D. (1994). *Defense Industry Restructuring in Russia: Case Studies and Analysis*. Stanford University: CISAC.
- Blank, S.J. (1995). Reform and Revolution In Russian Defense Economics. *The Journal of Slavic Military Studies* 8, no.4:691–717.
- Boycko, M., A. Shleifer, and R. Vishny (1995). *Privatizing Russia*. Cambridge, MA: The MIT Press.
- Buckley, P.J., and Casson, M. (1988). A Theory of Cooperation in International Business. In F. Contractor and P. Lorange (eds.), *Cooperative Strategies in International Business*. Lexington, MA: Lexington Books, pp. 31–54.
- Cheung, T.M. (1993). Arms Sales: China's Buying Spree. *Far Eastern Economic Review* 8:24–26.
- Dunning, J.H. (1993). *Multinational Enterprises and the Global Economy*. Wokingham, England: Addison & Wesley.
- Frank, I. (1990). *Foreign Enterprise in Developing Countries*. Baltimore: The John Hopkins University Press.
- Freeman, C., and J. Hagedoorn (1994). Catching Up or Falling Behind: Patterns in International Interfirm Technology Partnering. *World Development* 22:771–780.
- Gaddy, C. (1994). Economic Performance and Policies in the Defense Industrial Regions of Russia. In M. McFaul and T. Perlmutter (eds.), *Privatization, Conversion, and Enterprise Reform in Russia*. Boulder, CO: Westview Press.
- Hagedoorn, J. (1993). Understanding the Rationale of Strategic Technology Partnering: Inter-Organizational Modes of Cooperation and Sectoral Differences. *Strategic Management Journal* 14:371–385.
- Hagedoorn, J., and J. Schakenraad (1992). Leading Companies and Networks of Strategic Alliances in Information Technologies. *Research Policy* 21:163–190.
- Harrigan, K.R. (1988). Joint Ventures and Competitive Strategy. *Strategic Management Journal* 9:141–158.
- Hendley, K. (1994). Trip Report. Unpublished memorandum, Stanford University Center for International Security and Arms Control.
- Holloway, D. (1982). Innovation in the Defense Sector. In R. Amann and J. Cooper (eds.), *Industrial Innovation in the Soviet Union*. New Haven, CT: Yale University Press, pp. 276–367.
- Jorgensen, J.J., T. Hafsi, and M.N. Kiggundu (1986). Towards a Market Imperfections Theory of Organizational Structure in Developing Countries. *Journal of Management Studies* 23:417–442.
- Kayukov, E., and E. Silliman (1996). New Company Formation in Russia: Legal Regulation. In J.B. Sedaitis (ed.), *Commercializing High Technology: East and West*. Lanham, MD: Rowman & Littlefield, pp. 119–143.

Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

- Kogut, B. (1988). Joint Ventures: Theoretical and Empirical Perspectives. *Strategic Management Journal* 9:319–332.
- Kroll, H. (1992). Monopoly and Transition to the Market. *Soviet Economy* 7:143–74.
- Kuznetsov, E. (1994). Adjustment of Russian Defense-related Enterprises in 1992–94: Macro-Economic Implications. *Communist Economies and Economic Transformation* 6:473–514.
- Maitland, I., J. Bryson, and A.H. Van de Ven (1985). Sociologists, Economists, and Opportunism. *Academy of Management Review* 10, no. 1:59–65.
- Marten-Zisk, K. (1995). Arzamas-16: Economics and Security in a Closed Nuclear City. *Post-Soviet Affairs* 11: 57.
- Mowery, D.C. (1994). The Changing Structure of U.S. Industrial Research: Implications for R&D Organization in the Russian Federation. *International Journal of Technology Management* 9 (5–7), 89–102.
- Mowery, D.C., and J. Oxley (1995). Inward Technology Transfer and Competitiveness: The Role of National Innovation Systems. *Cambridge Journal of Economics* 19:67–93.
- Nelson, R.R. (1995). Why Should Managers Be Thinking About Technology Policy? *Strategic Management Journal* 16, no. 8:581–588.
- Opitz, P., and W. Pfaffenberger (1994). Adjustment Processes in Russian Defense Enterprises within the Framework of Conversion and Transition. Hamburg, FRG: Lit.
- Osborn, R.N., and C.C. Baughn (1990). Forms of Interorganizational Governance for Multinational Alliances. *Academy of Management Journal* 33:503–519.
- Ring, P.S., and A.H. Van de Ven (1992). Structuring Cooperative Relationships between Organizations. *Strategic Management Journal* 13:483–498.
- Sabel, C.F., and J.E. Prokop (1996). Stabilization Through Reorganization: Some Preliminary Implications of Russia's Entry into World Markets in the Age of Discursive Quality Standards. In R. Frydman, A. Rapaczynski, and C.W. Gray (eds.), *Corporate Governance in Central Europe and Russia*. Washington, D. C.: The World Bank.
- Sanchez-Andres, A. (1995). The First Stage of Privatization of Russian Military Industry. *Communist Economies and Economic Transformation* 7:353–367.
- Sapir, J. (1996). Defense Conversion and Restructuring in the Russian High-Technology Sector: Is There an Alternative to Uncontrolled Exports? In J.B. Sedaitis (ed.), *Commercializing High Technology: East and West*. Lanham, MD: Rowman & Littlefield, pp. 119–143.
- Schweitzer, G.E. (1996). *Moscow DMZ: A Story of the International Effort to Convert Russian Weapons Science to Peaceful Purposes*. Armonk, NY: M.E. Sharpe.
- Sedaitis, J.B. (ed.) (1996). *Commercializing High Technology: East and West*. Lanham, MD: Rowman & Littlefield.
- Sedaitis, J.B. (1995). Investing in Russian High Technology. Paper presented at the Babson Conference on Entrepreneurship. Summary in *Frontiers of Entrepreneurship Research*. Waltham, MA: P&R Publications.
- Shlykov, V.V. (1995). Economic Readjustment within the Russian Defense-Industrial Complex. *Security Dialogue* 26:19–34.
- Teece, D.J., G. Pisano, and A. Shuen (1994). *Dynamic Capabilities and Strategic Management*. CCC Working Paper, University of California at Berkeley.

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Von Hippel, E., and M.J. Tyre (1995). How Learning Is Done: Problem Identification in Novel Process Equipment. *Research Policy* 24, no. 1:1-12.

Williamson, O. (1985). *The Economic Institutions of Capitalism*. New York: Free Press.

Williamson, O. (1981). The Economics of Organization: The Transaction Cost Approach. *American Journal of Sociology* 87: 548-577.

Williamson, O. E. (1975) *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Basic Books.

B

Investment in the Russian Federation: Problems and Prospects

John M. Litwack

I. Introduction

The history of the Russian economy is one of enormous unexploited potential. After Russia finally made progress in shedding the vestiges of feudalism in the late nineteenth and early twentieth century, an accelerated development of the institutions of a market economy began, involving high investment and substantial economic growth. But the October 1917 revolution shifted Russia to a very different path of development for more than seventy years. Today, after almost five years of radical economic transformation from 1992 to 1996, the legacy of the past still haunts Russia in its attempt to create an economic environment conducive to high levels of investment and rapid growth.

Although many of the problems facing Russia today bear a strong resemblance to traditional problems in economic development, these problems take on a new dimension in the particular circumstances of economic transition. Such problems include limited savings due to low income, limited intermediation due to poorly developed financial institutions, the attraction of holding wealth in foreign assets due to domestic instability and a mistrust of domestic financial organizations, myopia induced by significant and variable inflation, and dampened incentives from high and unstable taxation. But the inherited environment also included an entire socioeconomic and institutional infrastructure. While this infrastructure bore little relation to market competitiveness, it provided for basic social needs on the basis of high levels of state investment. The steady collapse of this infrastructure since the late

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1980s has taken a heavy toll on a large segment of the Russian population, and has made servicing even the most basic public goods and transfers a severe challenge at all levels of government. Continual frantic searches by the Russian government for new sources of revenue and deficit finance have dampened incentives and absorbed potential investment funds. The obsolescence and lack of competitiveness of the existing capital stock requires a major infusion of new capital for successful restructuring. Yet neither the state nor institutions in the private sector are yet able to generate the requisite funds.

At the same time, the enormous potential of Russia remains a major lure for investment as the overall economic environment improves. Despite the low average standard of living in Russia today, savings rates remain surprisingly high by international standards. Foreign capital also remains poised to pour into Russia if perceived political and economic risks can be significantly alleviated. Yet, the particular path of development that Russia will follow also remains quite uncertain at this point. This paper provides a brief overview of the current environment for investment in the Russian Federation. Current trends and policy directions are then outlined to highlight some of the alternatives that Russia faces in its future economic development. Two basic alternative directions are identified. One is largely internal, deriving from capital generated inside large domestic financial-industrial groups, which work closely with various levels of government. A second direction features significant foreign investment, enhanced competition, and a relatively rapid development of a legal infrastructure for the market based on Western models. Recent reform strategies and legislation in Russia have aimed at promoting both of these directions of change, and the actual path of development will undoubtedly embody elements from both models. But certain conflicts between these two models suggest that policies chosen today may have an important long-term impact on the future institutional development of Russia.

II. Investment in the Russian Federation during Economic Transition

The Soviet system realized high rates of investment through forced savings and a strong political priority for investment goods. On the eve of radical economic reform in 1989, fixed capital investment in the USSR made up an estimated 33 percent of GDP, more than double the rate in the United States (Rossiiskii Statisticheskii Ezhegodnik, 1995). In the context of the Soviet-type economic system, however, the return on investment was typically quite low. In fact, many specialists have characterized the period of Soviet economy of the 1970s and 1980s as one of gradual deterioration, as the share of consumption in GDP steadily expanded and the capital stock depreciated (Schroeder, 1985). Factor productivity growth rates were negative during most of this period. The case of agriculture, which accounted for more than 20 percent of all investment in the latter years of the Soviet period, is particularly illustrative. Despite enormous capital flows into agriculture, the economy was plagued by an unmistakable deterioration of the whole agricultural infrastructure during this period, most particularly in the quality of roads and cold storage facilities. It was this low return on investment, accompanied by steady economic decline in the context of the Cold War, that

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brought about the primary spark for change (perestroika) in the Soviet Union in the mid-1980s.

In the period of radical economic reform since 1992, declines in the aggregate level of investment have consistently outpaced falls in GDP. According to the recent revised estimates (Russian Federation: Report on the National Accounts, 1995) of Goskomstat and the World Bank, GDP declined by about 35 percent during 1992–1995, while fixed capital investment decreased by almost double that amount. This trend continued into 1996, as preliminary data for the first eight months of the year indicate a decline in GDP of 6 percent, while investment has declined by 17 percent (Sotsial'no-ekonomicheskoe polozhenie Rossii, 1996).

Table 1: GDP and Investment Growth in the Russian Federation: 1992–1995

% Growth	1992	1993	1994	1995	1992–1995
GDP	-15	-8.7	-13	-4	-35
Total fixed investment	-40	-12	-24	-13	-65
Fixed I in production	-44	-19	-33	-17	-76
Fixed I not in production	-30	+1	-11	-7	-13

Sources: Goskomstat (1995), Rossiiskaia Ekonomika (1996)

Despite the high declines in investment relative to the fall of GDP, the share of fixed capital investment in GDP has fallen at a much slower rate. This reflects sharp increases in the relative prices of many investment goods, particularly in construction materials. By official data, the ratio of investment to GDP has moved from a little over 30 percent in the immediate pre-reform period to 22 percent in 1995 (Rossiiskaia Ekonomika, 1996).

The relatively smaller decline in investment not designated for production reflects a smaller decline and, more recently, positive growth (+9 percent in 1995) in the construction of residential dwellings. Despite a significant reduction in federal funds in this area, housing moved from 18 percent to 24 percent of all Russian investment between 1991 and 1995. Another notable trend in the sectoral breakdown of investment is the steep fall of the share of investment in agriculture.

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Table 2: The Sectoral Breakdown of Investment in Russia

	1991	1992	1993	1994	1995
Total investment	100	100	100	100	100
Industry	34.7	39.9	36.3	30.3	33.6
Agriculture	18	10.4	7.3	4.7	2.7
Construction	4.5	2.6	2.2	2.9	2.8
Transport & Comm.	9.6	8.7	10.6	11.7	14.5
Trade	1.9	1.3	1.1	1.8	1.9
Housing	18.1	22.8	24	25.5	26
Other	13.4	14.3	18.5	23.1	18.5

Source: Rossiiskaia Ekonomika (1996)

It should be noted that, within the category of “industry,” there has also been a strong shift in investment, as well as in GDP, away from manufacturing and toward resource-extraction branches.

The traditional sources of finance for investment in the USSR were the state budget and, to a limited degree, special ministerial-level funds. The declines in investment reported in Table 1 directly reflect declines in federal funds for investment, which have yet to be offset by increased funding from other sources.

Table 3: Investment by Source of Finance in Russia

	1992	1993	1994	1995
All sources	100	100	100	100
Federal budget	16.6	19.2	13.4	11.0
Extrabudgetary funds (federal)	2.9	3.3	7.8	10.2
Regular and local budgets	10.3	15.1	10.6	10.5
Retained earnings	69.3	57.4	64.2	62.5
Ind. investors and organizations	0.9	2.6	2.3	3.0
Foreign investors & joint ventures	–	2.4	1.7	2.8

Sources: Goskomstat (1995), Rossiiskaia Ekonomika (1996)

As might be expected, the primary source of investment in the reform period is retained earnings. The most striking feature of the data presented in Table 3, given the pace of change in the Russian economy, is the similarity of the breakdown in sources of investment for all of the years between 1992 and 1995. Although the share of investment financed from the federal budget declined to 11 percent in 1995 from 17–19 percent in 1992–1993, this was compensated for by an increase in the share of extrabudgetary federal investment funds. The share of federal finance from all sources actually follows a very steady pattern of 19.5 percent, 22.6 percent, 21.2 percent, and 21.2 percent for the years of 1992, 1993, 1994, and 1995, respectively. The share of regional and local budgets has remained close to 10 percent. Foreign investment has also remained a small share (under 3 percent), although it did increase during 1995 to an estimated 2.8 billion dollars, as opposed to 1 billion in 1994. In addition, despite the difficult environment immediately preceding the presidential elections in 1996, foreign investment apparently continued to increase significantly. Preliminary data indicate 2 billion dollars of new foreign investment for the first half of 1996 alone (Sotsial'no-ekonomicheskoe polozhenie Rossii, 1996).

Conspicuously absent from the picture here are capital markets, accounting for less than 3 percent of all investment. Although many of the basic institutions of capital markets have emerged in Russia, Table 3 illustrates the fact that neither credit nor equity has yet become a major source of investment finance. Commercial banks have been the most active players on emerging capital markets in the years of economic transition in Russia, with more than two thousand commercial banks currently operating. Yet the role of banks in financing investment is still quite limited. According to the data of the Central Bank, the share of long-term (over 1 year maturity) credits in all commercial bank credit was roughly 5 percent from 1992 through most of 1994, and increased to 10 percent on the heels of the relative stabilization in 1995 and early 1996 (Biulleten' bankovskoi statistiki, 1996). The particularly difficult situation in Russian financial markets in the first half of 1996, however, apparently drove this number back to 5 percent for the second quarter of the year (Sotsial'no-ekonomicheskoe polozhenie Rossii, 1996). It should be noted also that a large portion of this long-term credit is directed to private housing. A recent detailed representative study of 627 Moscow banks, based on data of January, 1, 1995, revealed that the sum of active investments of these banks at the time, as represented by long-term credits and investments in nonstate securities, made up only about 1 percent of all assets. State securities, by contrast, accounted for 4.25 percent of all assets. The ratio of all commercial credit to the nonfinancial sector to GDP in Russia for 1995 was 0.6 percent (Sotsial'no-ekonomicheskoe polozhenie Rossii, 1996), which is quite low compared not only with Western countries, but with most other former socialist countries as well.

Table 4: Composition of Bank Assets in 627 Representative Moscow Banks as of January, 1995

	%
All assets	100
Nonworking assets (reserves, cash, etc.)	50.47
Discounted notes	0.70
Short-term credits	31.12
Long-term credits	0.30
Interbank credit	10.99
Investments in state securities	4.25
Investments in nonstate securities	0.80
Other	1.37

Source: Dmitriev et al. (1996)

Despite the fact that progress in stabilization has increased the share of long-term credit in all commercial credit since January 1995, preliminary information from a follow-up survey to Dmitriev et al. (1996) indicates that such credits still remain below 1 percent of bank assets. In fact, the severe problems of liquidity in the banking sector since mid-1995 offer a further disincentive for tying up funds in long-term loans. Thus, despite some progress in the last few years, Russian banks still do not play an effective role as intermediaries between the savings of the population and domestic investment.

These general conclusions are echoed in surveys of industrial enterprises. A recent representative survey of 430 Russian industrial enterprises revealed the following:

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Table 5: Sources of Investment Used in 430 Sampled Industrial Enterprises in 1995–Early 1996

Sources of Investment Used	All Sampled Enterprises	Producers of Cons. Goods	Producers of Invest. Goods	Intermediaries
Federal or local budgets	12.3	16.3	9.4	11.2
Retained earnings	43	40	45	43.2
Long-term credit	10.5	13.3	12.1	6.7
Investment from banks	1.2	1.5	1.3	0.8
From Other businesses	2.6	2.2	3.4	1.5
Foreign investment	3.4	4.4	2.0	4.5
No investment funds available	41.2	40	41	41.8

Source: Rossiiskaia Ekonomika (1996)

It should be noted that the figures in Table 5 do not represent percentages of investment finance. They represent the percentage of firms in the sample that had any access to a given source of investment finance. Thus, 41.2 percent of the firms sampled had no access to any source of investment finance, 12.3 percent had some access to state investment funds, and 10.5 percent of the firms had some use of long-term bank credit.

One very positive factor for Russia is that, despite the hardship that economic transition has brought upon a large part of the population, the savings rate remains remarkably high by world standards. Although the measurement of savings in Russia is quite problematic, most studies, including household surveys, place savings at more than 15 percent of income, and some estimates are as high as 30 percent. A large amount of savings in Russia, however, is still concentrated in foreign assets, particularly hard currency. Plyshevskii (1996) approximates the composition and magnitude of savings as follows:

Table 6: Composition of Household Savings as Percentages of Income

Type of household savings	1991	1992	1993	1994	1995
Deposits and securities	19.8	4.8	6.3	6.5	4.6
Hard currency	–	0.5	7.5	16.1	14.5
Cash rubles	5.0	9.8	9.4	4.7	2.7

Source: Plyshevskii (1996)

Although the accuracy of this data might be questionable, the fact that hard currency has become the primary household savings instrument in Russia is indisputable. Estimates of capital flight from Russia during this period differ so dramatically by source that no figures will be reported in this paper. It will only be stated that, on the heels of relative stabilization in 1995, it is widely believed that capital flight may have decreased considerably and net capital flows into Russia could even have been positive in that year. But foreign assets abroad remain another important savings instrument for individuals and businesses and, like domestic hard currency holdings and the weak intermediation of the banking system, remain an important factor in the wedge between savings and investment in the Russian Federation.

Goskomstat data also support the notion that the vast majority of savings of the population do not materialize as bank deposits or investments in domestic securities.

Table 7: The Composition of Household Savings in Russia

	1990	1992	1993	1994	1995
All savings	100	100	100	100	100
including:					
bank deposits and securities	60	26	26.7	22.7	21.5
“unorganized” savings	40	74	73.3	77.3	78.5

Source: Rossiiskaia Ekonomika (1996)

In conclusion, despite problems with Russian data that make the interpretation of Tables 1–7 difficult, an overall picture nevertheless emerges. Although investment activity in the Russian Federation has been falling at a much faster rate than output during economic transition, several qualifying points can be noted. Given the very high share of investment in GDP in the pre-transition period, which was based largely on forced savings to support a high priority for heavy industry and defense, it is natural to expect that the share of investment in GDP should fall during the early years of transition to a market economy. It is also possible that part of the fall in investment could have been compensated for by an increased efficiency in the allocation of funds. For example, as indicated in Table 2, the fall in investment has been particularly great in agriculture, where the rate of return was notoriously low. While some official sources claim that the return on investment has declined during the transition period, these claims are based on aggregate figures that insufficiently distinguish between low output caused by an inherited lack of competitiveness at market prices during transition, as opposed to a low return on new capital formation.

Despite these qualifications, the extraordinary need for a major infusion of new capital for restructuring and the creation of new businesses allows one to speak of a genuine investment crisis in Russia today. The information above gives some insights into the roots of this crisis.

Even the most pessimistic estimates of savings rates reject the hypothesis that low savings, due to the impoverishment of the population, might be a primary barrier to investment in Russia today. But, although savings rates are substantial in Russia, much of this savings does not materialize as funds for investment. Capital markets have been very slow to develop in Russia, and have as yet been unable to substitute for declining federal investment funds, which have been a surprisingly constant share in all investment finance during the years of economic transition. A large part of savings is still held directly in foreign assets. Furthermore, the vast majority of savings that is held in banks is not invested in the real sector. Foreign investment remains a small, although growing, share of investment in the economy as a whole.

III. Problems

This section outlines four sets of problems that propose primary barriers to an activation of major investment activity in the Russian economy:

1) Problems in Macroeconomic Stabilization.

This is the problem that is perhaps most often stressed in the existing literature as a barrier to the functioning of capital markets in Russia (See, for example, McKinnon, 1991). The presence of high and variable inflation greatly increases the costs and risks associated with long-term contracting on capital markets. In Russia, this environment has increased the relative profitability to financial institutions of activities other than real-sector investments, including the servicing of high-volume currency exchange and speculation on the foreign exchange market.

Direct evidence exists that macroeconomic stabilization is important for Russian capital markets. When, for the first time, monthly inflation rates were reduced to levels around 5 percent a month in mid-1994, the share of long-term loans in commercial bank credit doubled very quickly, only to fall back to its original share (5 percent) after the acceleration of inflation at the end of the year. This share doubled again on the heels of progress in stabilization in 1995. Policy recommendations of the international financial institutions (IFI) continue to stress progress in stabilization as the most important direction for stimulating a revival of investment activity and economic growth.

Given the high savings in foreign assets in Russia, macroeconomic stabilization has the second crucial benefit for investment of capturing a greater share of savings domestically. As soon as the population perceives a high degree of domestic stability, funds for domestic investment should grow very quickly in Russia. But, as discussed below, this "stability" is critical not only in expectations concerning inflation and exchange rate movements, but for taxation as well.

2) Informational Asymmetries and the Lack of Informational Capital for the Effective Allocation of Credit.

As is now well known in economics, the presence of informational asymmetries between borrowers and lenders, given the potential for default on the part of the former, creates conditions of market failure in financial markets. Interest rates are very limited as a means of equilibrating the demand and supply of credit. The rationing of credit by banks must therefore be carried out on the basis of information on the reliability and credit risks of the borrower, as well as a direct assessment of the potential of individual investment projects. In Russia today, this task is much more complicated and costly than in a developed, or even less-developed, market economy. In the particular circumstances of transition, banks are faced with demands for credits from a large pool of firms, virtually all of which claim to have restructuring potential. In reality, very few have this potential. It is up to the banks or other investors to sort these firms on the basis of an initial low level of information and the virtual absence of “corporate culture” to support contractual trust. Even in the case of a firm that clearly has restructuring potential, this potential may not be realized for a host of reasons due to the specifics of the transition period. One important such reason, which has been highlighted in recent literature on problems in economic transition, may be the presence of incompetent management (Frydman, Rapaczynski, 1994, 1996). Insider-controlled firms still predominate in Russia, and there is still no effective corporate governance mechanism to monitor and replace incompetent management.

It should also be noted that, given the fact that Russian banks are not yet specialized in investment loans, shifting activities into that area also requires significant fixed costs (creating monitoring structures, cooperation in monitoring and the pooling of information with other financial institutions, finding and hiring competent personnel in this area). They can be expected to undertake and share these costs only when there is a perception of a potential very high return. This is an area where foreign banks may have some advantages over domestic banks. But the activities of foreign banks in Russia remains a politically controversial issue.

Information problems also prevent private security markets from generating a significant supply of investment funds. Only as firms in Russia begin to develop effective corporate governance structures and strong business reputations can equity become an important source of investment finance. There is reason to believe that, in the context of Russia today, the problems here will be overcome even more gradually than those associated with debt contracts (Litwack, 1993).

3) Lack of a Legal Infrastructure .

Legal reform and the creation of “rule of law” in Russia has proven a very complicated task, and has not usually received primary attention in the reform programs. Despite an impressive amount of written laws and decrees, mostly based on Western practice, third-party (court system) enforcement of contractual agreements in Russia remains weak. Furthermore, legislation is changed regularly in a highly discretionary manner. This alone would make long-term loan contracting quite hazardous. One vitally important policy direction here is

effective legal protection for the rights of debt-holders, allowing them the ability to exercise control, initiate bankruptcies, and seize assets in the event of default (Aoki, 1995). Even fully collateralized loans are limited in Russia by difficulties in enforcing the collection of collateral.

4. Fiscal Problems and Taxation .

Despite progress in stabilization, Russia continues to experience serious problems in the construction of a fiscal system. Tax rates remain quite high, are very unstable, and are still often altered on a discretionary or retroactive basis. Taxes are also quite numerous (about 50 different important taxes for a typical firm) and their combined burden is so substantial that tax evasion is still generally considered a necessity to operate a profitable business (Makarevich, 1996). This includes central taxes on value added, profits, individual income, securities operations, excise duties, customs duties, social security deductions, and deductions for various extrabudgetary funds. Taxes at the regional and local levels target property, resource usage, and licensing. But, as the responsibility for social assistance has been largely delegated to regional and local levels, special local taxes to support social assistance funds have been added in most areas.

This environment presents a particular problem for foreign investment, as Western businesses are typically less willing and able to evade taxes and other laws as necessary. Special tax privileges for foreign investors have been a subject of great controversy in Russia, and continue to be debated in the government (see below). Former two- to three-year tax holidays for foreign investors have recently been limited to investments satisfying a narrow set of criteria (production activities, over 30 percent paid foreign ownership, over 10 million dollars invested). Foreign businesses with investments of more than 100 million dollars that satisfy a list of other special criteria can also be eligible for some special reduced import duties. But high uncertainty and instability surrounding these special privileges has yet to be resolved.

Despite the presence of high taxes, persistent problems in tax collection have plagued the federal budget, and have served as a motivation for continual efforts to adjust taxes and tax collection to augment state revenues. These problems have taken a toll on investment and financial intermediation in many different ways. Expectations of high and unstable tax rates are both a direct disincentive to domestic investment and a primary reason why foreign assets are still primary savings instruments. In fact, some studies stress that institutional arrangements in Russia are such that it is more difficult to evade taxes on that income that is being used for purchases of investment goods (Vlianie...1996, p. 82). Insufficient tax revenue has led to sharper-than-planned cuts in state assistance for investment, including infrastructural investments that could also increase the perceived return of private investments. The financing of budget deficits through short-term bond issues (GKO) has escalated interest rates, and provided a very high-return "safe" asset that is currently much more attractive to financial institutions than risky investments in the real sector. Although interest rates have fallen in Russia to under 60 percent annualized since the presidential elections, rates still remain so high that the demand for investment loans at these rates must be predominantly

from firms that are unlikely to pay them back. Commercial banks are, of course, well aware of this fact.

A recent survey (Nazarova, 1996) asked commercial banks what they perceived to be the major obstacles to the expansion of their credit activities in the economy. Seventy-nine percent cited a very high degree of credit risk as a primary factor, which is related to all four categories above. Sixty-nine percent cited a lack of coherent and effective legislation in the area, relating to problems in category 3. Forty percent cited "overall economic and political risk," which cuts across 1 and 4, as well as perhaps 2. Thirty-eight percent cited a lack of protection from swindlers out to take credits and not repay, which applies to categories 2, 3, and 4. The current difficult situation in the Russian banking sector, where 312 banks lost their licenses in 1995 and many more troubled banks remained threatened in 1996, owes precisely to the fact that, as currency operations have become less profitable due to progress in stabilization and state subsidies are no longer usually intermediated through commercial banks, Russian banks have not been able yet to find profitable activities in financing investment opportunities in the nonfinancial sector.

IV. Solutions and Directions of Change

The years of economic transition in Russia have witnessed numerous laws, decrees, and special programs with the goal of promoting investment activity. But the environment of economic transition has dampened much of their effect. Special programs involving the allocation of state funds to investment projects have, to a large extent, fallen victim to cuts in state expenditures to meet deficit-reduction targets. The modest state investment program for 1995 went underfulfilled and, in the first four months of 1996, only 6 percent of the funds budgeted in the 1996 program were disbursed (Kriviakina, 1996). Other measures have involved various tax and tariff breaks for both domestic and foreign investors. But these conditions, like other legislation in the fiscal sphere, have been very unstable, with changes (increases) often applied retroactively, as discussed above.

Continuing declines in output and investment activity, despite recent progress in stabilization, have increased attention in the Russian government in 1995 and 1996 to the problem of investment. On October 13, 1995, the government passed a decree titled "Comprehensive Program for the Promotion of Domestic and Foreign Investment in the Economy of the Russian Federation (Kompleksnaia programma...(1995))." The centerpiece of this program is a recommendation for the drafting of five new federal laws on investment: a Law on Changes in and Amendments to the [1991] Law on Investment Activity in the Russian Federation, a Law on Changes in and Amendments to the Law on Foreign Investment Activity in the Russian Federation, a Law on Free Economic Zones, a Law on Concession Agreements Between Russian and Foreign Investors, and a so-called Law on Agreements on the Division of Production.

All of these proposed laws have been a source of great controversy in the Russian government. As of mid-1996, among these proposals, only the Law on Agreements on the Division of Production (O soglasheniikh..., 1996) had been passed into law, and this only

after a series of major revisions by the Duma. The draft revision of the basic Law on Foreign Investment addresses the concerns of guaranteeing stability in taxes, tariffs, and other regulatory variables for foreign investors. But there actually exist alternative drafts of this law, prepared by rival political factions. The new Law on Agreements on the Division of Production is concerned with the promotion of large-scale projects in the resource-extraction industries, including those involving foreign investors. Whether or not this law, or a future revision thereof, succeeds in opening up new opportunities for large-scale investment in the Russian economy, the Law on Agreements on the Division of Production is indicative of an important general direction in current Russian economic policy.

In stark contrast to the spirit of the draft revision of the Law on Foreign Investment, which seeks to enhance the legal infrastructure to support foreign investors, the Law on Agreements on the Division of Production (particularly the early draft version) proposes an alternative solution. In principle, it allows for a bilateral contract between the government and a long-term investor which supersedes the law. According to the draft law, profits would be divided between the government and the investor according to terms of the specific bilateral contract, independent of existing tax and other regulations. This is the same sort of bilateral contract, in fact, that currently governs the fiscal arrangements between the federal and regional governments in Russia (Fiscal Management in Russia, 1996).

The Duma, however, would not approve such a strong version of the law. Political factions succeeded in introducing changes to the final law that may have sabotaged its essential content. Clauses were introduced to the effect that any such bilateral agreement cannot be in conflict with either the Constitution or other existing federal and local laws, the state can decide to change the contract unilaterally in the event of "major changes in circumstances (Article 17)," and, perhaps most important, the process of approval for such agreements is to be a very complicated one, involving the explicit approval of a series of laws in the Duma itself. The draft law allowed for bypassing the Duma altogether. But the battle may not be over yet. A faction in the government is still working to try to amend the law in a way that restores some of its original intent (Liubimtsev, 1996).

Another law of late 1995, which also reflects the spirit of the times and has potential significance for investment in the Russian Federation, is the Law on Financial-Industrial Groups of November 30, 1995 (O finansovo-promyshlennykh..., 1995). Given the continued absence of a sufficient legal infrastructure to support impersonal contracting, and insufficient widely available information to alleviate the risks described in section III-2, it is natural to expect the formation of special alliances or "governance structures" (Williamson, 1985) between financial institutions and firms to exploit the enormous investment opportunities in Russia today. In this case, trust in contracting is maintained through repeated interactions and direct reciprocal monitoring. This is the essence of the financial-industrial groups (FIGs) that have, in the opinion of many, contributed to the recent success of Asian countries such as Japan and Taiwan. This is also consistent with Russian-Soviet tradition, whereby economic success depended greatly on stable, mutually beneficial long-run ties between individuals and economic organizations (Litwack, 1991). A lobby in Russia for the promotion of FIGs along the lines of the "Japanese model" has been very active since the late 1980s. It received an important boost following the removal of Yegor Gaidar as prime minister at the end of 1992 (Cooper, 1995). 1993 witnessed the appearance of a Presidential decree that

authorized the explicit formation of FIGs. The conditions of this decree were substantially strengthened in the law of late 1995.

Like the Law on Agreements on the Division of Production, the primary substance of the law on FIGs is to allow for special bilateral agreements between FIGs, the government, and the Central Bank. Upon authorization of the Central Bank, banks that are members of FIGs can obtain lower reserve requirements (O finansovo..., Article 15, chapter 4). Upon authorization of the government, FIGs can obtain special tax treatment as well as special state insurance for loans used for investment projects (Article 15, chapter 4). The law also foresees the designation of FIG management as a custodian for voting the shares of stock that belong to the state.

As of February, 1996, there was a backlog of more than one hundred potential FIGs trying to join approximately thirty officially registered FIGs. In contrast to the fears expressed by some that the institution of a FIG will be used primarily by financially distressed industrial dinosaurs and banks as a means of extracting state subsidies and avoiding bankruptcy, so far most official FIGs appear oriented toward profitable exports and other activities which may have promising prospects (Cooper, 1995, Rozhkov, 1996).

As concerns the actual development of financial-industrial groups in Russia, official groups are only the tip of the iceberg. The most important and strongest FIGs remain unregistered as official groups. In these ranks is the association Menatep, which includes one of the strongest banks in Russia and interests in many areas of the economy, especially oil, chemicals, and textiles. Another important group is the United Energy System of Russia (Edinaia Energicheskaja Sistema Rossii [EESR]), involving firms associated with electricity production and distribution, and two specialized banks (Toplivnoenergeticheskii Mezhhregional'nyi Bank and Bank Rekonstruktsii I Razvitiia). In fuels, the large gas monopoly Gazprom has formed a significant financial-industrial group of its own. Another strong group, Interros, specializing in the exports of precious metals, and involving the powerful Onexsimbank, began its operational existence before becoming officially authorized as a FIG. The huge consortium Alpha-Capital is concentrated mostly in food production (Rozhkov, 1996, FPG..., 1995). Recent surveys confirm that some sort of special "stable connections" between a bank and an enterprise, usually involving the bank as a direct stockholder, is a prerequisite for the extension of long-term investment credits (Investitsionnaia aktivnost'..., 1996, p. 52).

The current trend in group formation in Russia also goes beyond the creation of groups of firms and financial institutions. Reflecting the spirit of the new laws discussed above, relations between business and government also are critical. In Russia today, long-term investors need protection not only against the hazards of horizontal contracting, but against changes in taxes and other regulations by all levels of government. This bears a resemblance to conditions that fostered the development of so-called "local corporatism" (Nee and Su, 1993) in China, which involves collusion between local governments and business. Perhaps the most cited example of special relations between business and government in Russia concerns the large gas monopoly and informal financial-industrial group Gazprom. Gazprom continues to operate on the basis of bilateral profit-sharing agreements with the government as opposed to conforming to existing tax laws. One special tax shelter for Gazprom was eliminated in early 1996, but only after significant pressure from the IMF. The group

Menatep has profited enormously from what appears to be a special relationship with the government. Menatep, along with Onexsimbank, was a primary beneficiary in the insider-dominated shares-for-loans privatization deals of late 1995. Among other deals, the Menatep group affiliates were able to obtain a large portion of the profitable oil company Yukos at a fraction of its independently assessed market value. In the aftermath of this process, a further deal was struck, whereby more stock, including shares in valuable oil companies, was given by the government to Menatep in exchange for 15 percent of Menatep's own stock. (Menatep..., 1996)

The trend involving greater state involvement with large economic groups also reflects current problems and developments in the Russian banking sector. As the traditional sources of profits for Russian banks (directed state credits, service, and speculation on foreign exchange markets) have been dramatically decreased since 1994, more and more Russian banks have experienced troubles. The Central Bank and the government have been following a strategy that has been tough on smaller banks, which largely have not yet been able to find alternative sources of profits, while aiding selected larger banks. Twelve percent of all commercial banks were stripped of licenses in 1995 (Makarevich, 1996). Of the more than two thousand remaining banks, the twenty largest banks now own roughly 50 percent of all banking assets in Russia. As more banks either lose their licenses or are forced to merge, the banking sector will become even more concentrated. At the same time, many in Russian political circles express the point of view that the state should assert greater ownership and control over these larger banks. Such an extreme position was recently announced by Anatolii Kulikov, the Minister of Internal Affairs, who recommended the outright nationalization (through market purchases) of large Russian private banks and other "strategic" firms. (Banki..., 1996)

The trend in Russia toward financial-industrial-state alliances for the activation of investment reflects both Russian traditions and the nature of the difficult problems outlined in the previous section. But this path of development, in contrast to an emphasis on building an explicit legal infrastructure and promoting competition, also has important costs. The presence of such dominant groups can support a high degree of monopolization and substantial entry barriers for potential competitors. They can also be associated with a high degree of corruption and losses from influence (rent-seeking) activities (Milgrom and Roberts, 1990). In addition, the presence of these groups can restrict the flexibility of the economy in adapting to changing market conditions. Despite the fact that such groups now tend to involve many of the most profitable and promising firms in the country, the unstable and continually evolving situation of economic transition can change relative profitability and comparative advantage very quickly. This was illustrated vividly in 1995, when an economic boom in metallurgy and chemicals was brought down very quickly through the real appreciation of the ruble and increases in energy prices. There is a risk that large financial-industrial structures, with the explicit support of the state, could develop in areas of the economy without a long-run or even medium-run comparative advantage, implying potentially large social and economic costs. It is precisely the process of competition, with relatively free entry and exit, which may be necessary to identify where the real comparative advantages of the Russian economy lie.

One very important question concerning this path of development concerns future foreign activity and investment in the economy. The potential disadvantages of competing against such groups that profit from explicit or implicit special agreements with the government could become an ever greater barrier to foreign investment in Russia. Of course, one direction of policy, as typified by the first draft of the Law on Agreements on the Division of Production, is to include foreign firms in these special groups as well. The new law on FIGs also allows for foreign participants. Indeed, the one period of rapid capitalist development in Russia, between 1870 and 1914, did involve a high degree of concentration and protection along with substantial foreign ownership in the economy. But, although it is doubtful that the next period of high investment and growth in Russia will end as badly for foreign interests as the last, there is still reason for concern. The explosion in Russian political circles surrounding the draft Law on Agreements on the Division of Production, and the nature of subsequent revisions in that law, reflect strong attitudes of favoritism toward domestic business. The 1995 government program for stimulating investment gives high priority to increasing foreign investment, but also contains some passages that could cause concern for foreign investors. For example, it is written that "it is necessary to more actively attract foreign financial resources in the form of credits, which must be repaid, but will not establish a permanent dependence between borrowing firms and foreign firms" (Kompleksnaia..., 1995, p. 11, par. 5). In addition, it is noted that state credit guarantees will be granted to support only "private domestic investors" (Kompleksnaia..., 1995, p. 14, par. 2). Although such attitudes may be understandable, their possible consequences would not seem as ominous in the presence of a development strategy aimed at establishing an independent legal infrastructure and promoting competition.

The experience elsewhere in Eastern Europe suggests that foreign investment can play a crucial role in accelerating economic development and growth in the context of economic transition. Foreign investment has been the only variable that is strongly correlated with substantial investment and successful restructuring at the microlevel during economic transition throughout Eastern Europe (Aghion and Carlin, 1996, Hunya, 1996). Many specialists are increasingly emphasizing privatization strategies that create conditions for outside (foreign) investors to purchase controlling blocks of firms (Aghion and Carlin, 1996). These foreign investors have the advantage of possessing capital, experience in identifying promising firms, and the ability to establish immediately a corporate governance structure to promote competent management and generate positive signals on capital markets. They also have enhanced opportunities to diversify risks in their international portfolios relative to domestic investors. By importing business practices of the West and forming a potentially important political lobby for the implementation of appropriate legislation, foreign investors could accelerate the development of institutions to solve the problems discussed in the previous section. The high potential of Western venture capital for revitalizing the Russian economy has been emphasized in recent literature (Barton and Shaheen, 1995). But given the particular combination of traditional, political, and economic variables in Russia today, the role of foreign investment may remain much less significant than in most other European economies in transition.

Russia now stands at a crossroads of institutional development that echoes its geo-cultural position straddling both Europe and Asia. As the economy appears poised for rapid

growth and investment toward the end of the twentieth century, much remains to be decided as to the development of economic institutions in Russia. After five years of economic transition, the future economic system of the Russian Federation remains a mystery.

References

Aghion, P., Carlin, W., "Restructuring Outcomes and the Evolution of Ownership Patterns in Central and Eastern Europe," May 21, 1996, mimeo.

Aoki, M., "Controlling Insider Control: Issues of Corporate Governance in Transition Economies," in Aoki, M., Kim, H., eds., *Corporate Governance in Transition Economies*, Washington, D.C., World Bank, 1995.

"Banki I gosudarstvo: dushi prekrasnye poryvy," *Kommersant*, no. 5 (164), pp. 7–17, February 20, 1996.

Barton, J., and Shaheen, S., "Sharing the Wealth: The Role for Venture Capitalists in Russia's Economic Development," *Law and Policy in International Business*, vol. 27, no. 1, pp. 33–66, Fall 1995.

Biulleten' bankovskoi statistiki, no. 2–3 (33–34), 1996.

Cooper, J., "Financial-Industrial Groups and the Formation of the Russian Corporate Economy," mimeo, November 1995.

Dmitriev, M., Matovnikov, M., Mikhailov, L., Sycheva, L., Timofeev, E., Uorner, E., "Rossiiskie banki nakanune finasovoi stabilizatsii," manuscript, February 1996.

Fiscal Management in Russia, World Bank Country Study, World Bank, Washington, D.C., 1996.

"FPG: zakonnaia sila uporiadochnykh sviazie," *Kommersant* no. 47 (158), pp. 7–17, December 19, 1995.

Frydman, R., and Rapaczynski, A., "Corporate Governance and the Political Effects of Privatization," mimeo, 1996.

Frydman, R., and Rapaczynski, A., *Privatization in Eastern Europe: Is the State Withering Away?* CEU Press, 1994.

Hunya, G., "Large Privatization, Restructuring, and Foreign Direct Investment," mimeo, 1996.

"Investitsionnaia aktivnost' predpriatii" (From results of a survey conducted jointly by the Institute for Strategic Analysis and the Development of Entrepreneurship [ISARP] and the Institute for the Economy in the Transition [IEPP]), in *Ekonomist*, no. 5, 1996, pp. 51–62.

Izriadnova, A., "Investitsii," *Ekonomika I Zhizn'*, no. 14, pp. 11, April 1996.

"Kompleksnaia programma stimulirovaniia otechestvennykh I inostrannykh investitsii v ekonomiku rossiickoi federatsii," Decree of the Government of the Russian Federation of October 31, 1995.

Kriviakina, E., "Minekonomiki prizyvaet pokonchit' s nebypolneniem raskhodoi chasti budzheta," *Finansovai Izvestiia*, no. 60, June 7, 1996, p. 1.

Litwack, J. "Corporate Governance, Banks, and Fiscal Reform in Russia," in Aoki, M., Kim, H., eds., *Corporate Governance in Transition Economies*, Washington, D.C., World Bank, 1995.

Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

- Litwack, J. "Legality and Market Reform in Soviet-type Economies," *Journal of Economic Literature*, vol. 5, no. 1, pp. 77–89, Fall 1991.
- Liubimtsev, Iu., "Zakon priiat. Spory prodolzhaiutsia," *Delovoi Mir*, pp. 5, April 3, 1996.
- Makarevich, L., "Ekonomika vynosit votum nedoveriia politike," *Finansovaia Uzvestiia*, no. 58, June 4, 1996.
- McKinnon, R., *The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy*, Johns Hopkins Press, 1991.
- "Menatep poluchit za 15 percent svoikh aktsii tsennye bumagi niati neftianykh kompanii I Usk-Ilmskogo LPK," *Sevognia*, February 10, 1996.
- Milgrom, P., and Roberts, J., "Bargaining Costs, Influence Costs, and the Organization of Economic Activity," in Alt, J. and Shepsle, K., eds., *Perspectives in Political Economy*, Cambridge University Press, 1990.
- Nazarov, L., "Kredity dlia promyshlennosti: zamknutyi krug problem," *Ekonomika I Zhizn'*, p. 5, no. 15, April 1996.
- Nee, V., and Su, S., "Local Corporatism and Informal Privatization in China's Market Transition," mimeo, 1993.
- "O finansovo-promyshlennykh gruppakh," Federal Law on Financial-Industrial Groups of November 30, 1995, *Rossiiskaia Gazeta*, p. 3, December 6, 1995.
- "O soglasheniakh o razdele produktsii," Federal Law on Agreements on the Division of Production, *Rossiiskaia Gazeta*, pp. 3–4, January 11, 1996.
- Plyshevskii, B., "Potentsial investirovaniia," *Ekonomist*, no. 3, March 1996, pp. 3–16.
- Rossiiskii Statisticheskii Ezhegodnik*, Goskomstat Rossii, Moscow, 1995.
- Rozhkov, M., "Kommentarii k zakonu R.F., 'O finansovykh promyshlennykh gruppakh,'" *Predprinimatel'stvo v Rossii*, no. 1, 1996, pp. 32–35.
- Russian Federation: Report on the National Accounts, The World Bank, Goskomstat, October, 1995.
- Schroeder, G., "The Slowdown in Soviet Industry, 1976–1982," *Soviet Economy*, vol. 1, pp. 42–74, 1985.
- "Sdelka: 'Menatep' poluchit za 15 percent svoikh aktsii tsennye bumagi piati neftianykh kompanii I Usk-Ilmskogo LPK," *Sevognia*, February 10, 1996.
- Sotsial'no-ekonomicheskoe polozhenie Rossii: Ianvar'-Avgust, 1996, Goskomstat, September 1996.
- "Vliianie nalogovoi politiki na investitsionnuu aktivnost' predpriatii," in *Ekonomist*, no. 7, 1996, pp. 79–83.
- Williamson, O., *The Economic Institutions of Capitalism*, Free Press, NY, 1985.
- Rossiiskaia Ekonomika v 1995 Godu: Tendentsii I Perspektivy*, Institut Problem Perekhodnogo Perioda, 1996.

C

Russian Economic Interest Groups: Winners and Losers in the Politics of Economic Reform

Michael McFaul

Since 1993, Russia has achieved a series of important milestones regarding the articulation of the rules of the game for political and economic competition. Since the popular approval of a new constitution in December 1993, which gave a great deal of power to the president, the division of powers between the executive and legislative branch has been both formalized and respected by actors in both institutions. While critics of this superpresidential system are many, none of these opponents of the new institutional order are prepared to take to the streets to change it. On the contrary, budgets have been passed, governments approved, and laws enacted in a relatively “normal” and peaceful process.

Second, all strategic political actors in Russia have accepted elections as the only legitimate way for selecting the leaders of the state.¹ In December 1995, Russian citizens voted in parliamentary elections. In two rounds of voting in June and July in 1996, voters then elected a president, the first time ever that Russian voters directly selected their head of state. During the fall of 1996, voters returned to the polls for a third time in twelve months to elect governors in more than fifty regions. This series of democratic achievements is remarkable, especially when compared to other periods of Russia’s history—whether the confrontational and ultimately bloody politics of the first years of the new Russian state, the seventy years of totalitarian rule under the communists, or the hundreds of years of autocratic government under the tsars.

Third, these elections also helped to end the polarized debate about the kind of economic system most appropriate for Russia. Unlike in most East European countries, Russia’s communist movement did not transform itself into a social democratic party after the collapse of the Soviet Union. Instead, under the leadership of Gennadii Zyuganov, the Communist Party of the Russian Federation advocated a restoration of the Soviet ancien

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regime. From 1991 until 1996, the divide between “capitalists” and “communists,” or “reformers” and anti-reformers,” defined the main cleavage in Russian politics. After Zyuganov’s electoral defeat in the 1996 presidential elections, however, this debate ended.² With the threat of a communist comeback receding, a new consensus about the basic contours of the market system began to emerge among Russia’s elite.

However, not all capitalist economies behave the same and not all democracies look alike. While most people in Russia now agree that Russia should be a democratic polity and a market economy, few are satisfied with the kind of democracy and the kind of capitalism emerging today.³ To understand what kind of political economy is emerging in Russia and why the majority are still unsatisfied with their political and economic system requires an analysis of the winners and losers of Russia’s economic reform. Beginning in 1992, Yeltsin’s actions to stimulate a market economy based on private property galvanized the emergence of a whole new set of economic interest groups and at the same time challenged economic groups from the old order. In parallel, the economic hardship that followed from reform initiatives and the absence of new elections combined to demobilize mass-based political groups. The power and organization of a particular kind of “economic society” grew at the same time that the influence and privilege of “political society” and “civil society” waned.⁴

To trace the evolution of winners and losers of Russia’s economic reform, this chapter proceeds as follows. Part one sketches the emergence of Russia’s new “economic society,” focusing in particular on the emergence of Russia’s new financial-industrial groups. Section two then demonstrates how these new economic actors effectively have privatized the Russian state. Section three describes the political and economic losers, including small business people, labor, pensioners, political parties, and civic organizations. Section four summarizes how the combination of a strong financial lobby and a weak state produces public policy for a narrow few that disappoints the majority. Section five concludes with some predictions about how the current equilibrium might change.

I. The Rise of New (and Old) Economic Interest Groups in Russia

Yeltsin’s economic reform plan launched in January 1992 stimulated the reorganization of post-Soviet “economic society.”⁵ Through this transition, the oil and gas sector has sustained its dominant role within the Russian economy. Of all economic entities from the Soviet era, Gazprom has weathered the transition to the “market” the most unscathed. Protected by Prime Minister Chernomyrdin, the former chairman of the Gazprom, the company has managed to preserve its monopolistic control over the transport and distribution system of all of Russia’s natural gas, making it the most profitable conglomeration in the country. Gazprom’s management also acquired a controlling share of ownership in the company to insure against hostile, outside takeover bids.⁶ Unlike Gazprom, the oil ministry did not maintain vertical integration and control of all oil production enterprises. Nonetheless, each of Russia’s dozen major oil companies rank in the top twenty of the most lucrative companies in the new Russian economy. Likewise, banks that have formed around the oil and gas sector such as Gazprombank, Imperial, and National Reserve Bank rank as some of

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Russia's largest financial institutions. Other natural monopolies such as electricity, communications, transportation (both air and rail), and precious metal extractors also have fared well in the new market order and have emerged as the core of blue-chip companies on Russia's stock exchange.

Natural resources were not the only endowments from the Soviet era that could be easily translated into financial assets in the post-Soviet order. Human capital, including first and foremost relations with key Communist Party apparatchiks (during the Soviet period) and then state officials (during the post-Soviet period) also could be used to make money. Small trading companies spawned by Gorbachev's joint-venture and cooperative initiatives were most aggressive in taking advantage of the new opportunities of a liberalizing economy. Inflation, ruble devaluation, and state budgetary transfers provided opportunities for new economic actors to amass wealth. New banks such as Russian National Credit, Alpha Bank, Menatep, and Inkombank developed close ties to the Russian national government to take advantage of these new opportunities, while Most Bank under Vladimir Gusinsky emerged as the Moscow city government's central depository.⁷ Banks and ministries from the Soviet era such as Agroprombank, Promstroibank, and Zhilsotsbank or Gosnab (Tokobank), and Ministry of Foreign Economic Relations (Alpha Bank) also splintered from the state to become quasi-private financial entities.

Russia's Fifteen Largest Banks (November 1, 1996)⁸

Place	Bank	Capital (thousands of rubles)
1	Sberbank	20,776,923,692
2	Vneshtorgbank	5,708,155,620
3	National Reserve Bank	3,349,175,352
4	Oneksimbank	1,983,850,230
5	MFK	1,953,082,754
6	Inkombank	1,672,995,376
7	Tokobank	1,598,953,063
8	Imperial	1,581,109,862
9	Avtobank	1,353,504,005
10	Stolichnyi (SBS)	1,234,213,340
11	Bashkreditbank	1,069,525,134
12	Russian Credit	1,047,883,543
13	Menatep	919,835,167
14	MIB	792,545,923
15	Promstroibank	761,235,098

Liberalization of Russian trade also created new opportunities for importers. For instance, Boris Berezovsky, head of Logovaz, made his fortune by importing cars.

Privatization constituted the second major set of state policies that kindled the formation and reformation of economic interest groups in Russia. Housing privatization launched an explosive real estate market in Russia's major cities. The new economic groups from this market were usually tied closely to local government officials. In Moscow, the richest real

estate market of all, Mayor Yuriy Luzhkov de facto has created his own financial-industrial group from profits generated in large part through property.⁹

The first round of privatization of large enterprises (1992–1994) had an ambiguous effect on the reorganization of Russia's economic society. Because insiders won majority control in roughly three-quarters of all enterprises privatized, the first round in general simply ratified the property rights claims of old economic interest groups.¹⁰ The second "cash phase" of privatization, however, created new opportunities for Russia's small but aggressive financiers. Using their close contacts with the Russian executive branch (which by 1994 controlled economic policy), several banks offered the Russian government loans in return for shares in some of Russia's most valuable enterprises, a process in which Russia's "new" banks began to acquire control of "old" profit centers.¹¹ Oneksimbank, under the guise of its umbrella industrial organization, Interros, acquired a controlling interest in Norilsk Nickel, the largest nickel exporter in the world. Capitalizing on its close ties to the state, Oneksimbank also emerged as the sweepstakes winner in the acquisition of oil companies, seizing a majority share control in Sidanko, a vertically integrated oil company that controls five giant oil-producing Russian companies and is considered Russia's fourth largest company, as well as a strategic partnership with Surgeneftgas, Russia's third largest company.¹² Western experts estimate that Interros now controls approximately 28 percent of all crude oil production in Russia.¹³ Menatep also fared well in the shares-for-loans fire sale, when its industrial arm, Rosprom, acquired control of more than eighty percent of Yukos oil company, considered the second largest company in Russia after Gazprom, which accounted for 11.2 percent of Russia's total oil production in 1996.¹⁴ While the company's projected earnings are calculated in the billions of dollars, the state received a paltry \$700,000 from the deal.¹⁵ Menatep's second largest acquisition was Apatit, a large phosphorous mine which is the third largest producer of phosphorous in the world. Shut out of the scramble for oil companies, Russian Credit and Inkombank moved to acquire stakes in the murkier world of metallurgy companies, an economic sector previously controlled by Oleg Soskovets that allegedly is tied to mafia organizations.

Bank acquisition of resource extraction enterprises marked a new phase in the organization of Russia's economic society as a very small handful of actors acquired phenomenal proportions of Russia's productive assets. These new financial actors formed financial-industrial groups (FIGs), vertically integrated corporate structures in which large financial institutions with close ties to the state anchor an array of trade companies and industrial enterprises. The creation of these holding companies eliminates competitive pricing within the FIG. Once a critical size has been reached, these conglomerates have the capacity to grow exponentially as recently acquired properties are leveraged for acquisition of new properties. Until all state assets have been transferred to the "private" sector, the name of the game is expansion and acquisition, not profit maximization. Bank acquisitions in the oil and gas sector and oil and gas investments in these financial empires (such as Gazprom's minority stake in NTV, Most Bank's television network) have begun to obfuscate the earlier political rivalries between these two sectors.¹⁶

In two short years, these FIGs have captured a significant proportion of Russia's productive assets. By the end of 1996, the thirty-one FIGs officially registered with the government accounted for ten percent of Russia's GDP.¹⁷ Unofficially, experts estimated that

Russia's eight largest FIGs control between 25 and 30 percent of Russia's GNP.¹⁸ Falling inflation and the ruble's stabilization in 1995 also served to narrow the number of large financial groups as dozens of smaller banks as well as banks such as Tveruniversal, Unikom, and Russian National Credit could not survive in these new market conditions.

Fast privatization is not always good privatization. In fact, this rapid acquisition of Russia's most productive assets by a handful of financial-industrial groups has served to blur rather than clarify the line between public and private property. In 1996, the Yukos oil company swallowed up more than 1.4 trillion rubles from the federal budget, making it the third largest recipient of state funds after Gazprom and Avtovaz. Is this a private company or parastatal? A similar relationship with the state is true for all of these major companies. At the same time, a reverse flow of capital also has begun with respect to private investment in public projects. In place of loans to the government, Russia's largest financial-industrial groups have begun to provide direct investment into public projects in return for state properties.¹⁹ This new form of cooperation between the public and private sector has been especially pronounced at the regional level as local governments have little hard cash to pay outstanding wages. Local banks and entrepreneurs have expressed the fear that this imperial spread of Moscow banks eventually will stifle competition and increase the dependence of regional governments on central authorities.²⁰

II. "Privatizing" the Russian State

This particular kind of capitalism emerging in Russia has shaped interest articulation within the Russian state. First, capital is concentrated sectorally. Dynamic economic activity is located in trade and services, banking, and the export of raw materials, particularly oil and gas. Production of manufactured goods of any sort has decreased, first dramatically in 1990 and 1991 and steadily since. Small enterprise development, after a boom in the late Gorbachev era, has steadily decreased as a percentage share of GNP.²¹ Second, capital is concentrated geographically, with an estimated eighty percent of Russia's capital assets located in Moscow. Third, capital is closely tied to the state. Through the financing of state transfers, privatization, and the loans-for-shares program, Russian banks have grown dependent on the state for inside information, state assets, and money. The intimate relationship between the state and the private sector is even more apparent in sectors exporting raw materials as the state retains large equity stakes in all of these enterprises and a majority share in many, and yet refuses to tax these corporations. This relationship between the public and private spheres sustains rent-seeking, not profit-seeking, behavior.²² The extent of state transfers to these economic entities coupled with continued high levels of state ownership in Russia's productive enterprises raises serious questions about how "private" Russia's private sector really is.

A concentrated, centralized capitalist class intimately if not parasitically tied to the state already has left its mark on state-society relations.²³ Interest articulation and intermediation are dominated by big business that crowds out other interest groups in lobbying the state.²⁴

As the line between the public and private economy has been increasingly blurred, the distinction between public and private actors also has become fuzzy.

This group's dominance over government leaders and the state more generally was demonstrated most dramatically during the 1996 presidential election. They failed to achieve the first option, the postponement of elections altogether.²⁵ Once reconciled to abide by the electoral rules of the game, this economic group rallied behind one candidate, Boris Yeltsin.²⁶ While divided in the past over both political issues and markets, Russia's corporate bosses united during the presidential campaign to provide Boris Yeltsin's campaign with virtually unlimited resources.²⁷ During the campaign, these plutocrats also waged a successful effort to dismiss Yeltsin's original campaign team headed by former first deputy prime minister Oleg Soskovets and replace them with "their" campaign team under the direction of Anatolii Chubais.²⁸

In return for this support, this small, well-organized interest group has enjoyed tremendous "representation" within the Russian state since the election. The most direct and obvious method of state control is through appointments. Russia's prime minister, Viktor Chernomyrdin, is the former chairman of Gazprom, Russia's largest company. With Chernomyrdin at the helm of government, the state has rarely acted against the interests of the oil and gas sector. Russian bankers also are well represented in the current government. Their most powerful ally and representative is Anatolii Chubais, Yeltsin's current chief of staff. As the former head of the State Privatization Committee, Chubais has been closely tied to Russia's new financiers from the beginning. Allegedly as a condition of their financial support during the campaign, Russia's banking tycoons demanded that Chubais become chief of staff after the election.²⁹ Some of these funders of Yeltsin's campaign were not content to have their representatives in government, but wanted themselves to try their hand in the "public" sector. Vladimir Potanin, the former head of the powerful financial group Oneksimbank, became deputy prime minister, and Boris Berezovsky, the head of Logovaz, was given the position of deputy chairman of the Security Council.

In March 1997, Yeltsin radically reorganized the first, post-election government in order to breathe new life into a lethargic team. The changes strengthened even further the hand of Russia's new capitalist class within the state.³⁰ While Vladimir Potanin returned to Oneksimbank, a resignation considered a blow to the big bankers, his exit was more than compensated for by the mix of new personnel and portfolios in the top echelons of the government. Most importantly, Anatolii Chubais moved back to the government to become both first deputy prime minister and finance minister. In essence, he was given complete control of economic policy. Yeltsin also appointed former Nizhny Novgorod governor Boris Nemtsov as first deputy prime minister in charge of social policy, housing reform, and anti-monopoly issues. Though not considered a direct representative of Moscow's financial circles, Nemtsov has been firmly identified with the "reformers" during his reign in Nizhny Novgorod. In no way could Nemtsov be considered an enemy of Russia's new capitalist barons. Though less noticed, perhaps the most important cabinet reshuffle concerned the Ministry of Economics. Yeltsin not only appointed a Chubais ally, reformer Yakov Urinson, to run this ministry, but also approved the subordination of the Industrial Committee and the Committee on Defense Industries to this ministry, a move that effectively eliminated two of the most important government agencies for the military-industrial complex. Addition-

ally, another Chubais protégé, Alfred Kokh, was promoted to deputy prime minister while still retaining his position as head of the Committee on State Property (GKI). When the dust settled, the cabinet reshuffle signaled a real weakening of industrial interests, especially military-industrial interests, a partial weakening of oil and gas interests, as Chernomyrdin's position was undermined considerably, and a strengthening of the bankers' hand in governmental affairs.³¹

III. Political and Economic Losers of Russian Economic Reform

Other economic actors are dwarfed by both the wealth and political organization of bankers, oil and gas exporters, and their allies. Enterprise directors of formerly state-owned industrial enterprises, once a relatively unified lobby, have now fractured into several sectoral and regional industrial organizations. Civic Union, the electoral bloc most firmly identified with this economic group, garnered only 1.9 percent of the popular vote in 1993, prompting many factory managers to gravitate back to the "party of power" (Chernomyrdin's bloc and Yeltsin's campaign) as the only political organization worth investment. Paradoxically, then, enterprise directors throughout a wide variety of industrial sectors have had a confluence of political interests in the short run with both old money from raw material exporters and new money from Russia's financiers and bankers. Some successful new companies that have emerged from the military-industrial complex, such as Vypelcom, are firm backers of the Yeltsin government.³² The less successful enterprises of the military-industrial complex have formed alliances with opposition parties CPRF and Congress of Russian Communities and created lobbies such as the Union of Manufacturers and the League of Defense Enterprises, but none of these groups have been very effective over the last four years.³³ Even the CPRF, the largest political party in the Duma, rarely has acted on behalf of these constituents, prompting many to declare that the CPRF can no longer be considered an "opposition" party.³⁴

Most hurt by the kind of capitalism emerging in Russia have been small businesses and start-up companies. While Poland, a country with less than one-fourth the population of Russia, boasts more than two million private enterprises excluding agriculture, Russia has roughly 900,000.³⁵ Exorbitant taxes, inflation, the lack of liberalization at the local level, the mafia, and the consolidation of these large financial groups occupying monopoly control over many markets have combined to create a very unfriendly environment for the small business person. Consequently, this economic interest group, the backbone of many consolidated democracies, is weak, disorganized, and depoliticized in Russia.

Labor is also disoriented and disorganized in the midst of Russia's economic transformation. Old Soviet trade unions, once a tool of control for the Soviet Communist Party, have been slow to reorganize to meet the new challenges of capitalism. The Federation of Independent Free Trade Unions (FNPR), a consortium of sectorally based unions claiming more than fifty million members, still in most cases identifies with the interests of directors rather than workers. As the interests of management and labor diverge, the FNPR has gradually lost its credibility with both groups, making it a politically inconsequential group.

In the 1996 presidential elections, the FNPR did not endorse a candidate. Nor have truly independent trade unions filled the void.³⁶ The Independent Union of Miners, the coalition of strike committees that brought the Soviet government to its knees in 1991, lost its independence and credibility by consistently siding with the Yeltsin government over the last five years. Wildcat strikes, particularly in coal regions and the Far East, persist, raising some speculation that Russian labor finally has started to remobilize, but the lack of national organization suggests that these strikes will remain isolated occurrences.

Political Society and Civil Society

Big business enjoys hegemonic control of the Russian state in part because of the relative weakness of countervailing interest groups in society. Most importantly, Russia's party system remains extremely weak. In pluralist democracies, parties traditionally serve as the principal institution mediating societal interests within the state. In Russia, however, parties play only a marginal role in interest intermediation. While elections since 1993 have produced positive signs of consolidation, the legacies of Russia's first failed transition still linger regarding the development of a party system in Russia. Russia still has too many ineffective parties and too few effective parties. In 1993, thirteen parties competed for seats on the proportional representation list; in 1995, forty-three parties made the ballot. The 1995 parliamentary vote may have induced consolidation as only four of these forty-three parties crossed the five percent threshold—the Communist Party of the Russian Federation, the Liberal Democratic Party of Russia, Our Home Is Russia, and Yabloko. Yet, all of these parliamentary parties have uncertain futures and poor records of representation.

Vladimir Zhirinovskiy's Liberal Democratic Party of Russia (LDPR) has created an extensive network of regional offices and local organizers, but it remains unclear whether this organization is a cultist movement or a political party, as the organization would collapse almost instantaneously without Zhirinovskiy. Our Home Is Russia, the political group founded by Prime Minister Viktor Chernomyrdin, is endowed with significant financial resources, government support, and modest regional organization, but easily could follow the fate of earlier "parties of power" in Russia and disintegrate.³⁷ Grigoriy Yavlinsky's Yabloko, the one reformist party not connected to the government that won seats through the proportional system in both 1993 and 1995, most closely resembles a proto-party, complete with a parliamentary faction, grassroots regional organizations, and internal democratic procedures. However, Yabloko's small faction in the parliament and near lack of penetration of government bodies outside of Moscow will assign the nascent party a marginal role in Russian politics in the near future.³⁸ Only the Communist Party of the Russian Federation (CPRF) looks like a real national party with a well articulated social base that will outlive its current leaders. Strikingly, however, the Communist Party has not demonstrated a proclivity for legislating on behalf of its constituents as the Duma's largest faction.

The void of representation left by Russia's weak parties has not been filled by other mass-based groups. Participation in overt political activity by civic groups peaked as early as 1990 as part of the nationwide anti-communist movement. Since then, independent civic groups have played less and less a role in the organization and conduct of state policy for

several reasons. First, the ability of civic groups to articulate and lobby for their interests vis-à-vis the state in Russia's post-communist era has been impeded by the same factors retarding party development more generally—structural changes in the economy and society, delayed development of pluralist institutions, especially the weakness of representative institutions, and the commensurate ascendancy of executive power. Second, Russia's economic revolution hit hardest against the Soviet-era emergent civil society. As with the labor movement, Russia's new market-embedded society has not sufficiently consolidated to develop market-embedded social organizations. Third, post-communist grassroots organizations have no financial resources, as the "middle class"—the financier of most civic groups in the West—has not emerged yet in Russia. Growing executive power at all levels of the Russian state constitutes a final negative influence on Russian state-society relations. Mass-based civic groups are much more successful at working with parliaments than executives.

IV. State Outputs

The strength of big business, the weakness of political parties, labor, and civil society have combined to allow the Russian state to act in the interests of Russia's richest. The rationalization of the internal institutions of the state and the ideological unity of key actors who occupy key state offices has not enhanced state autonomy. On the contrary, the Russian state today enjoys little autonomy from societal interests, but instead looks like "simply the resolution of a vector of forces emanating from a variety of different groups."³⁹ Not all societal interest groups, however, are represented equally, as Russia's state is deeply penetrated and controlled by the interests of big business. Generally, smaller groups with narrow purposes are more likely to effectively organize than large groups with broader agendas.⁴⁰ Consequently, the full spectrum of interest groups in economic, political, and civil society will not be represented equally. Capitalist groups tend to be small in number and focused in their demands, making cooperation easier to organize than among workers or consumers who face greater barriers to collective action because of their large number and inability to coordinate and communicate their preferences. The imbalance in Russia, however, is especially acute.

This configuration has impeded not only democratic consolidation regarding political transformation, but also blocked a deepening of economic reform. Most importantly, this small group of financiers and resource exporters has used its dominance over the state to discourage direct foreign investment, block tax collection, impede the creation of an effective welfare transfer system, and further consolidate their monopoly over the control of state transfers.⁴¹

Regarding foreign investment, Russia's new financial captains want to ensure that new inflows of capital flow through their organizations. While powerful vis-à-vis the Russian state and significant when compared to other economic interest groups in Russia, Russia's financial conglomerates still cannot compete with their larger counterparts in the West.⁴² Capital in Russia is still scarce, prompting Russian bankers to seek protection of their local markets from foreign competitors.⁴³ Recent consequences of this protectionist impulse have

included limited foreign participation from the first privatization stage (1992–1994), foreign exclusion from the loans-for-shares program, and limited foreign involvement in the Russian GKO market.⁴⁴ These rent-producing policies, coupled with high interest rates, have limited direct foreign investment in Russia. The vast majority of foreign investment has gone either to resource extraction industries (estimated to be seventy percent of all foreign investment in 1996) or has entered Russia through the stock market.⁴⁵

Likewise, these groups have succeeded in avoiding paying taxes. During the 1996 electoral season, Yeltsin's team allowed financial supporters of his campaign to delay paying taxes. If the communist challenger, Gennadii Zyuganov, won, they wanted him to inherit a bankrupt state. After the elections, however, Yeltsin's government proved incapable of making the largest corporations and banks pay. Anatolii Chubais, Yeltsin's new chief of staff, created a special commission to address the tax arrears crisis, but his initiative achieved limited results. As a sign of the severity of the crisis, tax collection emerged as the most important issue in Russia's negotiations with the International Monetary Fund in summer and fall of 1996. Moreover, the structure of the Russian tax code reflects the interests of Russia's financial groups, as industrial enterprises, according to Anders Aslund, contribute "no less than 65 percent of all Russia's taxes, although [they] account for only 44 percent of GDP."⁴⁶

Perhaps most amazingly, this economic clique that refuses to pay taxes and avoids competition in turn has forced the costs of stabilization on Russian workers. Where else in the world is inflation controlled by simply not paying wages for months at a time?⁴⁷ More generally, Russia's current state leaders have done little to restructure welfare transfers, meaning that overall expenditures are still too high by West European standards, but that the neediest in society are still not targeted.⁴⁸ Heat, transport, and vacations to the Crimea are still subsidized for everyone, while pensioners scrape out a living below the poverty line.

Finally, the circle of those with access to state assets has narrowed, not widened. Before departing the government in March 1997, First Deputy Prime Minister Vladimir Potanin reduced the list of registered financial agents for the federal government from several dozen to thirteen.⁴⁹ By crediting these thirteen as the state's bankers, this move effectively assured these banks of stable financial flows and greatly compounded the financial woes of those that did not make the list.

State Capacity

The preferences of mass-based interest groups find little voice in Russia's contemporary state configuration. However, even if these mass-based interest groups were articulated, organized, and influential, Russia's contemporary state still would have little capacity to act upon their interests. This observation seems counterintuitive, as state transfers in Russia are still greater and more extensive than most states in developed capitalist democracies.⁵⁰ "Big," however, is not synonymous with "effective." These figures tell little about the state's capacity to actually execute policy decisions. Neither parliamentary laws nor presidential decrees are enforced as the state has little coercive capability against or legitimacy within society. For similar reasons, the state also has been very unsuccessful at collecting taxes. If state actors cannot extract revenue from society, then the state is effectively withering away.

Moreover, the most respected and capacious state institutions in Russia are located at the lowest levels of government, providing another impediment to state action at the federal level. Finally, the agency problems that haunted the operations of the old Soviet state have grown worse in the post-communist era. State bureaucrats ultimately serve in the interests of neither economic lobbies nor mass-based groups, but act first and foremost on behalf of themselves.⁵¹ Consequently, corruption within the state remains rampant.

The consequences of this declining state capacity in Russia have been dramatic. Basic services traditionally provided by the Soviet/Russian state such as security, welfare, and education are no longer public goods.⁵² Employees of the state must negotiate and strike just to be paid for work already completed. Contractual arrangements must be self-enforcing to succeed. Mafias, security firms, and private armies have assumed major responsibilities for providing security, challenging in essence the state's monopoly on the use of force. As Yeltsin eloquently summed, "The state interferes in the economy where it shouldn't, while where it should it does nothing."⁵³

V. Conclusion

The rulers and institutions constituting the Russian state have neither the will nor ability to act upon citizen preferences, writ large. To the extent that it functions at all, Russia's state serves primarily the interests of a small group of business elites ensconced in Moscow—corporatism but without the workers and without an informal contractual agreement between the state and these associations.⁵⁴ Pluralist institutions of interest intermediation are weak, mass-based interest groups are marginal, and institutions that could help to redress this imbalance—such as a strong parliament, an effective party system, or an independent judiciary—do not exist. Elections may have become the only game in town—an important achievement considering the long authoritarian shadow of Russian history. In consolidated democracies, however, elections are only one of many channels of interest mediation between state and society. In other words, Russia has become an "electoral democracy" but not a "liberal democracy."⁵⁵ In these conditions, elections can appear ritualistic and decorative, bearing little impact on conduct or operation of the state. During a brief campaign period, candidates may seem responsive to popular interests, but once in office a different set of preferences—the preferences of big business—takes precedence. Consequently, it should not be surprising that opinion polls demonstrate a strong distrust in the government and a lack of optimism about the future. Even as the state internally has consolidated both institutionally and ideologically, the disconnect between mass preferences and state actions has become more acute.

To argue that the state has neither the will nor capacity to meet the expectations of its citizens does not mean that the situation is inherently unstable or that crisis, breakdown, or revolution is inevitable. Weak states dominated by small, well-organized economic interest groups and insulated from mass-based societal pressures have existed for decades in other countries. Russia might be no different. Historically, however, growing gaps between state and society in Russia have produced on occasion revolutionary explosions.

Three factors can alter this equilibrium in state-society relations. First, leaders currently in control of the state could turn against those that helped bring them to power and instead begin to attend to the interests of mass-based groups. Yeltsin is the one political actor in the current state that has the capability to carry out a painful and destabilizing reform of the state from within. Perhaps thinking about his place in history, Yeltsin could initiate such a radical reform from within. Yeltsin's bold dismissal of everyone in his government except Viktor Chernomyrdin and the appointment of Anatolii Chubais and Boris Nemtsov as first deputy prime ministers in March 1997 suggests that it is still too early to dismiss Yeltsin as a force for change from within. At the same time, Yeltsin's health problems have diminished his imprint on governmental affairs, and he retained Chernomyrdin, the Russian politician least likely to disturb the current balance between state and society.

Second, an exogenous shock could come from society, forcing the state to change. For instance, sustained strikes in strategic industries could have crippling consequences for the current government as they did for the Soviet regime in 1991. The national one-day strike held on March 27, 1997 in which millions of workers participated demonstrates both the widespread level of discontent in society and potential for organized action to respond to this discontent. Weak states have little capacity to absorb even relatively minor crises.

The situation in Primorskii Krai in the fall of 1996 is illustrative. The elected governor of this region, Evgeni Nazdratenko, is considered one of the most authoritarian of all of Russia's governors. He and his government enjoy an intimate relationship with PAKT, a local big business consortium. In the fall of 1996, however, Nazdratenko had to scramble for his political life after workers at the local power station went on strike to demand back wages. Moscow sided with the striking workers and threatened to remove Nazdratenko if he did not pay the wages immediately. While the governor kept his job in the end, the crisis illustrated that even powerful and elected governors can be quickly undermined by organized mass action.

Faced with mass societal upheaval, the leaders of Russia's national state have few good options available. Because institutions mediating mass interests between the state and society are weak or absent, societal unrest will not be channeled and organized. State officials seeking to quell unrest will find it difficult to find societal interlocutors that "represent" society.⁵⁶ Nor can they rely on coercive instruments of the state to assist them in suppressing unrest, as most people in these institutions, including first and foremost the Russian army, have preferences and attitudes (i.e., antipathy toward the state) that are similar to those of society more generally. If workers take to the streets now, soldiers are unlikely to shoot. Weak states can be overthrown by weak societies.

Third, new elections might bring to power new leaders of mass-based groups not beholden to big business with the will to use the state to serve the interests of a wider segment of the population.⁵⁷ Currently, Alexander Lebed has positioned himself as the person most likely to initiate state reform on behalf of those "outside" the current order, be they bankers and business people outside the current circle or the common voter. Ultimately, the current equilibrium will change only when the state can be deployed to destroy monopolies, tax profit-makers, and provide a more favorable environment for market competition. While a slow process, this change can only happen peacefully through the ballot box.

Notes

¹ Russia appears to meet Joseph Schumpeter's minimalist definition of a democratic system. Joseph Schumpeter, *Capitalism, Socialism, and Democracy* (New York: Harper, 1947). See also Michael Burton, Richard Gunther, and John Higley, *Elites and Democratic Consolidation in Latin America and Southern Europe* (Cambridge: Cambridge University Press, 1992) p. 3. Linz and Stepan have relabeled this minimalist definition as the "end of transition," a separate condition than a successful consolidation of democracy. See Juan Linz and Alfred Stepan, *Problems of Democratic Transition and Consolidation: Southern Europe, South America, and Post-Communist Europe* (Baltimore: Johns Hopkins University Press, 1996), p. 3.

² For details, see Michael McFaul, *Russia's 1996 Presidential Election: The End of Bipolar Politics* (Stanford, CA: Hoover Institution Press, 1997).

³ See *Konsensys v obshchestvennom mnenii kak politicheskaya real'nost'* No. 120 (Moskva: Fond Obshchestvennoe Mnenie, February 27, 1997); and T.I. Kutkovets and I.M. Klyamkin, *Russie Idei* (Moskva: Institut Sotsiologicheskogo Analiza, January–February, 1997).

⁴ The distinctions drawn here between political, economic, and civil societies are borrowed from Larry Diamond, "Toward Democratic Consolidation," *Journal of Democracy* 5, no. 3 (July 1994), pp. 4–17.

⁵ For an overview of all groups, see Vladimir Lepekhin, "Gruppa Interesov v Sovremennoi Rossii," in Sergei Markov and Michael McFaul, *Politika i Obshchestvo Perekhodnogo Perioda* (Moscow: Moscow Carnegie Center, 1997).

⁶ Western market analysts based in Russia are sure that the company is poorly run and undervalued, suggesting that it would be bought immediately if outsiders had the opportunity.

⁷ For a time, this divide between the federal banks and Moscow banks constituted a real economic and political rivalry. The rivalry ended when Gusinsky agreed to back president Yeltsin in the 1996 election. Gusinsky's chief economic motivation for siding with the president was complete control of channel four for his NTV television network. This was awarded to NTV soon after Yeltsin's electoral victory.

⁸ From *Profil'*, No. 3 (January 1997), p. 34.

⁹ For an overview, see David Hoffman, "The Man Who Rebuilt Moscow," *Washington Post*, February 24, 1997, p. 1.

¹⁰ See Michael McFaul, "State Power, Institutional Change, and the Politics of Privatization in Russia," *World Politics* 47, no. 2 (January 1995), pp. 210–243.

¹¹ "Banks in High-Stakes Clash Over Oil Ownership," *The Current Digest XLVII*, no. 49 (1995), pp. 8–11.

¹² Vadim Arsen'iev and Yurii Katsman, "Banki b'utstyia ob zaklad," *Kommersant*, No. 37, October 1, 1997, pp. 44–45.

¹³ Sector Capital, "Who Rules the Russian Economy?" ms, December 9, 1996, p. 9.

¹⁴ Sector Capital, "Who Rules the Russian Economy?" ms, December 9, 1996, p. 11. According to Deutsche Morgan Grenfell, Menatep controls 86 percent of Yukos stock. See their *Russian Daily Report*, February 20, 1997, p. 2.

¹⁵ Andrew Palmer, "Darkness Rising," *Business Russia* (The Economist Intelligence Unit), February 1997, p. 5.

¹⁶ In political terms, metallurgy enterprises still remain in opposition to these new FIGs as Oleg Soskovets—former first deputy prime minister and the “baron” of Russia’s metallurgy industry—still is considered an enemy of these financial interest groups.

¹⁷ Sector Capital, “Who Rules the Russian Economy?” ms, December 9, 1996, p. 6.

¹⁸ Sector Capital, “Who Rules the Russian Economy?” ms, December 9, 1996, p. 6. See also Chrystia Freeland, John Thornhill, and Andrew Gowers, “Moscow’s Group of Seven,” *Financial Times*, November 1, 1996, p. 15.

¹⁹ “ROSPROM pomozhet ukrepit’ promyshlennyi potentsial Vladimirskoi oblasti,” *Segodnya*, May 15, 1997, p. 2.

²⁰ See for instance the reaction of St. Petersburg businessmen to the growing influence of Moscow banks in St. Petersburg that followed after Yakovlev’s mayor electoral victory there, in Igor’ Arkhipov, “Novaya Metla Metet gorod po-novomu,” *Delovye Lyudi*, No. 70 (October 1996) pp. 76–79. For an overview, see Aleksei Zemtsov and Boris Solov’iev, “Doroga v regiony vymochshena blagimi namereniyama,” *Delovye Lyudi*, No. 70 (October 1996) pp. 68–69.

²¹ On the barriers to market entry in Russia, see Timothy Frye and Andrei Shleifer, “The Invisible Hand and the Grabbing Hand,” ms, September 1996.

²² Anders Aslund, “Reform vs. ‘Rent-Seeking’ in Russia’s Economic Transformation,” *Transition*, January 26, 1996, pp. 12–16.

²³ Business groups always constitute the most organized sector of society in capitalist democracies (See Terry Moe, *The Organization of Interests*, Chicago: University of Chicago Press, 1980, p. 191–192). The argument here is that the particular kind of concentrated capitalism emerging in Russia has had a commensurate concentrated political impact on state-society relations.

²⁴ Liliya Shevtsova, *Postkommunisticheskaya Rossiya: logika razvitiya i perspekti* (Moscow: Moscow Carnegie Center, 1995).

²⁵ “Bolshoi vos’merke’ vybory ne nuzhny,” *Kommersant Daily*, March 14, 1995, p. 3.

²⁶ See Aleksei Zudin, “Biznes i politika v prezidentskoi kampanii 1996 goda,” *Pro et Contra*, No. 1 (Moscow: Moscow Carnegie Center, Fall 1996), pp. 46–60.

²⁷ The most important new alliance formed during the presidential election was between Vladimir Gusinsky, owner of Most Bank and the NTV television network (channel four) and Boris Berezovsky, head of Logovaz and Chairman of the Board of the ORT television network (channel one). Before these elections, the consortium of banks and businesses allied with Berezovsky, the so-called Big Eight, had been at odds with Gusinsky. The former was deeply tied the national state while Gusinsky dominated the Luzhkov’s Moscow government. These distinction between “All-Russian” businesses and “Moscow” groups have become more blurred since July.

²⁸ McFaul, *Russia’s 1996 Presidential Election*.

²⁹ Chrystia Freeland, John Thornhill, and Andrew Gowers, “Moscow’s Group of Seven,” *Financial Times*, November 1, 1996, p. 15.

³⁰ For a typical reaction from Russia’s banking sector to the new government, see the interview with Stolichnyi Bank Chairman, Aleksandr Smolenskii in *Moskovskie Novosti*, No. 11, March 16–23, 1997, p. 4.

³¹ Chernomyrdin was retained in order to avoid an approval process in the State Duma. The Russian constitution states that the prime minister must be approved by the Duma, but other government positions do not need parliamentary ratification.

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³² Maksim Puchkov, "Netelefnyi Razgovor," *Profil'*, No. 3 (January 1997), pp. 18–20. Yegor Gaidar sits on the board of this company.

³³ See Michael McFaul, "Russian Centrism and Revolutionary Transitions" *Post-Soviet Affairs* 9, no. 4 (July–September 1993), pp. 196–222.

³⁴ Since the 1996 presidential election, Gennadii Zyuganov has worked very closely with prime minister Viktor Chernomyrdin on a whole series of issues including most importantly the ratification of the 1997 budget. More radical leaders within the Communist Party have vehemently criticized this alliance, threatening to split from the KPRF altogether.

³⁵ Anders Aslund, "Governing by Default," *The Moscow Times*, November 10, 1996; Frye and Shleifer, "The Invisible Hand and the Grabbing Hand."

³⁶ Leonid Gordon, *Oblast' Vozmoznogo* ("Mirt," Moskva, 1995).

³⁷ Since the presidential elections, tensions have arisen between Chernomyrdin, the formal leader of the organization, and Our Home's parliamentary leader Sergei Belyaev. While Belyaev wants to push ahead with the transformation of Our Home into a real political party, Chernomyrdin and his government aides prefer to see the organization continue to function as the government's faction in the Duma and nothing more.

³⁸ Yabloko has a significant presence in St. Petersburg, but only scattered support elsewhere. Significantly, in the fifty gubernatorial elections conducted during the fall of 1996, Yabloko ran only a handful of candidates and won only one race.

³⁹ Stephen Krasner, "Approaches to the State," *Comparative Politics* 16, no. 2 (January 1984), p. 225. This is the classic definition of a pluralist state.

⁴⁰ Mancur Olsen, *The Logic of Collective Action* (Cambridge, MA: Harvard University Press, 1965).

⁴¹ The relationship between Russian and foreign capital is often misunderstood in the West. Russia's banks and resource exporters welcome foreign investment in their businesses operations, provided that it never approaches a controlling share. They do not want to create circumstances, however, in which foreign capital can enter Russian markets independently and compete with Russian enterprises.

⁴² For the comparison, see Andrew Warner, "An Economic Analysis of Russian Banks," ms, Harvard Institute for International Development, September 1996.

⁴³ We should expect this response from owners of a scarce factor such a capital in the Russian case. See Ronald Rogowski, *Commerce and Coalitions* (Princeton, NJ: Princeton University Press, 1989).

⁴⁴ Most recently, as a condition of IMF loans, the GKO market has been liberalized and is set to be fully accessible to foreign traders by July 1997.

⁴⁵ On the biggest direct investment deals of 1996, see *Business Russia* (The Economist Intelligence Unit) January 1997, p. 3.

⁴⁶ Anders Aslund, "Unique Russia: A Myth," *The Moscow Times*, February 27, 1997, p. 8.

⁴⁷ On this crisis, see Mikhail Delyagin, *Ekonomika Neplatezhei: Kak a Pochemu My Budem Zhit's Zavtra* (Moscow, February 1997).

⁴⁸ Mikhail Dmitriev, "Pension System in Russia: Alternative Scenarios" (Moscow: Moscow Carnegie Center, September 1996); and Anders Aslund and Mikhail Dmitriev, *Sotsial'naya Politika v Period Perekhoda k Pynku* (Moscow: Moscow Carnegie Center, 1996).

⁴⁹ "Potanin sostavlyet spisok Shindlera," *Profil'*, no. 3 (January 1997), p. 13. The list includes Sberbank, Vneshtorgbank, Oneksimbank, Inkombank, National Reserve Bank, International Finan-

Cooperative Business Ventures between U.S. Companies and Russian Defense Enterprises

cial Company (affiliated with Oneksimbank), Avtobank, Imperial, International Moscow Bank, Russian Credit, Stolichnyi, Menatep, and Mosbizbank.

⁵⁰ See World Bank, *From Plan to Market: World Development Report 1996*, (Oxford: Oxford University Press, 1996), p. 110–122; Dmitriev, “Pension System in Russia,” and Gilles Alfandari, Qimiao Fan, and Lev Freinkman, “Government Financial Transfers to Industrial Enterprises and Restructuring,” in Simon Commander, Qimiao Fan, and Mark Schaffer, *Enterprise Restructuring and Economic Policy in Russia* (Washington, D.C.: World Bank, 1996), pp. 166–198.

⁵¹ Vladimir Pastukhov, “Paradoksal'nie zametki o sovremennom politicheskom rezhime,” *Pro et Contra*, No. 1 (Moscow: Moscow Carnegie Center, Fall 1996), pp. 6–21.

⁵² It must be remembered that seventy years of Soviet communism has created greater expectations of the state in Russia than in developed capitalist societies.

⁵³ Quoted in *New York Times*, March 7, 1997, p. 6.

⁵⁴ On the corporatist model referenced here, see Philippe Schmitter, “Still the Century of Corporatism?” *Review of Politics* 36, no. 1 (January 1974), pp. 85–131.

⁵⁵ These terms come from Larry Diamond, “Is the Third Wave Over?” *Journal of Democracy* 7, no. 3 (July 1996), pp. 20–37.

⁵⁶ For this very reason, Russian government officials recently have been very involved in courting trade union officials from the former Soviet structures, including first and foremost the FNPR. This strategy, however, is flawed in that the FNPR enjoys little real legitimacy among workers in Russia.

⁵⁷ The historical analogue in the history of the United States is the election of Theodore Roosevelt.

D

The Legal Infrastructure for Foreign Investments In Russia: An Overview

Andrei A. Baev

I. Introduction

A foreign company considering investing in Russia must take many factors into account. Foremost among these is the legal structure in Russia, especially as it pertains to foreign investments. This chapter explores some of the most important elements of that legal structure. Today, many foreign companies, recognizing the unique opportunities in the Russian markets, are seriously analyzing the possibility of becoming involved in business there. Newly privatized Russian companies are also aggressively seeking an injection of capital from domestic and foreign investors. Russian securities have finally crossed the national borders and appeared abroad. However, foreign investors are generally reluctant to invest in Russian companies because of the myriad unresolved legal problems and continuing political uncertainty in the country. The following analysis may help potential investors avoid some unexpected legal pitfalls arising out of the post-privatization situation in Russia.

Part I of this chapter discusses the investment climate in Russia generally and the problems of attracting foreign investment. Part II analyzes the negative consequences of privatization on the legal structures for capital markets and foreign investments in Russia, and provides an overview of the Russian substantive law related to foreign investments. This

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part examines legal issues that stem from the confusion over property rights of the privatized enterprises, obstacles to the development of a commercial real estate market, the lack of adequate corporate law, and the status of the emerging securities regulations. Because they sprang from the deficiencies of the privatization scheme implemented in Russia, these problems are peculiar to the Russian legal infrastructure. This part also focuses on Russian enterprise law, company law, taxation, customs tariffs, and contract law. Due to the particular importance of protecting the intellectual property rights of large foreign investors in Russia, the next chapter of this report deals with these problems in detail.

The practical purpose of this chapter is to assist the international lawyer and investor in understanding the realities of the emerging Russian capital market as well as some of the legal problems faced by the foreign businesspeople there today. The chapter, however, does not pretend to be an exhaustive analysis of the implications of emerging legal structures in Russia for foreign investments. One should keep in mind that the legal situation in Russia is constantly and rapidly changing. Therefore, although a general solution to some problems can be devised, without professional legal advice regarding particular problems one should not operate in the Russian market.

II. The Emerging Capital Markets And Investment Climate in Russia

The emerging capital markets in Russia have attracted much interest and attention from foreign investors. Since the commencement in 1992 of privatization in Russia, money has been flowing into the country from foreign companies and investment funds. By the beginning of 1995, foreign investments in the Russian economy had reached USD \$4 billion.¹ The number of countries participating in direct investment in Russia has more than doubled, from 51 countries in 1990 to 128 countries in 1994.² By far the largest portion of foreign investments in Russia, however, belongs to the United States, amounting to about \$1 billion.³ German investments, modest when compared with those of the United States, amount to \$214 million.⁴ A relatively new phenomenon for the Russian economy has been a stream of capital from the new industrial nations of Asia. The total volume of investments in Russia from South Korea, Taiwan, Singapore, and Hong Kong is \$450–520 million.⁵ And long-awaited investments have begun to flow into Russia from the former Soviet republics.⁶ Yet, as some commentators have noted, the most promising sign to date is that Russian citizens themselves have regained confidence in the battered national economy, as illustrated by their investing at least 10 percent of the total dollars invested in Russia.⁷ Indeed, one of the most positive indicators of an improvement in the investment climate is that the hysterical flight of domestic capital from Russia has abated.⁸ Russians have begun to seek greater investment opportunities at home instead of stashing all of their wealth in Western banks.⁹

Nonetheless, the problem of attracting foreign investments in Russia is far from remedied. The portion of foreign investments in the total volume of all capital investments in the national economy is insignificant.¹⁰ Moreover, overall investments in the Russian economy dropped 61 percent in 1994 compared with 1991.¹¹ In essence, the main sources of financing are the retained earnings of Russian enterprises themselves.¹² Thus, in my view, Russia is

experiencing an investment crisis which cannot be overcome without intensifying foreign investments.¹³ Indeed, employing foreign capital is an approved method of economic revitalization around the world.¹⁴ In Russia, where as far back as 1990 42 percent of basic industrial facilities and equipment were obsolete, the prompt injection of capital into industry has become crucial for economic revival.¹⁵

After the collapse of communism in Eastern Europe and the end of the Cold War, however, Russia has had to compete for foreign investments with other post-socialist countries, including the other former Soviet republics. Under conditions where the demand for capital substantially exceeds its supply, the rivalry for foreign investments has intensified each year. Those countries that consume capital compete for the greatest legal liberalization of the investment climate. In order to keep abreast with others, Russian legislators have drafted a diverse package of legislation aimed at substantially improving the legal infrastructure for foreign investments and other business activity in the country.¹⁶ For example, Russia is planning to establish a unified national regime for foreign investments which can be changed only by federal laws.¹⁷ Moreover, newly proposed foreign investment acts would postpone for five years enactment of any federal law that aggravates the business conditions of joint-stock companies with contributed foreign capital.¹⁸ The package of legislation has also designated the specific industries and geographic regions of national priority eligible for special privileges for attracting foreign investments. The federal government would evaluate investment proposals in these industries and areas and give credit to or guarantee the most promising projects.¹⁹ The legislation further proposes reducing taxes on capital contributed by foreign investors to joint-stock companies and cutting back the customs duties on equipment imported solely for the needs of production.²⁰ Foreign companies contributing at least \$10 million into large joint ventures in Russia may apply for special customs privileges up to complete exemption from paying customs duties on the import of finished goods.²¹ The Russian government is also considering substantially extending the implementation of free economic zones and zones of export production.²² Furthermore, to improve the investment situation in the country and to assist the implementation of the comprehensive federal investment program, the Russian government has established the State Investment Corporation, similar to the Overseas Private Investment Corporation (OPIC) in the United States, as well as the Consultation Committee on Foreign Investments.²³

Yet despite the efforts of the Russian government to liberalize the investment climate, investing in Russian enterprises, and especially in Russian stocks, remains extremely risky. Most Russian companies cannot provide investors with reliable financial information. The accounting system is inadequate. The custody and registration system for Russian securities is uncertain and cumbersome, and the legal mechanism for the secondary trade of shares is complicated and time-consuming. Foreign investors are anxious about the unreliable system of shareholders' registration in which whole pages of the register might be missing. Another cause for concern is the common occurrence of a corporation issuing additional shares not authorized in the certificate of incorporation without consent of the shareholders.²⁴ Moreover, the employee ownership of Russian enterprises, the informational monopoly of corporate insiders, and the equity stake and "golden shares" of the Russian government do not add to the attractiveness of Russian securities on the world capital market. The constantly broken contractual obligations, the crisis of insolvency, the undeveloped com-

mercial insurance system, the piracy of intellectual property, the absence of private ownership of land, the oppressive tax system, the lack of an entrepreneurial culture, the malfunctioning of the courts, the ineffective judicial enforcement mechanism, and the high level of corruption all are factors that cannot be ignored by foreign businesspeople looking for a new market. In addition, the political unrest, economic instability, increased cost of doing business in Russia, and growing nationalist opposition to foreign ownership of national industry have contributed to a worsening of the investment climate in the country. Investors are beginning to be concerned about the growing parliamentary successes of the communists and ultranationalists, who promise to halt the process of privatization and economic liberalization.²⁵

Finally, beyond the fact that most of the laws are confusing and poorly drafted, the constant mutation in the laws creates legal instability and jolts investment-backed expectations. Foreign businesspeople often complain about the difficulty of keeping up with the massive volume of new Russian regulations.²⁶ Certainly, it is very difficult to plan and very risky to finance new projects when the legal basis on which business decisions are based changes erratically. One never knows what might come next.

As a result, the existing risks of the emerging Russian market have lowered its investment rating and affected foreigners' choices of investment strategy in the country. For instance, on the one hand, the Russian securities market is generally unexploited as of yet by foreign investors. Most of the large investors in Russia's stock market now are pension funds and other giant institutions with so much diversified capital under their management that they can afford to risk a tiny percentage of it in Russia's highly volatile market.²⁷ Foreigners are also reluctant to invest to acquire intellectual property rights, partially due to inadequate enforcement and the questionable provenance of such rights after the privatization and restructuring of state-owned enterprises.²⁸ On the other hand, the biggest attractions for most foreign businesspeople are joint ventures in industries with the fastest capital turnover, including energy and raw materials.²⁹

Thus, although Russia started moving decisively toward a market-oriented system, the institutional transformation and legal reform are far from complete. The slow pace of structural change leads to deterioration of the investment climate in Russia and thus discourages public investment in the economy. As the reforms proceed, however, renewed investment becomes essential to revitalizing an aging and partially obsolete capital stock and thereby sustaining economic growth. The importance of stimulating investment in recently privatized enterprises underscores the need to create internal capital markets and remove currently existing obstacles to foreign direct investments. The most serious obstacle to the creation of viable capital markets in Russia is the potential lack of demand for the shares of the privatized companies due to ambiguity of property rights embodied in the shares of the Russian companies and insider control over the privatized enterprises. Instead of recapitalization of the former state enterprises, privatization in Russia resulted in redistribution of state property among the employees of such enterprises, with only a minority stake left for outside investors. In effect, the insiders accumulated substantial control over the majority of the privatized enterprises in Russia. Unless the new privatized firms make a credible commitment to outside investors, their access to capital markets will be cut off. Therefore, resolving the legal problems related to insider control, provenance of property rights, and

other consequences of privatization discussed below becomes increasingly important for both the Russian government as it pursues economic stabilization and foreign investors attracted by the opportunities of the emerging markets.

III. Privatization and Its Impact on the Emerging Capital Markets and Legal Structures for Investment in Russia

There is no longer any doubt that divestiture of state property was necessary for the emergence of capital markets in Russia. Securitization of fully government-owned enterprises generated the market for the stocks of newly privatized Russian companies. However, the method of privatization implemented in Russia had a negative impact on capital markets in the country. The Russian ideology of mass privatization was concerned more with the social impact of privatization than the ultimate economic goal of restructuring and revitalizing the inefficient state enterprises. The privatization was designed as redistribution of the people's property rather than recapitalization of the former state enterprises.

Employee privatization allowed managers and other insiders to acquire a controlling interest in the privatized enterprises, thus putting them in a unique position to control the scope of available information. On the one hand, workers can abuse outside minority shareholders and loot the company by curtailing dividend payments, increasing salaries, and pursuing other non-pecuniary interests at the expense of the corporation. Employee privatization limits the flow of new capital into enterprises, increases the illiquidity of secondary markets because of general public reluctance to invest in the stocks of the worker-owned firms, and creates efficiency problems peculiar to employee-owned firms. It is difficult to attract private investors willing to acquire a minority stake in a worker-controlled enterprise. On the other hand, Russian employee-owners are weak in imparting any corporate decisions. They are not paid regularly and often are victims of management corruption.

Apart from the problems associated with employee and voucher privatization, the securitization of state-owned enterprises in Russia did not always result in a complete transfer of ownership from the state to the public. The Russian government still maintains some control of strategic enterprises in energy, telecommunications, defense, transportation, and other sectors of national priority by retaining equity shares in these enterprises or by preserving the so-called "golden share" during their privatization.³⁰ Generally, the golden share is designed to provide the government, inter alia, with the power to participate in corporate governance after the state has become a minority shareholder or even after total privatization.³¹ The golden share incorporates negative and affirmative powers. The negative powers are exercised through the right to veto various corporate decisions, such as dissolution of the company, sale of crucial corporate assets, mergers and acquisitions, changes in voting control and various limitations on shareholdings, and conversion of the present production. The affirmative powers include the right to compel the corporation to undertake certain business strategies and maintain specified social programs, to appoint directors and the chief executive officer of the corporation, and so on.³² Thus, because of the

existing risk of the government's future meddling in corporate affairs, the price of the ordinary shares of the privatized companies obviously reflects the fact that the government retains a golden share in such enterprises. Therefore, on the one hand, the government's retention of a golden share in some privatized enterprises undervalues the stocks of such enterprises, and, on the other, due to the political instability in the country, the government's retained control over the privatized enterprises creates general reluctance on the part of foreigners to invest in such companies despite their substantially undervalued stocks.³³ The government's status as a special shareholder does not attract risk-averse foreign investors.³⁴

To sum up, the manner in which privatization was conducted in Russia not only generated capital market activity in the country but also predetermined the conditions of the emerging capital markets. The Russian capital markets at the end of the twentieth century can be characterized as illiquid, volatile, risky, fragmented, and highly opportunistic. An efficient capital market presumes that the prices of securities accurately reflect all available information.³⁵ This means that prices adjust in an unbiased fashion to any new information rapidly enough that it is virtually impossible for any trader to earn profits by trading on such information. In other words, there are neither undervalued stocks on the developed capital market nor are there market trends that can be observed and exploited.³⁶ In contrast, the stocks of the Russian privatized enterprises are generally undervalued, and there are many market opportunities that can be observed and exploited by corporate insiders in Russia.

Furthermore, the privatization of state-owned enterprises in Russia also affected the emerging legal structures for foreign investment in the country, particularly as related to issues of the provenance of property rights, real estate development, corporate law, and securities regulations. Due to the significant importance of existing problems in these areas of law, some of the issues most frequently confronted are discussed in detail below.

A. The Provenance of Property Rights

As a result of the recent privatization of state enterprises, it is often unclear who possesses legitimate property rights with respect to specific items of property that belonged to the state-owned enterprises before privatization. The problem of ascertaining the owner of a particular asset becomes extremely important for foreign investors planning to purchase an enterprise, extend credit, finance a project, or contribute capital to a joint venture with a Russian partner. The ambiguity of the provenance of existing property rights precludes an accurate estimation of the present shareholders' equity and evaluation of the financial statements of an enterprise. Moreover, in the case of a joint venture, the foreign investor cannot precisely determine the value of the Russian partner's contribution in the enterprise.

The ambiguity of property rights includes the following problems.

First, the legal procedure of privatization is very technical and includes various procedures, each of which has to be scrupulously followed. The arbitration courts can declare privatization void solely because of the violation of certain privatization formalities. Thus, a privatized enterprise may not be able to assert property rights over its inventory if the privatization of the enterprise was not done properly. As a legal consequence of the invalid transaction, the property of the privatized enterprise returns to the state as the previous owner.³⁷ The same problem applies with intellectual property. Anyone who infringes upon

the intellectual property rights belonging to a privatized enterprise might contest the claim of infringement of these rights on the basis that the intellectual property rights had never passed to the enterprise due to the violation of certain legal requirements for privatization.³⁸

Since according to civil law a privatized enterprise assumes all obligations of the state enterprise undergoing privatization from the time the privatization is completed, determination of whether the privatized enterprise acquired the assets and liabilities of the state enterprise requires an analysis of the process of privatization rather than the corporate papers of the privatized enterprise. Thus, to avoid possible confusion in assuring the property rights of a privatized enterprise, it might be desirable to comply with the following strategy: (1) inquire into the decision of the Goskomimushchestvo (GKI), the State Committee for the Administration of State Property, regarding the privatization of the corresponding state enterprise; (2) with the assistance of a Russian attorney, verify the fulfillment of the legal formalities for the privatization of such an enterprise; (3) if the enterprise was privatized by way of leasing the enterprise with the right of purchase or by selling the enterprise at auction (or by konkurs), check whether the purchase contract includes an exhaustive inventory of the company's assets.

The second problem is that due to the restructuring of the state enterprises, the splitting up and spinning off of various subdivisions and subsidiaries, the reorganization of the state industrial ministries, and the abolition of the state industrial-technical consortia prior to privatization, it is not clear who presently holds the concrete property rights to the state enterprises' real estate, equipment, inventory, intellectual property, and other incorporeal rights. Due to the absence of laws on registration of companies, it is very difficult to trace the property of a former state enterprise after its liquidation or reorganization prior to its actual privatization. As a rule, the balance sheet of the privatized enterprise does not reflect the actual assets and liabilities of the company. Once again, to trace the assets and intangible rights of a former state enterprise one should analyze the original privatization documents and follow step-by-step the actual procedure of the restructuring, securitization (kommertsializatsiia), and privatization of the state enterprise. Otherwise, one might face a situation in which some of the corporate assets or property of a joint venture contributed by a Russian partner are confiscated by the state due to a violation of certain procedural requirements for restructuring or privatizing the former state enterprise.³⁹

Third, in certain situations, such as in the case of enterprises owned jointly by the state and local government, or leased enterprises, it is not clear what equity share belongs to the state, since only this state-owned portion of an enterprise can be privatized.⁴⁰ The process of evaluating the state's share is quite complicated and depends on many factors, including the time when the lease agreement was concluded, the terms of such agreement, the contract rules regarding amortization of the property and the retained earnings, the rules regulating a purchase option of the leased property, and so on.

Fourth, one should identify what type of state property was actually privatized, since the law establishes different privatization rules for municipal and federal types of property.⁴¹ It follows that approval of the privatization of a federal state enterprise by a local municipal authority is invalid and privatization is null.

Fifth, a great number of the modern inventions currently used in the privatized companies were developed during the time when the state was the sole holder of the exclusive

patent rights to these inventions. Thus, the state may assert its claim of intellectual property rights to these inventions on the basis that the intellectual property rights have never belonged to the former state enterprise that was privatized but rather belong to the public as a whole.

Sixth, there is virtually no private ownership of land in Russia. Most of the land remains under state ownership. Therefore, theoretically, the privatized enterprises do not own the land on which they are located but rather have certain possessory or usufructuary rights to the land. Thus, the rights of the privatized enterprises should be clearly specified in the privatization documents or in the lease contract with the government.

Finally, frequently mutating legislation makes obscure the most transparent rights and ideas. It is very difficult to say whether there are any vested rights in modern Russian law as yet. Property rights in Russia have an ultra-positivist character. In other words, property rights are what the government says they are. In this situation, the provenance of property rights becomes less important than the stability of the investment-backed expectations regarding concrete substantive rights and privileges. One way to resolve this problem, however, might be to establish a protective regime for a "bona fide purchaser for value," which is well known in common law. Such a purchaser would take the property free of any prior encumbrances.

B. The Development of a Commercial Real Estate Market

The real estate market of the Russian Federation is characterized by its enormous, practically inexhaustible potential, which is yet to be explored. For all practical purposes, the Russian real estate market encompasses the market of privatized items, the market of uncompleted construction items, the market of municipal dwellings, the market of the right to lease urban land plots, the market for the right to lease commercial space, the market of subsidiary smallholding of agricultural lands, and the secondary market of residential apartments. However, the land market in Russia remains virtually untapped. While legislation has been passed allowing land sales by local municipalities, current practice is confined to long-term leasing.⁴² Even with the adoption of the new Russian Constitution in 1993, which proclaimed citizens' rights to hold land in private ownership, the situation is unchanged.⁴³ The Russian Land Code, which was preliminarily approved by the former Russian Parliament, directly forbids the declared constitutional right of private ownership of land.⁴⁴

Due to the ambiguity and inconsistency of the current legislation, the land market in the country is unexploited and land relationships occur within a legal vacuum. The ambiguity of the law has created a great deal of confusion among lawyers and businesspeople. From the point of view of a foreign investor, however, the following four major problem areas should be examined with respect to real estate transactions in Russia: (1) land beneath privatized enterprises, (2) registration of real estate interests, (3) land as collateral, and (4) purchase of land by foreigners.

(1) Under the privatization program, very few enterprises were transferred along with the land on which they are located. As a rule, the land underneath a privatized enterprise has not been listed on the balance sheet of the enterprise. This has led to the peculiar situation in which the privatized enterprises do not own the underlying land. Although the enterprises

enjoy continued use rights, they are unable to sell, mortgage, lease, exchange, or contribute land as capital in joint-stock companies, including those with foreign investment. The legislation is not clear as to whether it is still prohibited to privatize the land underneath the privatized enterprises. Although the president's edict explicitly allowed the privatization of land together with the enterprise,⁴⁵ the Land Code, which is not yet in effect, seems to specifically prohibit commercial transactions with respect to land. Moreover, the edict, as with all civil law regulations, is not comprehensive and contains many gaps, exceptions, and referential provisions. Thus, some local municipalities have tried to construe the edict according to their own political agenda. For instance, the edict contains the reservation that "historic-cultural lands cannot be privatized."⁴⁶ To avoid privatization of the land within the region, one Russian municipality proclaimed all territory of the region to be historic-cultural land.⁴⁷

(2) According to the law, the documents confirming ownership or other interest in real estate are not valid without registration.⁴⁸ However, there is neither a single method of registration nor an exclusive register in Russia.⁴⁹ Instead, there are different methods of real estate registration in the various Russian regions. Moreover, in the absence of a law on public access to information, it is virtually impossible to verify someone's ownership of real estate unless one is directly involved in the transaction with regard to this particular real estate. Furthermore, the various items of real estate are registered in different places. Buildings and other constructions on the land have to be registered in the local Bureau of Technical Inventory (BTI), while the land is registered in the local land committees. Besides its high cost, this dual system of registration creates confusion and complicates the process of determining the true owner.

(3) The lack of a comprehensive mortgage law negatively affects the real estate market in Russia. Most Russian real estate today is purchased for cash, and most commercial credits are issued without any collateral. However, this situation might change due to ongoing legislative work on the Russian mortgage law.⁵⁰

(4) Foreign citizens and enterprises cannot own land in Russia. However, there are no direct prohibitions on foreigners fully owning joint-stock companies or privatized enterprises that have land on their balance sheet. Therefore, a foreign investor can legally buy all shares of a domestic joint-stock company after the company has bought the plot of land in which the investor is interested. Such a domestic company might be established for the sole purpose of buying the land. Furthermore, foreigners may enter into long-term leases or simply buy a privatized enterprise and legally possess the land without any substantial practical inconvenience arising out of not being an owner.

C. Modern Russian Enterprise Law

The laws "On Ownership in the RSFSR" and "On Enterprises and Entrepreneurial Activity" were abolished on October 21, 1994, with the adoption of the new Russian Civil Code, which became effective on January 1, 1995.⁵¹ Today, the primary Russian law that regulates enterprise activity is the Civil Code of the Russian Federation.

With respect to state-owned enterprises, the law distinguishes between two types of such enterprises: unitary state enterprises and mixed-ownership enterprises in which the state has

an equity share. While the mixed-ownership enterprises are regulated by the rules applicable to conventional joint-stock companies, the unitary state enterprises have a special legal status and a distinctive regime of regulation.

Depending on who owns an enterprise, unitary state enterprises can be of two types: federal state enterprises and municipal state enterprises, both of which are regulated by the same rules of the Civil Code.⁵² According to the law, the property of a unitary enterprise is indivisible and cannot be partitioned among any stakeholders, including the workers and managers of the enterprise.⁵³ The law explicitly provides that only state-owned enterprises can be unitary.⁵⁴ Moreover, depending on the substantive rights that the state provides the enterprises, there are two different kinds of unitary enterprises: (1) unitary enterprises based on the right of “economic control”⁵⁵ and (2) unitary enterprises based on the right of “operative management” (*kazennye predpriiatiia*).⁵⁶

However, neither the law nor the commentators provide a clear distinction between the right of economic control and the right of operative management.⁵⁷ Both of these rights belong to the special civil law category of “the rights to things,” which usually refers to quasi-property rights. The quasi-property character of these rights implies that they are restricted either by law or by the true owner of the property (the state), or by both. The law limits the enterprise’s authority to use its property in two ways: by explicitly stating what the state can do with regard to the property delegated to the state enterprise, and by directly prohibiting certain commercial and noncommercial activities of the enterprises. Although the law is very ambiguous and the comments of the legislators and lawyers are insufficient, some differences between the right of economic control and operative management can be discerned.⁵⁸

In my view, the right of economic control is broader than the right of operative management in the following aspects:

(1) The scope of the right of economic control is defined only by law (Civil Code) and cannot be modified or curtailed by a contract with the owner. In contrast, the right of operative management is effectuated within the limits established by law and according to the owner’s day-to-day instructions.⁵⁹

(2) Although both enterprises based on the right of economic control and enterprises based on the right of operative management cannot alienate real property without the state’s consent, only the former can transfer personal property and other tangible rights and interests (industrial equipment, machinery, furniture, intellectual property, accounts receivable, etc.) without the government’s consent. In contrast, an enterprise based on the right of operative management cannot alienate any property or tangible interests without the government’s permission.⁶⁰

(3) State unitary enterprises based on the right of operative management cannot use their property in a way that contradicts the instructions of the government on how to use this particular property. Enterprises based on the right of economic control, however, are limited only by the general statement of their main activity, which is declared in the corporate charter.⁶¹

(4) Generally, the state does not bear responsibility for the obligations of a unitary state enterprise based on the right of economic control. In contrast, the state is subsidiarily liable for the obligations of the unitary state enterprise based on the right of operative management.⁶² Therefore, in contrast to the right of operative management, the right of economic control gives the state a “limited liability” status.

(5) According to law, unitary state enterprises based on the right of economic control can establish branches, subdivisions, or solitary subsidiaries, while those based on the right of operative management cannot establish any subsidiaries.⁶³

(6) If the owner’s rights to distribution of income under economic control are limited to receiving a portion of profit, the issue of profit distribution under operative management is within the absolute authority of the ultimate owner, the state.⁶⁴

That is all that can be said about the practical differences between the concepts of economic control and operative management in the modern Russian Civil Code. However, these distinctions are not clearly formulated by the legislature and might not be obvious to all commentators and practitioners. Due to the short operating time of the new Russian Civil Code, which became effective only in 1995, the new concepts of economic control and operative management do not yet have judicial interpretation.

Today, Russian legislators are moving toward completely abolishing the right of economic control and replacing it with the right of operative management.⁶⁵ Yeltsin’s edict “On the Reform of State Enterprises” explicitly prohibits establishing new federal state-owned enterprises that operate under the right of economic control.⁶⁶ The existing federal state enterprises operating under economic control ought to be converted into unitary state enterprises based on the right of operative management.⁶⁷ The edict also recommends that local municipalities also convert the state enterprises functioning under economic control into state enterprises that would operate under the right of operative management.⁶⁸ However, in my view, such a change in the structure of the state enterprises would be a setback in the reform process. Indeed, as some commentators note, the state enterprises operating under operative management cannot even be considered commercial enterprises, since a mandatory withdrawal of net profit is not an operating principle of commercial entities.⁶⁹ That is probably why Yeltsin’s edict “On the Reform of State Enterprises” does not recognize the state enterprises functioning under operative management as “enterprises,” instead defining them as “state economic-management institutions” (*khoziaistvennye uchrezhdeniia*).

Thus, the new Russian Civil Code brought to an end Gorbachev’s efforts to reform state enterprises. The Russian government gave up the idea of enhancing the efficiency of state-owned enterprises without their privatization. The state’s attention shifted toward the private sector.

D. Types of Private Companies

The fundamentals of the Russian company law are spelled out in the Civil Code and the Law on Joint-Stock Companies.⁷⁰ There are five basic legal-organizational forms of business associations available in Russia for a foreign investor.⁷¹ The Russian Civil Code subdivides

them in two large groups: economic partnerships (*khoziaistvennye tovarishchestva*) and economic companies (*khoziaistvennye obshchestva*).⁷² Economic partnerships include full partnerships (*polnye tovarishchestva*) and partnerships on trust (*tovarishchestva na vere or commanditnye tovarishchestva*).⁷³ Economic companies include open or closed joint-stock companies (*aktsionernye obshchestva*), limited liability companies (*obshchestva s ogranichennoi otvetstvennost'iu*), and companies with additional liability (*obshchestva s dopolnitel'noi otvetstvennost'iu*).⁷⁴

Full Partnership

The first form of business association is a full partnership, where there is unlimited liability for all partners, almost identical to the conventional American model of business partnership.⁷⁵ The general rules of partnership law are essentially “default” provisions; that is, rules that apply only in default of express agreement by the partners. The only governing document of full partnership is the founding contract (*uchreditel'nyi dogovor*), which specifies partners’ mutual rights and obligations, distribution of profit, management affairs, transferability of shares, residual rights upon liquidation, and so on.⁷⁶ Therefore, in order to avoid unnecessary complications in the future, foreign partners should always pay attention to the terms of the founding contract. The founding contract must be well drafted: it must fully reflect the present intent of the parties and contemplate all possible future disagreements between them. In practical terms, the only thing the parties cannot stipulate by their agreement is limiting their liability.⁷⁷

While the Civil Code leaves ample leeway for express agreements designed to alter the rules that the law supplies for this type of business association, personal relationships and trust among the partners are an essential element of the bargain that is manifested in the formation of a partnership. A fundamental principle of the common law of partnership is the requirement that partners must treat each other fairly in matters relating to the activities of the partnership. In contrast to common law, however, Russian civil law does not impose on members of full partnerships “fiduciary obligations” to treat each other fairly and be loyal to each other. Thus, while in Russia, foreign partners should not rely on equitable remedies that they are used to in the United States. Instead, the foreign members of a partnership formed under Russian law should specify their relationships in detail in the founding contract.

Under Russian law, none of the partners can be excluded from participation in the profits, even by mutual consent of all the partners.⁷⁸ Nevertheless, deteriorating personal relations between the partners can ruin the whole enterprise. In this situation, members of a full partnership have the legal right to expel an irresponsible partner by court order pursuant to unanimous decision of the remaining participants.⁷⁹ A member of a full partnership also has the right of voluntary withdrawal from the partnership.⁸⁰ The right to withdraw, however, can generate a peculiar set of problems for foreign partners. On the one hand, the right of withdrawal at will creates a potential problem for foreigners of being forced out of business. For instance, the Russian partners, who are often the key persons in the partnership’s business, may decide to leave the partnership, which cannot successfully operate without them. On the other hand, the right of withdrawal at will may not adequately protect the withdrawing foreign partners from being abused by other partners. The “exit opportunity” provided by law can be extremely damaging for the withdrawing partner if the business is

profitable and continues to operate. Although the withdrawing partner is entitled to her share of interest in the partnership upon the withdrawal,⁸¹ the allotted share may not be based on the true value of the partnership. The balance sheet of the partnership does not usually reflect the “goodwill” of the business, clientele, and unexplored business opportunities. The amount the withdrawing partner is entitled to receive is also reduced by any damages for which she may be liable by virtue of her breach of the partnership agreement. Moreover, primitive accounting practices and the absence of stipulated valuation methods might greatly reduce the share of the withdrawing partner. Furthermore, besides the possibility that the withdrawing partner would not receive the fair value of her share in the partnership, she has to carry on her own balance sheet over the next two years the contingent liability for the debts of the partnership that arose before her withdrawal.⁸²

In contrast to the common law tradition, Russian partnership law does not provide voluntary and involuntary dissolution remedies for abused minority partners. Thus, under the Russian law, the partners cannot demand the dissolution of the partnership and distribution of the partnership’s assets. To avoid the above-mentioned problems, foreign members of the partnership should insist on continuation provisions and buyout provisions while still negotiating the founding contract. The continuation provision may specify the length of the partnership agreement and list certain events which lead to automatic dissolution. For instance, the agreement may provide that the partnership will continue for a specific number of years and thereafter from year to year in the absence of a several days’ notice by any partner of an intention to withdraw. The buyout agreement prescribes the methods of disposition and valuation of the partner’s interest and the obligations of the non-withdrawing partners. For instance, the agreement may provide a foreign partner with the right to discontinue the partnership’s existence at will by selling the partnership as a going concern to an outsider. These agreements can protect the legitimate interests of the partners willing to continue, as well as those wanting to withdraw.

Partnership on Trust

The second form is a partnership on trust, which is virtually identical to the American model of general partnership.⁸³ Similar to American law, the Russian version of partnership on trust also includes two types of partners: general partners with management rights and unlimited liability and limited partners with no management rights and limited liability.⁸⁴ In general, the rules relating to partnership on trust are essentially the same as those relating to ordinary partnerships, with the exception of the rules applying to limited partners.

Limited partners have the following rights: (1) to receive a portion of the profit of the partnership commensurate with their contributed capital and in accordance with the partnership agreement, (2) to receive the annual reports and the balance sheets of the partnership, (3) to withdraw from the partnership and recover their share in the contributed capital in the procedure provided for by the founding agreement, and (4) to transfer their share in the contributed capital to third parties.⁸⁵ Moreover, upon liquidation of the partnership on trust, including bankruptcy, limited partners have a preferential right over general partners to recover their contributions from the property of the partnership remaining after satisfaction of the claims of its creditors and, in case the partnership still retains a residue of property, they also participate in its distribution, along with the general partners.⁸⁶

Joint-Stock Companies

A joint-stock company under the Russian law is analogous to a conventional public corporation in the United States, a limited liability form with public and open sale of shares. This form of business association is primarily regulated by the federal law "On Joint-Stock Companies" (hereinafter "the Law"), which came into effect on January 1, 1996. Although the Law does not have retroactive power, it requires the joint-stock companies established prior to the enactment of this law to amend their charters by July 1, 1996 to comply with the Law.⁸⁷ The charters not brought into compliance with the Law by that date will be considered invalid.⁸⁸

The Law is very similar to the American corporate law and should not create any particular confusion for foreigners. The following provisions, nonetheless, should be specifically noted:

(1) Although the Law limits the shareholders' liability to the extent of their capital contribution into the joint-stock company, the shareholders still may have a subsidiary liability for the company's obligations if they are in a position to issue mandatory instructions or otherwise determine the actions of the company.⁸⁹ While mere ownership of a controlling interest would not make the shareholder liable for any obligations of a company, a contractual right to issue binding instructions to a company might result in such liability.⁹⁰

(2) The Law requires that 50 percent of the charter capital be paid in full upon registration and the remainder paid within one year.⁹¹

(3) The Law establishes the minimum size of the charter capital for joint-stock companies.⁹² Moreover, the aggregate amount of this fund cannot be diminished during the ordinary operation of the company.⁹³

(4) The Law requires the company to maintain a special reserve fund, the size of which is determined by the corporate charter but which cannot be less than 15 percent of the company's charter capital.⁹⁴

An open joint-stock company distributes its stock among an indeterminate circle of persons the number of which cannot be circumscribed, and shareholders can freely alienate the stock they own. In newly created closed joint-stock companies, stock is allocated only among founders or within a circle of persons designated in advance. The shareholders of closed joint-stock companies acquire the right of preferential purchase of shares being sold by a shareholder leaving the company.

Limited Liability Companies

A limited liability company resembles a closed joint-stock company.⁹⁵ The charter capital of such a company is divided into the shares of the participants, who bear no liability for the debts of the company.⁹⁶ Shares can be transferred only with the consent of all the participants, unless the founding documents establish otherwise. The limited liability companies (LLC) in the United States have an objective to combine the benefits of both the corporate form and partnership. On the one hand, the LLCs possess the limited liability peculiar to the corporate form; on the other hand, they have enough features of a partnership to be treated as such for purposes of federal income taxation, thus avoiding the double taxation levied on corporations.⁹⁷ In Russia, however, limited liability companies do not enjoy any obvious tax

advantages. Thus, it is not clear under the Russian law what particular advantages, if any, this form of business organization has over closed joint-stock companies.

Companies with Additional Liability

In the Russian civil law system, a limited liability company in essence occupies a space between joint-stock companies and partnerships. The main difference between the limited liability company and the company with additional liability is that the participants of the latter jointly and severally bear subsidiary liability for their obligations with their personal property. However, in contrast to a partnership, the participants in a limited liability company are responsible for the debts of the company not by all of their personal property, but only by a portion thereof—the size of the liability is limited to a multiple (identical for all) of the value of their contributions specified by the constitutive documents of the company.⁹⁸ Thus, in the absence of tax advantages, it is not clear why investors should prefer this form of business organization to the closed joint-stock companies.

E. Implications of the Corporate Law for the Emerging Capital Markets in Russia

Corporate law, generally unknown to the former Soviet legal system, has emerged from scratch in post-Soviet Russia. Being relatively immature, the law does not resolve the basic problems of emerging capital markets that corporate law must address. However, the main efficiency problems of the new Russian corporate law are often associated not with the legal rules themselves, but with the concrete socioeconomic environment in Russia where these rules have been designed to work.⁹⁹ Indeed, there is nothing wrong with the technical legal concepts and the scope and structure of modern Russian corporate law, which is similar to Western corporate law. In my view, problems arise mainly because Russian corporate law is not adapted to the specific legal infrastructure and sociopolitical reality of the country. Instead of being designed to eliminate the problems of emerging capital markets associated with the asymmetric ownership structure of the privatized companies, the Russian legislation adopted miscellaneous Western legal concepts and techniques initially designed for developed and sophisticated markets.

Corporate insiders, who control the great majority of the privatized public companies in Russia, behave opportunistically toward other corporate shareholders.¹⁰⁰ Russian law does not provide strong legal protection for minority public shareholders, protection which could substantially reduce the effect of informational asymmetries or eliminate harm to inexperienced and naive investors. Moreover, apart from minority shareholders, other groups of corporate stakeholders are intimidated by informational asymmetries, which are aggravated by weak and inefficient capital markets, and by the absence of market institutions that might alleviate informational problems, such as sophisticated investment banking and accounting firms. Being outside stakeholders, these groups of participants have less chance of securing their self-protection in negotiation of their relationships with corporate insiders. Russian businesspeople are obsessed today with the idea of fast, lump sum profits, without regard to establishing long-term business connections with their partners and goodwill toward the company. The managers' aspiration for fast profit by any means also reflects the prevailing cultural attitude in Russia of disrespect for the law. If Western managers are accustomed to

routinely following laws of all kinds, and to thinking of themselves as law-abiding, Russian managers, by contrast, often perceive corporate law as merely another obstacle to be evaded in any way possible.

Indeed, Russian corporate law does not preclude the unfettered abuse of discretion by corporate managers. In reality, the employee-shareholders of Russian public companies cannot even transfer their shares free of coercion by their employer, who can simply fire them. As to voting power, the employees often pool their shares in trust with managers serving as trustees.

Finally, the weakness of the judicial system can hobble the enforcement of corporate law in emergent markets. Commentators observe several factors that contribute to the ineffectiveness of the Russian judicial enforcement mechanism: (1) the substantive legal remedies available to judges for enforcement purposes are inadequate and ill-defined, (2) a cumbersome judicial procedure that frequently causes delays, and (3) the lack of experience on the part of the judiciary itself with corporate law cases.¹⁰¹ Although Russian legislation has introduced the concepts of fiduciary duties, reasonable behavior, and the business judgment rule, which had been previously unknown in Russian civil law, judicial enforcement may be problematic. These broad open-ended concepts of common law demand sophisticated interpretive skills from a largely inexperienced cadre of civil law judges, particularly where there is no consensus in society on what constitutes proper or improper behavior. In the absence of an established system of legal precedents, therefore, incorporators should use clearly defined rules that can be understood by those who must comply with them, and thus that have a better chance of being enforced.

In sum, there are several factors that undermine the implementation of the Western type of corporate law which was adopted in Russia: (1) the unbalanced ownership structure of public corporations (employee and state ownership); (2) the imperfect supply of information about corporate performance (undervalued stocks, insider control); (3) the unequal bargaining positions of the corporate stakeholders (the exclusive situation of management, employees' majority interest, the position of the state as a special shareholder); (4) the absence of market institutions capable of reducing the negative externalities of unequal negotiations; and (5) ineffectual judicial enforcement mechanisms. These are the main problems of emerging Russian corporate law from the point of view of foreign investors.

F. The Emerging Securities Regulations and the Russian Capital Markets

The Russian securities markets began to emerge in 1991, after the law on joint-stock companies was adopted.¹⁰² Since that time, the securities markets have been rapidly developing and undergoing a process of substantial change. In 1993 alone, the volume of all transactions on these markets increased more than twelve times compared with the previous year.¹⁰³ Moreover, the situation on the markets might change even more radically due to the completion of the first two stages of privatization and the opening of foreign markets to Russian securities.

However, the development of securities markets is restrained by an undeveloped regulation of securities which does not provide adequate protection of investors' interests. Investors need full and reliable information to be able to value securities intelligently. Without a

mandatory disclosure system, anti-fraud rules, and control over the financial intermediaries who handle transactions in the market, investors lose confidence in the securities markets and move their savings offshore or elsewhere to less risky financial products. In turn, this disinvestment halts economic recovery, as corporations encounter difficulty and high costs in obtaining capital.

Current Russian securities regulation incorporates more than 110 legal acts, including the laws adopted by the Parliament, the President's edicts, and the statutes of the Soviet of Ministers, as well as the regulations of various federal ministries and state agencies.¹⁰⁴ The absence of coordination as well as the existence of competition among the federal organizations regarding the regulation of the securities markets creates confusion in the minds of investors.¹⁰⁵ Moreover, despite a great number of legislative acts, there are some substantial legislative gaps that impede the flow of capital into the Russian economy.

Privatization has not produced a desirable system of clear, alienable, and exclusive property rights. The shareholders of the privatized enterprises still do not possess orthodox ownership interests in the enterprises they own. The newly privatized Russian firms did not issue share certificates as proof of ownership. Instead, ownership of shares is determined solely by the listing of shareholders' names in a registrar's share register. In addition, the shares of most Russian privatized enterprises are not easily tradable, since shares can be legally transferred only by registering the new shareholder in the company's registry, which typically requires waiting in line to personally appear before a registration clerk.¹⁰⁶ Moreover, no single central share registration exists; share registers are usually kept by the firms themselves, and thus investors are subjected to registration risk since the shareholders' ownership rights can be forfeited if the register is lost, destroyed, or falsified.¹⁰⁷

Thus, due to the awkward registration and custody systems, in order to avoid a time-consuming procedure of selling the shares most workers had to join voting trusts with managers as trustees. As for outside investors, such as foreigners, they are reluctant to invest in Russian enterprises because of the uncertainties of the stock registration system and the lack of settlement and transfer mechanisms for secondary traded securities.¹⁰⁸ Moreover, under some foreign securities laws the Russian companies might not be able to sell their securities in these countries without first resolving the custodial problem. For instance, in order to protect domestic investors, the United States Investment Company Act of 1940 establishes the custodial requirements for registered management investment companies that wish to invest in foreign securities.¹⁰⁹ Thus, to safeguard their investments in Russia, some American companies have to enter into custodial arrangements with financial intermediaries who hold the securities and any custodial risk, while the U.S. investors receive depositary receipts that represent fractional undivided interests in sub-trusts having as assets a specific number of shares of stock of a Russian issuer.¹¹⁰ This scheme, known as Russian depositary trust certificates (RDCs), was introduced by the ING Bank of the Netherlands, which plans to tender in the U.S. and European markets the securities of six large Russian firms, including LUKoil and Rostelecom, with a combined market value estimated to be in excess of \$3.9 billion.¹¹¹

The Russian government does not effectuate control over operation of the stock, commodity, and futures exchanges. The rules of the exchanges often are not enforced. Government regulations often do not even establish sanctions sufficient to deter market

participants from further violations of law.¹¹² The laws do not regulate the professional activity of brokers, dealers, clearing agents, investment bankers, traders, and trading advisors.¹¹³ The investment infrastructure, such as clearing companies, depository organizations, index and rating companies, trading organizations, and other financial institutions which are part of the Western market, is substantially undeveloped in Russia. Neither do electronic and over-the-counter stock markets exist. Moreover, investors frequently are unable to communicate with their brokers because of the primitive means of communication available. The absence of a general telecommunications system frustrates coordination among national stock exchanges and precludes Russian brokers from entering into the world capital market system. Market equilibrium does not exist in Russia, thus exposing market trends which can be observed and exploited.

Finally, the scope of Russian securities regulation substantially differs from that of its American counterpart. Many important investment contracts remain outside of the securities regulations due to the inadequate definition of securities by Russian legislation. In addition, some commercial instruments, which traditionally are not securities elsewhere, are regulated by the comprehensive securities laws in Russia, restraining businesspeople from entering into these particular markets due to the impermissible cost of the transactions which require compliance with a number of technical regulations.

Russian civil law scholars still analyze securities from the position of Roman civil law. The term security is inevitably related to the notion of ownership, which is understood traditionally as an absolute exclusive physical dominion over the property. For instance, the new Russian Civil Code defines a security as a special form of document with certain legislative requirements that establishes property rights, which can be effected and assigned only on physical presentation of the document.¹¹⁴ Russian law also defines the “circulation” of securities as a transaction which results in the “transfer of ownership” of the security.¹¹⁵ Although the law concedes the existence of securities not only in the form of certificates, but also in the form of “book entries,”¹¹⁶ it still presumes that securities are something tangible, like a “document,” which establishes or evidences the property relations between the holder and the issuer.

G. Taxation

From the viewpoint of foreign investors, the main deficiency of the Russian tax legislation is its unpredictability. Ignoring the principle, well established in the West, of “no taxation without representation,” Russian legislators often unexpectedly change the tax rules, arbitrarily grant or repudiate various tax privileges, and even impose new taxes retroactively.¹¹⁷ It is difficult for an investor to evaluate the after-tax profitability of various business projects, since it is impossible to determine the amount of taxes to be paid under different base cases. For instance, the unanticipated introduction of the new value-added taxes (VAT) on building materials and taxes on invested capital and on “excess wage funds”—all of which were implemented retroactively—together with abrogating tax privileges on the import of building materials, negatively affected the U.S. company Coca-Cola, which had investment obligations of USD \$240 million in Russia.¹¹⁸ Due to the tax changes, construction costs of the company’s new plant near St. Petersburg substantially exceeded the initial

estimates.¹¹⁹ Thus, the general unpredictability of the Russian tax legislation imposes substantial limits on foreign direct investments into capital-intensive enterprises and projects in Russia.¹²⁰

The problem of enforceability is another weak spot in the Russian tax legislation. According to the Russian Ministry of Finance, tax evasion is so widespread that the volume of uncollected federal taxes reaches 60–70 percent of the planned level of tax revenues annually.¹²¹ However, the Russian government aside, it is the foreign companies that suffer the most. Foreign businesses are forced to compete with Russian companies which operate on a larger profit margin often by filing fraudulent tax declarations and keeping different books for tax authorities, auditors, and for themselves. Due to the common evasion by Russian companies of excise taxes, some foreign exporters are going out of business in Russia. For instance, foreign exporters of alcohol and tobacco cannot compete with the Russian companies filling the stores with imported alcohol and tobacco products at prices which would not even cover the cost of customs and excise payments imposed on the importer.¹²² Thus, tax evasion gives an unfair advantage to Russian companies in the domestic market.

The third major problem with the modern Russian tax legislation is its discriminatory character. For instance, Russian tax legislation provides different tax treatment for companies that are residents and those that are non-residents of the Russian Federation.¹²³ Moreover, the Russian government can establish the most favorable tax treatment for companies of a particular nationality, specific industry, or designated size or capital, or even designate a special tax rate for an individual taxpayer.¹²⁴ Such broad discretion in tax treatment distorts market competition by putting various companies in unequal initial conditions.

The fourth problem facing foreign investors in Russia is the incomparability of Russian tax methods with Western standards. The Russian tax regulations neither adhere to generally accepted accounting principles nor follow the widely accepted standards of international accounting. For instance, the Russian tax authorities use different rules to calculate net profit, tax base, amortization, and deduction of expenditures.¹²⁵ Thus, foreign companies operating in Russia not only have to fully adjust themselves to completely different accounting and business principles, they must also follow different accounting rules for their own government and the Russian tax authority.

The fifth major deficiency of the Russian tax legislation is its excessive complexity. There are more than 64 taxes currently in force on the territory of the Russian Federation.¹²⁶ These include the following federal taxes: profit tax, property tax (income tax), value-added tax, excise tax, land tax, highway taxes, tax from stock exchange activities, tax on securities operations, custom duty, stamp duty, state duty, tax on the revenues of banks, and tax on revenues from insurance activities.¹²⁷ The total rate of the federal tax on profits alone may range from 35 to 38 percent for enterprises and organizations and up to 43 percent for banks and insurance companies.¹²⁸ Moreover, local municipalities also have substantial authority to levy taxes, including the following: tax on property of natural persons; land tax; registration fee from natural persons engaging in entrepreneurial activity; tax on construction of enterprises in a resort zone; resort fee; fee of the right to trade; special purpose fees from citizens, enterprises, institutions and organizations for the maintenance of various

municipal services; tax on advertising; tax on resale of automobiles, computer technology, and personal computers; license fee for the right to trade in wine and vodka; license fees to conduct local auctions and lotteries; fee for the issuance of an order for an apartment; fees for parking and auto transportation; and so on.¹²⁹ Consequently, some investors end up giving the state up to 64 percent of their income.¹³⁰

Thus, although the Russian tax system is undergoing substantial reform, it is still less than compatible with a Western-type market economy. Russian tax policy creates significant obstacles to foreign investment in Russia.¹³¹ However, Russian legislators seem to understand that tax reform is not only a necessary condition for a successful market transition but also a crucial element of the minimum package of reforms needed to launch the transition process in Russia.

H. Customs Tariffs

In addition to the taxes mentioned above, foreign investments may be affected by customs tariffs. A tariff is a schedule of duties imposed by a country against goods imported and exported. The Russian Law on Customs Tariffs establishes the basic principles and procedures of tariffs to be levied in Russia.¹³²

There are three basic rates of duties established for various countries depending on their "privileged foreign status" according to the requirements of international treaties and bilateral mutual agreements with Russia. The first category includes the least-developed countries. Similar to the Generalized System of Preferences existing in the United States,¹³³ companies from these countries have special preferences in Russia and pay the lowest duty rate. The second group includes countries designated by the Russian government as "most favored nations," which pay the second-best duty rate on goods imported in Russia. This rate applies to most of the foreign importers, including U.S. companies. The third category embraces all other countries, including the former Soviet republics, to whom the substantially higher "basic" tariff rate applies.¹³⁴

The Russian Customs Code substantiates twelve different types of importation which have various customs treatments. The six most frequently used customs regimes apply to the following trade activities: (1) import for distribution inside the Russian Federation, (2) reimportation of the goods taken out of Russia and brought back within ten years in an unimproved condition, (3) transit of goods through the Russian territory under the control of customs, (4) storage of the imported goods for three years in a customs-controlled warehouse, (5) tax-free retailing in duty-free shops designated for buyers leaving the country, and (6) all internal transactions in so-called free trade zones, including duty-free import into these zones for refashioning and export from the zones after such refashioning if the final goods do not leave Russia.¹³⁵

Although the Russian customs laws do not create any significant obstacles to international trade, foreign importers should familiarize themselves with the technical requirements of these laws, including special rules for entry, customs examination, valuation, classification, and liquidation. These rules are very specific and should not cause any difficulties. However, foreign companies should also take into account that these legal rules may differ

from the actual practices existing in various points of entry, and be alert even to the possibility of extortion.

I. Contract Law

A common misconception within the business community in the West is that there is no contract law in Russia. Although as a result of the state's domination over the national economy, the transactional share of private contractual relations in the former Soviet Union was extremely small,¹³⁶ contract law was a relatively well-developed institution of Soviet civil law even before perestroika.¹³⁷ Being part of the civil law system, Soviet contract law inherited general principles of the classic Roman law known for its orderliness, "logically formal rationalism," conceptualism, and systematic approach to legal analyses.¹³⁸

According to American lawyers practicing in Moscow, "in Russia, a relatively well-defined body of laws establishes the requirements for a binding contract; such contracts are entered into every day and, equally reassuring, enforcement of contractual rights occurs daily in a variety of forums, including international arbitration."¹³⁹ Moreover, under the Russian law, the parties to an international contract are free to select the substantive law governing their contractual relationships as well as to stipulate the arbitration forum for future dispute resolution.¹⁴⁰ Thus, parties uneasy with the provisions of Russian contract law can choose to apply to their contractual relations with the Russians the law they are most comfortable with. Since Russia is a participant in the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards, the Russian courts will automatically enforce such awards, given that they are not contrary to public policy.¹⁴¹

As to the resolution of contractual disputes in Russia, foreigners also have a choice of forums: the Russian civil courts or the Russian arbitration court (*arbitrazh*). The arbitration court is a specialized commercial court deciding mainly economic disputes between legal persons, while the civil courts have much broader jurisdiction over both legal entities and individuals. Although arbitration is available only when the parties mutually agree to such a forum, the decisions of an arbitration court are given full judicial recognition and mandatory enforcement.¹⁴²

Both civil courts and arbitration courts in Russia apply Russian contract law if the agreement does not provide otherwise. The current Russian law, although being substantially "commercialized" by the new Russian Civil Code, still adheres to the civil-law tradition.¹⁴³ Since Russia does not yet have a consolidated uniform commercial code, all contractual provisions, as well as the rules relating to secured transactions, property, torts, remedies, joint-stock companies, and even securities, are regulated by the Russian Civil Code.

Although the new Russian Civil Code proclaims the "freedom of contracts,"¹⁴⁴ the Russian civil law leaves the parties with less freedom to negotiate their relationship than they would have had under the common law.¹⁴⁵ Since the Russian civil law does not provide the parties with equitable remedies in the case of repudiation, the law prescribes more formalities for a contract to be binding than are required in the United States.¹⁴⁶ For instance, under the Russian law, the parties must agree on the essential terms of the particular type of contract which are explicitly designated by law.¹⁴⁷ For example, a purchase contract must

specify the parties of the contract, the subject of purchase, the contract price, and the time of performance. If any of such terms is missing, the Russian courts are less likely to infer contractual terms than the courts in the United States.¹⁴⁸

Generally speaking, there are several major considerations foreign businesspeople should keep in mind when they enter into a contract in Russia. First, the contracting parties must have the authority to assume the obligations set forth in the contract. For instance, a corporate officer cannot bind the corporation by a contract if he is not designated as an officer with the authority to enter into such contracts. The authority of corporate officers can be checked in the corporate charter.¹⁴⁹ Second, *ultra vires*¹⁵⁰ contracts entered into on behalf of Russian corporations can be challenged by the corporation itself, its shareholders, its promoters, or by the state prosecutor's office.¹⁵¹ For instance, the contracts to broadcast television programs in Russia, operate a cellular telephone system, or export oil without designated licenses are not valid and thus are unenforceable. As a rule, an *ultra vires* contract is void from the moment of its creation and, thus, it is treated as if it had never been in existence.¹⁵² Third, under the Russian law, contracts contradicting public policy are invalid *per se*.¹⁵³ However, in my view, application of this provision is likely to be limited to those cases in which a contract explicitly violates Russian law rather than encroaches upon a hypothetical "public policy" concern. Thus, contracts implicitly breaching the monopoly legislation will be void, while contracts related to privatization will be enforced even though the Communist-dominated Parliament might declare the privatization as contradicting public policy. Fourth, to be valid, Russian contracts must comply with certain formal requirements. For instance, contracts must be put in writing, signed by an authorized corporate agent, and authenticated by the corporate seal. Moreover, in certain instances, contracts may have to be notarized and endorsed by more than one signature.¹⁵⁴

IV. Conclusion

Regardless of the inefficiency of legislation, the absence of institutional infrastructure, the volatility of markets, and political instability, investors are attracted to Russia. Indeed, the greater the risk, the greater the potential returns. According to some Western analysts, Russia offers opportunities for investors that are unmatched in any other market.¹⁵⁵ Foreign investors are well aware of Russia's uniqueness: its enormous untapped national market, abundant natural resources, cheap and highly skilled labor force, solid scientific and technological base, and rare bargaining opportunities resulting from the rapid and chaotic redistribution of formerly state-owned property.

Because of these unique opportunities, the Russian Ministry of Economics projected that the flow of capital into the country would likely reach \$5–6 billion in 1996 and \$7–8 billion in 1997.¹⁵⁶ Some foreign analysts predict that Russia will be one of the world's top five economies twenty years from now, and that direct American investment alone in Russia will reach \$50 billion in the next ten years.¹⁵⁷

Although the predictions are quite optimistic, the reality remains uncertain. Due to the relative immaturity of Russian corporate, securities, and commercial law, many legal issues

still are unresolved. Moreover, it is very difficult to predict how the legislation will further develop. While Russian legislators consider the century-long regulative experience of the United States and other industrial countries, the socioeconomic situation in Russia peculiar to emerging capital markets thwarts the implementation of the legal concepts borrowed from the West relating to capital markets.

The conclusion that I wish to stress in this chapter is that the legal structures for capital markets in Russia are only now emerging and are not without drawbacks. Moreover, the constantly changing laws undermine the overall investment climate in the country. Thus, in entering the Russian markets one should take into account the risks of doing business there, the relative cost of capital compared with other markets, the transaction costs, and the degree of regulatory supervision existing in the country. Russia does not look good under these criteria when compared with other markets. However, the situation is rapidly changing and Russia might become one of the main players on the world capital markets in the near future. The ongoing legal reforms in Russia evidently show that the country has made its choice and that it is moving toward establishing efficient capital markets on par with the most developed countries.

Notes

¹ Lebedev, V., Import kapitala: tsifr mnogo, da summa mala, 50 *EKONOM IKA I ZHIZN'*, Dec. 1995, at 1. According to official Russian statistics, foreign investments in Russia totalled \$1.4 billion in 1993 and \$1.05 billion in 1994. *Id.* Note, however, that these numbers represent only investments that include direct credits to privatized enterprises and fulfillment of specialized financial programs in Russia, and do not include capital spent on short-term speculation with the stocks of privatized enterprises on the stock market. Georgii Kasatkin, *Investitsionnyi klimat v Rossii: luchshe ne stalo*, 12(51) *RYNOK TSENNYKH BUMAG* 28, 28 (1995).

² These numbers reflect the participation of various national investors in forming joint ventures with domestic companies in Russia. Lebedev, *supra* note 2.

³ Petrov J., *Pridut li investitsii v Rossiiu?* 41 *EKONOMIC I ZHIZN'*, Oct. 1995, at 37.

⁴ According to some Russian sources, German investments totalled DM150 million by the middle of 1995. *Id.*

⁵ About \$300 million of this sum comes from South Korean investments. *Id.*

⁶ In Russia by the end of 1995, there were 664 joint ventures with capital from the Baltic states and 1,755 joint ventures with investors from the CIS countries, including 803 joint ventures with investors from Ukraine, 253 with investors from Kazakhstan, 202 with investors from Belarus, 175 with investors from Uzbekistan, 78 with investors from Georgia, 69 with investors from Moldova, 59 with investors from Armenia, 45 with investors from Azerbaijan, 30 with investors from Kyrgyzstan, 22 with investors from Tajikistan, and 19 with investors from Turkmenistan. Lebedev, *supra* note 2.

⁷ Sonni Efron, "Bullish on the Bear," *LOS ANGELES TIMES*, September 24, 1994, at D1. Other economists contend that up to 50 percent of the incoming dollars are from Russian nationals. *Id.*

⁸ According to Russian intelligence, about \$120–150 billion of Russian capital is hidden in Western banks. Petrov, *supra* note 4.

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⁹ However, the share of investments of Russian citizens domestically is still very modest, amounting to only 4.1 percent of all capital investments in the national economy. Kasatkin, *supra* note 2, at 28.

¹⁰ According to the State Committee on Statistics (Goskomstat), the share of foreign investments in 1995 made up only 3.3 percent of the total volume of capital investments in the national economy (foreign investments amounted to 7 trillion rubles while total capital investments reached 210 trillion rubles). See Nikolai Vardul', *Velika Rossiia a investirovat' nekomu*, 29 *KOMMERSANT*, August 8, 1995, at 30, 32. See also Kasatkin, *supra* note 2, at 28.

¹¹ Lebedev, *supra* note 2.

¹² The retained earnings of enterprises in total capital investments made up 62.2 percent in 1995. The state federal investments in that year amounted to 13.1 percent and municipal investments equaled 10.2 percent of overall capital investments in the national economy. The personal contribution of citizens totalled 4.1 percent. Kasatkin, *supra* note 2, at 28.

¹³ *Id.*

¹⁴ Petrov, *supra* note 4.

¹⁵ See Vladimir Bublik, *GRAZHDANSKO-PRAVOVOE REGULIROVANIE PREDPRINIMATEL'STVA S DOLEVYM UCHASTIEM INOSTRANNYKH INVESTITSII NA TERRITORII ROSSIISKOI FEDERATSII* 3 (The Urals State Legal Academy ed., Yekaterinburg, 1993).

¹⁶ These laws were submitted for consideration to the Russian parliament at the end of 1995. Lebedev, *supra* note 2.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ The Comprehensive Program of Stimulation of Foreign and Domestic Investments in the Russian Economy proposes to grade the investment projects according to impartial market criteria as opposed to ambiguous "state interests." For a detailed description of the gradation system, see Vardul', *supra* note 11, at 31.

²⁰ See e.g., Kasatkin, *supra* note 2, at 30.

²¹ Vardul', *supra* note 11, at 31. Mars, which began construction of its subsidiary factory in Stupino, was the first firm to receive these special privileges from the Russian government. Other firms, such as Cadbury, United Technologies, and General Motors, also applied for the special importer status. *Id.*

²² Lebedev, *supra* note 2.

²³ Petrov, *supra* note 4. See also Vardul', *supra* note 11, at 33.

²⁴ See, e.g., Petrov, *supra* note 4.

²⁵ The Communist Party of the Russian Federation, which stands for partial deprivatization of the Russian industry, won 155 seats, or about 34.4 percent of all parliamentary seats, in the 1995 parliamentary election. The Liberal Democratic Party of Russia (Vladimir Zhirinovskiy's ultra-nationalist party) won 11.1 percent. See, e.g., "OMRI Special Report 15," *OMRI DAILY DIGEST* (December 22, 1995). About the partial deprivatization, see, e.g., Steve Liesman, "Some Russian Officials Are Moving to Reverse Business Privatization," *THE WALL STREET JOURNAL*, March 20, 1996, at A1,9.

²⁶ For instance, the State Duma, the lower house of Parliament, planned to discuss 438 bills in 1995 alone. See, e.g., Marya Fogel, "Foreigners Learn to Cope—Sort of—With Russia's Ever-Mutating Laws," *THE WALL STREET JOURNAL*, July 7, 1995 at A6.

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²⁷ Sonni Efron, "Bullish on the Bear," supra note 8, at D1. But see Prokhorov, Mikhnevich, "Chto na ume u investora?" 50 *EKONOMIKA I ZHIZN'* 6 (1995).

²⁸ See, e.g., Wade Lambert, "Risks of Doing Business in Russia Are Reflected in Venture's Failure," *THE WALL STREET JOURNAL*, April 13, 1994, at B5.

²⁹ In 1995, there were 13,300 registered joint ventures in Russia involving foreign capital, employing 331,000 people. The share of foreign contributed capital in these ventures is about 58.7 percent. Lebedev, supra note 2. The energy industry absorbed 78 percent of all foreign investments in Russia in 1994. Petrov, supra note 4. Foreign investors are paying much attention to telecommunications companies, the woodworking industry, the pulp and paper industry, wholesale trade, restaurant businesses, and machine-building and construction industries. See Petrov, supra note 4. See also Kasatkin, supra note 2, at 29; Prokhorov, Mikhnevich, supra note 28.

³⁰ See, e.g., Andrei A. Baev, "Is There a Niche for the State in Corporate Governance? Securitization of State-Owned Enterprises and New Forms of State Ownership," *HOUSTON JOURNAL OF INTERNATIONAL LAW* 18 (1995): 1-57.

³¹ *Id.*, at 23-28.

³² *Id.*, at 24.

³³ According to law, the state may retain an equity stake plus a single "golden share" in a privatized enterprise for an initial three-year period. Moreover, the state cannot possess more than 20 percent of voting shares; remaining shares owned by the state automatically become non-voting privileged shares. See *Zakon Rossiiskoi Sovetskoi Federativnoi Sotsialisticheskoi Respubliki O privatizatsii gosudarstvennykh i munitsipal'nykh predpriatii v Rossiiskoi Federatsii*, No. 1531-1, signed into law on July 3, 1991, reprinted in *PRIVATIZATSIIA GOSUDARSTVENNYKH I MUNITSIPAL'NYKH PREDPRIATII V ROSSII* 5, 14 (Respublika ed., 1992).

³⁴ The Russian government, however, found an interesting solution to the problem of attracting investors. The government uses its shares in the privatized enterprises as collateral for credit. See *Ukaz Prezidenta RF O poriadke peredachi b 1995 godu v zalog aktsii, nachodiashchikhsia v federal'noi sobstvennosti*, No. 889, August 31, 1995, in 33 *KOMMERSANT* 82-83 (1995). See also "Den'gi Biudzhet poluchit. A gde predpriatiia voz'mut investitsii?" *KOMMERSANT* 33 (1995): 22-24 .

³⁵ See, e.g., Ronald J. Gilson, Bernard S. Black, (SOME OF) *THE ESSENTIALS OF FINANCE AND INVESTMENT* 136, 136-184 (The Foundation Press, Inc. ed., 1993).

³⁶ William A. Klein, John C. Coffee, Jr., *BUSINESS ORGANIZATION AND FINANCE* 394 (Foundation Press ed., 1993) (1980).

³⁷ See, e.g., Ekaterina Zapodinskaia, "V sudakh: bogatye tozhe plachut," *Kommersant* 29, Aug. 8, 1995, at 66, 66-67; Ekaterina Zapodinskaia, "Prokurory dyshat v zatylok pokupateliom gossobstvennosti," *KOMMERSANT* 37, Oct. 10, 1995, at 62, 64-65; Steve Liesman, supra note 26.

³⁸ Due to the "public domain" character of most items of intellectual property in the former Soviet Union, an infringer of intellectual property rights might have a claim now to freely utilize such property since the rights to it have never been transferred by the state to anyone in particular and no one has a legal claim to such rights. See Appendix E, Protection of Intellectual Property Rights in Russia.

³⁹ See Vitrianskii V., "Privatizatsiia v praktike arbitrazhnogo suda," *EKONOMIKA I ZHIZN'* 3 (January 1994): 22.

⁴⁰ *Id.* See also Vitrianskii V., "Privatizatsiia: protivorechiia zakonodatel'stva," *EKONOMIKA I ZHIZN'* 7 February 1994.

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⁴¹ See, e.g., Gosudarstvennaia programma privatizatsii gosudarstvennykh i munitsipal'nykh predpriatii v Rossiiskoi Federatsii, Ukaz Prezidenta RF No. 2284, Dec. 24, 1993, arts 2.2, 2.3, 2.4, published in *PRIVATIZATSIIA GOSUDARSTVENNYKH I MUNITSIPAL'NYKH PREDPRIATII V ROSSII* 15–26 (Niva Rossii ed., 1994).

⁴² See, e.g., Andrei A. Baev, “The Privatization of Land in Russia: Reforms and Impediments,” 17 *LOYOLA OF L.A. INTERN. AND COMP. L.J.* 1, 21–22 (1994).

⁴³ *Konstitutsiia Rossiiskoi Federatsii* [The Constitution of the Russian Federation], adopted by referendum on Dec. 12, 1993, art. 36, in *KONSTITUTSIIA ROSSIISKOI FEDERATSII* 14 (Iuridicheskaia Literatura ed., 1993).

⁴⁴ See, e.g., Boris Boiko, “Rossiiskaia zemel'naia sobstvennost': beskonechnaia istoriia,” 161 *KOMMERSANT DAILY*, Sept. 2, 1995, at 2.

⁴⁵ The President's Edict No. 631, signed on June 14, 1992, cited in Privalov A., et al., “Grazhdane! Kupite byvshee gosudarstvennoe imushchestvo!” 47 *Kommersant*, December 13, 1994, at 70, 74.

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ See The Russian Civil Code, art. 131, which went into effect on January 1, 1995, in *Sobranie Zakonodatel'stva Rossiiskoi Federatsii*, No. 32, st. 3301 (1994); with regard to land registration, see also Ukaz Prezidenta Rossiiskoi Federatsii No. 1767, October 27, 1993, para 3, cited in Kalinin, N., “Zemel'naia Reforma,” 7 *EKONOMIKA I ZHIZN'*, February 1994, at 22.

⁴⁹ Note that the new Russian civil code requires establishing a single national register of real estate owners and their property. The Russian Civil Code, art. 131, *supra* note 49. However, such a register has not yet been created.

⁵⁰ See, e.g., “Osnovnye polozheniia o zaloge nedvizhimogo imushchestva—ipoteke,” 4 *EKONOMIKA I ZHIZN'*, January 1994, at 16, 16–17.

⁵¹ *Federal'nyi Zakon O Vvedenii v Deistvie Chasti Pervoi Grazhdanskogo Kodeksa Rossiiskoi Federatsii*, adopted October 21, 1994, *KOMMENTARI K GRAZHDANSKOMY KODEKSY ROSSIISKOI FEDERATSII* 8 (Jurinformtsentr ed., 1995).

⁵² Russian Civil Code, Art. 113–115.

⁵³ Russian Civil Code, Art. 113.

⁵⁴ Explaining the term “unitary,” Russian legal scholars distinguish between joint-stock companies, partnerships, and cooperatives on the one hand, and unitary enterprises on the other. According to Russian scholars the specificity with which the civil code defines unitary enterprises requires that these enterprises carry out their business activity “on the basis of somebody else's property,” while the joint-stock companies allegedly operate on their own property. The notion that the unitary enterprises operate on somebody else's property inspired Russian lawyers to delimit the rights of the owner of the property (the state) and state enterprises. While the state possesses the right of ownership, the enterprises have been provided with the rights of “operative management” or “economic control.” See *KOMMENTARI K GRAZHDANSKOMY KODEKSY ROSSIISKOI FEDERATSII* 150 (Jurinformtsentr ed., 1995). Thus, Russian civil scholars still do not recognize the concept of the separate legal entity of a joint-stock company (or corporation) that also functions on somebody else's property (property of shareholders).

⁵⁵ Russian Civil Code, Art. 114. Note that the legislature omits the word “full” and calls this right mere “economic control.”

⁵⁶ Russian Civil Code, Art. 115.

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⁵⁷ The commentators limit themselves to the statement that the right of full economic control is “substantially broader” than the right of operative management. However, this statement is neither explicitly supported by the law nor explained by the commentators. See KOMMENTARI K GRAZHDANSKOMY KODEKSY ROSSIISKOI FEDERATSII 319 (Jurinformtsentr ed., 1995); see also KOMMENTARI K GRAZHDANSKOMY KODEKSY 308 (Feniks ed., 1995).

⁵⁸ For comparison of the rights of economic control and operative management see Civil Code, articles 113–115, 294–300.

⁵⁹ Russian Civil Code, articles 294 and 296.

⁶⁰ Russian Civil Code, articles 295 and 297.

⁶¹ Compare articles 294 and 296 of the Russian Civil Code.

⁶² The state has only subsidiary liability—that is, the state can be held liable for the debts of a state enterprise based on the right of operative management only when the enterprise does not have enough of its own assets. Articles 114, 115.

⁶³ Russian Civil Code, Articles 114 and 115.

⁶⁴ Russian Civil Code, Articles 295 and 297. However, it is not clear how the state would realize its rights “to receive a portion of the benefit from the operation of the unitary state enterprise based on the right of economic control.” Art. 295.

⁶⁵ Ironically, modern Russian law tends to replace the right of economic control with the right of operative management several years after the Soviet law of the period of perestroika tried to replace the right of “operative management” with the right of “full economic control.”

⁶⁶ RF President’s Edict, No. 1003, May 23, 1994, available in LEXIS, World Library, ALLWLD File. Although the Edict specifically relates only to the right of “full economic control,” the commentators assert, and I agree, that the prohibition applies to “economic control” as well.

⁶⁷ State enterprises functioning under economic control can be liquidated for the following reasons: (1) absence of profit on the results of the past two years; (2) misuse of federal funds or subsidies; (3) misuse of the enterprise’s real property. *Id.* However, since the grounds for liquidation are very ambiguous, the Edict grants significant discretion regarding the liquidation to government officials. They retain the power to deny permission for liquidation or liquidate any enterprise.

⁶⁸ *Id.*

⁶⁹ KOMMENTARI K GRAZHDANSKOMY KODEKSY 309 (Feniks ed., 1995).

⁷⁰ The Federal Law on Joint-Stock Companies, which was adopted by the Parliament on November 24, 1995, and signed by President Yeltsin on December 26, 1995, became effective as of January 1, 1996.

⁷¹ Russian Civil Code, arts. 66–106.

⁷² Russian Civil Code, art. 66. See also V.V. Vitrianskii, “The Concept and Varieties of Legal Persons According to the Civil Code of Russia,” 21 *REVIEW OF CENTRAL AND EAST EUROPEAN LAW* 501, 507 (1995).

⁷³ Russian Civil Code, art. 66, para 2.

⁷⁴ Russian Civil Code, art. 66, para 3.

⁷⁵ Russian Civil Code, arts. 69–81.

⁷⁶ Russian Civil Code, art. 70.

⁷⁷ Russian Civil Code, art. 75, para 3.

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⁷⁸ Russian Civil Code, art. 74, para 1.

⁷⁹ Russian Civil Code, art. 76, para 2.

⁸⁰ Russian Civil Code, art. 77.

⁸¹ Russian Civil Code, art. 78.

⁸² Russian Civil Code, art. 75, para 2.

⁸³ See the Uniform Limited Partnership Act (ULPA) and the Revised Uniform Limited Partnership Act (RULPA).

⁸⁴ Russian Civil Code, art. 82. The partnership on trust is also known as “mixed partnership,” “limited partnership,” or kommanditnoe partnership. See “Civil Code of the Russian Federation,” 21 *REVIEW OF CENTRAL AND EAST EUROPEAN LAW* 259, 294-297 (1995). See also E.A. Sukhanov, “Economic Partnership and Companies in the New Civil Code of Russia,” 21 *REVIEW OF CENTRAL AND EAST EUROPEAN LAW* 483, 490-492 (1995).

⁸⁵ Russian Civil Code, art. 85, para 2.

⁸⁶ Russian Civil Code, art. 86, para 2.

⁸⁷ The Law “On Joint-Stock Companies,” art. 94.

⁸⁸ *Id.*

⁸⁹ *Id.*, art. 3, para 3.

⁹⁰ In comparison, under American law shareholders can be personally liable for the debts of the corporation if they use the corporate form for fraudulent purposes or if they themselves disregard the separate character of the corporate entity. This concept is known in American law as “piercing the corporate veil.” See, e.g., Robert B. Thompson, “Piercing the Corporate Veil: An Empirical Study,” 76 *CORNELL LAW REVIEW* 1036 (1991).

⁹¹ *Id.*, art. 34, para 1.

⁹² The charter capital should not be less than one thousand times the minimum wage established by federal law at the time of company registration. *Id.*, art. 26.

⁹³ *Id.*, art. 29, para 1.

⁹⁴ *Id.*, art. 35, para 1.

⁹⁵ Russian Civil Code, art. 87.

⁹⁶ *Id.*

⁹⁷ See e.g., William A. Klein, John C. Coffee, Jr., *BUSINESS ORGANIZATION AND FINANCE* 102–103 (Foundation Press ed., 1993) (1980).

⁹⁸ Russian Civil Code, art. 95.

⁹⁹ See Bernard Black, Reinier Kraakman, and Jonathan Hay, “Corporate Law from Scratch,” in *CORPORATE GOVERNANCE IN CENTRAL AND EASTERN EUROPE AND RUSSIA/A Joint Conference of the World Bank and The Central European University Privatization Project*, Washington, D.C., 15–16 December, 1994 (on file with the author).

¹⁰⁰ According to some sources, the management-led coalitions of managers and workers in Russia hold between 51 and 75 percent of company voting shares. By contrast, outside shareholders hold about 20 percent of voting shares, while the remaining shares are likely to be held by a state property fund. *Id.*

¹⁰¹ *Id.*, at 13.

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¹⁰² See Postanovlenie Soveta Ministrov RSFSR No. 601 “Ob utverzhdenii Polozheniia ob aktsionernykh obshchestvakh,” confirmed by the Soviet of Ministers of the RSFSR, December 25, 1990.

¹⁰³ “Kontsepsiia razvitiia rynka tsennykh bumag,” 42 *EKONOMIKA I ZHIZN’*, October 1994, at 16.

¹⁰⁴ See, e.g., Iz analiticheskoi zapiski, podgotovlennoi k zasedaniiu pravitel’stva Rossiiskoi Federatsii, “Problemy razvitiia rynka tsennykh bumag v Rossiiskoi Federatsii,” 1 *KOMMERSANT*, January 17, 1995, at 43, 43–44.

¹⁰⁵ See, e.g., Natal’ia Kalinichenko, Aleksandr Privalov, “Tsennobumazhnyi tigr,” 43 *KOMMERSANT*, November 15, 1994, at 22, 22.

¹⁰⁶ See, e.g., Mirkin, Ia., et al., “Chto est’ chto na rynke tsennykh bumag,” 50 *EKONOMIKA I ZHIZN’*, December 1994, at 9, 9.

¹⁰⁷ Although issuers with more than 1,000 shareholders are required by law to use independent registrars, in practice many of the registers are kept by the companies themselves. As to independent stock registers, they are often maintained by banks. See, e.g., Roswell B. Perkins, William W. Jarosz, “SEC Allows New Custodial Plan for Russian Funds,” *THE NATIONAL LAW JOURNAL*, September 4, 1995, at C5.

¹⁰⁸ *Id.*, at C5.

¹⁰⁹ Investment Company Act, 15 U.S.C. 80–1 et seq. (1940), art. 17(f).

¹¹⁰ See Perkins et al., *supra* note 108.

¹¹¹ *Id.* On American depository receipts (ADRs) with regard to Russian stocks, see Reed Abelson, “Russian Companies Plan Entry Into U.S. Markets,” *NEW YORK TIMES*, September 20, 1995, at C4.

¹¹² See, e.g., Aleksandr Privalov, Natal’ia Kalinichenko, “Pustoe vy, professor, zateiali!” 44 *KOMMERSANT*, November 22, 1994, at 7, 8–9.

¹¹³ The Russian law does not prohibit the same person to be involved in more than one professional activity pertaining to securities trading. For instance, a conflict of interest may arise when the same person acts either as both a broker and a register holder, or as a dealer and as a clearing agent, which is possible under the Russian law. See, e.g., “Zakonodatel’noe regulirovanie fondovogo rynka,” 52 *EKONOMIKA I ZHIZN’*, December 1994, at 14, 14. See also *KONZEPZIIA RAZVITIIA RYNKA ZENNYKH BUMAG*, *supra* note 76.

¹¹⁴ See Russian Civil Code, adopted November 30, 1994, No. 51–F3, art. 142. Note that the previous Russian law defined securities as “a financial document that establishes a property right or a relationship of indebtedness between the owner of the instrument and the issuer.” Although this definition seems broader because it refers not only to ownership relationships but also to relationships of indebtedness, it is not. The Russian legal term “property rights” (*imushchestvennye prava*) includes all relationships related to subject property. Thus, technically relationships of indebtedness are embraced by the term property rights. See *Polozhenie o vypuske i obrashchenii tsennykh bumag na fondovykh birzhakh v RSFSR*, Confirmed by Postanovlenie SM RF No. 78, December 28, 1991, 1 *Pravitelstvennij Vestnik* (1992). See also Karl Viehe, Richard Bernard, Allan Roth, Yan Melkumov, “The Russian Federation Law on Regulation of the Securities Markets,” 6 *TRANSNATIONAL LAW* 81 (1993); A.V. Maifat, “Pravovoi rezhim tsennykh bumag,” 5 *RYNOK TSENNYKH BUMAG* 46, 46–47 (1995).

¹¹⁵ *Polozhenie o vypuske i obrashchenii tsennykh bumag na fondovykh birzhah v RSFSR* [On The Establishment of the Regulation on Issuing and Circulating Securities on the Stock Exchanges in the R.S.F.S.R.], *supra* note 87.

¹¹⁶ Russian Civil Code, art. 142, para 3, art. 149.

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¹¹⁷ See, e.g., Met'iu Kaminski, "Rossii pora sbrosit' okovy nepredskazuemoi nalogovoi sistemy," *FINANSOVYE IZVESTIYA*, Aug. 29, 1995, at iv. For instance, the 38 percent tax on "excess funds" used to supplement employees' salaries above the legally established wage fund norm (which is calculated as a multiple of the government-established "minimum wage") was introduced in March 1995. However, the law was applied retroactively as far back as December 1993. *Id.*

¹¹⁸ *Id.*

¹¹⁹ According to the company's managers, the construction cost of the new plant in Russia increased from \$40 to \$41.3 million USD because of the new taxes. *Id.*

¹²⁰ According to the U.S. Chamber of Commerce, the sudden changes in tax legislation in Russia particularly effect the attractiveness of Russian oil and gas industries, which require intensive capital investments. *Id.*

¹²¹ *Id.*

¹²² Order of GTK of the Russian Federation No. 388 of August 1, 1994, established a predetermined excise tax in European currency units for the import of alcohol and tobacco products. However, the prices of alcohol and tobacco in the Russian stores are sometimes even lower than the established excise tax. Svetlana V. Almakaeva, "Corporate Taxation in The Russian Federation," 21(1) *REVIEW OF CENTRAL AND EAST EUROPEAN LAW* 41, 48 (1995).

¹²³ *Id.*, at 51-52.

¹²⁴ For example, among those receiving the most favorable tax treatment are companies registered in Cyprus. See, e.g., Kaminski, *supra* note 118. See also Almakaeva, *supra* note 123, at 52. For a long time the Russian oil companies have been exempt from tax. The small companies (from fifteen to two hundred employees, depending on the particular industry) are exempted from paying profit tax in the first two years of operations in the specified industries. The President's Edict on Certain Changes in Taxation and in the Relationship between Budgets of Various Levels, No. 2270, Dec. 22, 1993, *Rossiiskaia Gazeta*, December 29, 1993. See also Almakaeva, *supra* note 123, at 54. The joint ventures also have special tax treatment. See, e.g., William Butler, Maryann Gashi-Butler, *LEGAL ASPECTS OF DOING BUSINESS IN RUSSIA* 39 (Longman ed., 1993). Finally, the special tax rate can be established even for individual taxpayers in Russia. For example, a singular tax rate of 5 percent has been established for famous Russian violist Mstislav Rostropovich, who lives permanently in the United States. "Bogatye budut platit' bol'she," 45 *KOMMERSANT* 76, 85, December 5, 1995.

¹²⁵ See, e.g., Almakaeva, *supra* note 123, at 48-50. For instance, the law does not allow for the complete deduction of wage expenditures. *Id.*, at 49. See also "Bogatye budut platit' bol'she," *supra* note 125, at 79 (rules of calculation of profit).

¹²⁶ Kaminski, *supra* note 118.

¹²⁷ See, e.g., Butler, Gashi-Butler, *supra* note 125, at 37; Almakayeva, *supra* note 123, at 41.

¹²⁸ In Moscow the maximum rate of 38 percent is applied for enterprises and 43 percent for banks and insurers. Almakaeva, *supra* note 123, at 50.

¹²⁹ Butler, Gashi-Butler, *supra* note 125, at 39.

¹³⁰ Kaminski, *supra* note 118.

¹³¹ For more information about taxation of foreign companies in Russia See, e.g., "Nalogi s inostrannykh iuridicheskikh lits," 41 *EKONOMIKA I ZHIZN'*, October 1995, at 30, 31; "O naloge na imushchestvo inostrannykh iuridicheskikh lits," 43 *EKONOMIKA I ZHIZN'*, October 1995, at 12; "O poriadke ischisleniia i uplaty naloga na imyshchestvo inostrannykh iuridicheskikh lits v Rossiiskoi Federatsii," 44 *EKONOMIKA I ZHIZN'*, November 1995, at 19, 20.

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¹³² Postanovlenie Verhovnogo Soveta Rossiiskoi Federatsii No. 4823-1 (1993), translated and available in LEXIS, World Library, Sovleg File.

¹³³ See Title V of the Trade Act of 1974, 19 U.S.C. 2461 (1974).

¹³⁴ See, e.g., Gilder D. Jackson IV, "Doing Business in Russia: A Practical Guide For American Investors," 3 J.INT'L L. & PRAC. 111 (1994).

¹³⁵ RF GAZETTE, item 1096 (1991), available in MARTINDALE-HUBBEL INTERNATIONAL LAW DIGEST/CIS 7 (1993), cited in Jackson IV, *supra* note 135, at 143–144.

¹³⁶ The monolithic character of state ownership was implemented in the non-commodity form of economic relations between enterprises, known initially as the system of state orders and later as reciprocal commodity deliveries (postavki). Postavki are a kind of contract of sale or delivery (supply) contracts. However, because of their paramount role in the economy, particularly in implementing economic plans, they have been given rather special and detailed legal regulation and have come to be recognized as an independent type of contract. The definition of a delivery contract was given for the first time in article 44 of the Fundamentals of the Civil Legislation of the USSR and article 258 of the Russian Civil Code. The definition consists of the following elements: a) only state organizations can be parties to a delivery contract; b) under the contract, specified goods must be delivered by one state organization to another state organization, and the latter is obliged to pay for them; c) the time of delivery of the goods does not coincide with the time the contract was concluded; d) the remedies for non-delivery include severe liquidated damages and specific performance; e) strict liability is laid down for breach of the terms on the quality of the goods to be delivered (Art. 50 of the Fundamentals; Article 261 of Civil Code of the RSFSR).

¹³⁷ See, e.g., Randy Bregman and Sarah Carey, "Contracting in Russia: Not Perfect, But Works," 3(1) RUSSIA BUSINESS WATCH 1, 41–42 (1995).

¹³⁸ See, e.g., John Henry Merryman, *THE CIVIL LAW TRADITION: AN INTRODUCTION TO THE LEGAL SYSTEMS OF WESTERN EUROPE AND LATIN AMERICA* 57, 59–67 (2 ed., 1985), reprinted in Merryman, et al., *THE CIVIL LAW TRADITION: EUROPE, LATIN AMERICA, AND EASTERN ASIA* 480–483 (The Michie Company, ed., 1994).

¹³⁹ Bregman, Carey, *supra* note 138, at 1.

¹⁴⁰ Note, however, that in order to be able to select the substantive law, the parties may be required to satisfy the requisite of "minimum contact" established by the domestic procedural law of the subject state. *Id.*, at 42.

¹⁴¹ *Id.*

¹⁴² The arbitration courts have their own appellate system headed by the Supreme Arbitration Court. *Id.*

¹⁴³ See Russian Civil Code, adopted by the State Duma on October 21, 1994, *Sobranie Zakonodatel'stva Rossiiskoi Federatsii*, No. 32, item 3301 (1994), arts. 153–189, 420–453.

¹⁴⁴ Russian Civil Code, art. 421.

¹⁴⁵ See, e.g., Russian Civil Code, art. 422.

¹⁴⁶ See Bregman, Carey, *supra* note 138, at 41.

¹⁴⁷ Russian Civil Code, art. 168, 422.

¹⁴⁸ However, the new Russian Civil Code allows courts to infer the price of the contract when such price was not explicitly stated in the contract. Civil Code, art. 424, para 3. See also art. 431. Nonetheless, due to the absence of judicial precedent on the subject matter, it is not clear how the

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courts will infer the missing price. Some commentators, including the Chief of the Supreme Arbitration Court of the Russian Federation, Veniamin F. Yakovlev, suggest that since the price is a substantial term of the contract, the disagreement regarding the price when the price is missing makes the contract unenforceable. See Sadikov, et al., KOMMENTARII K GRAZHDANSKOMU KODEKSU ROSSIISKOI FEDERATSII 412 (Iurinformtsentr, 1995).

¹⁴⁹ Russian Civil Code, art. 174. See also, Bregman, Carey, *supra* note 138, at 41.

¹⁵⁰ The latin term *ultra vires* means that a judicial entity acts in excess of its powers. The term applies especially to an action of a corporation which is beyond the powers conferred upon it by its charter, or by the statute under which it was created. See, e.g., Steven H. Gifis, *LAW DICTIONARY* 506 (Barron's Educational Series, Inc. ed., 1991) (1975).

¹⁵¹ Russian Civil Code, art. 173.

¹⁵² Russian Civil Code, art. 173.

¹⁵³ Russian Civil Code, art. 169.

¹⁵⁴ See, e.g., Bregman, Carey, *supra* note 138, at 41.

¹⁵⁵ See, e.g., Richard Stevenson, "Foreign Capitalists Brush Risks Aside to Invest in Russia," *NEW YORK TIMES*, Oct. 11, 1994, at A1. See also Richard Stevenson, "An American in Moscow," *NEW YORK TIMES*, September 20, 1995, at C1.

¹⁵⁶ Petrov, *supra* note 4.

¹⁵⁷ Richard Stevenson, "An American in Moscow," *supra* note 104, at C4.

E

Protection of Intellectual Property Rights in Russia

Andrei A. Baev

I. Introduction

Protection of intellectual property rights is critically important to U.S. companies considering foreign investment, especially in transition economies such as those of the Commonwealth of Independent States (CIS). This pertains both to sales of U.S. products in foreign markets and to development work sponsored by U.S. companies abroad. While the United States' share of the world markets for manufactured goods is declining, the importance of its exports of intellectual products has increased.¹ In 1947 intellectual property made up just under 10 percent of all American exports; today, intellectual property accounts for more than 50 percent of the U.S. exports.² Due to the intangible character of intellectual property, however, this type of export is particularly vulnerable to misappropriation. In contrast to conventional property rights, which aim at protecting an owner's exclusive rights to possess, use, and dispose of a tangible thing which is accessible, identifiable, and capable of being possessed, intellectual property rights protect incorporeal property that often has no physical being and only represents value, rather than having inherent value in itself. For example, copyright law protects the purely utilitarian quality of an item, patents protect abstract

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ideas, and trademarks mainly target unfair competition and consumer fraud as well as the identity of the producer of goods. Since intellectual property rights only protect the form of a particular product, the content of intellectual property is easy to copy and susceptible to piracy. For instance, although copyright gives an author a monopoly in using the subject property, other individuals have a right to exploit the facts, experiences, thoughts, and general ideas of the author's work, provided they do not substantially copy a concrete form in which the ideas have been developed, arranged, and put into shape. Computer software, databases, semiconductor chips, new technology, trade secrets, know-how, industrial designs, "utility models," trademarks, service marks, literary and artistic works, writings, recordings, and motion pictures can easily be replicated, used, and conveyed without the legitimate permission of the true owner of the intellectual property. Moreover, it is difficult to define what constitutes "unauthorized use" of intellectual property, and thus an infringement upon intellectual property rights is often difficult to detect.

In fact, the piracy of intellectual property has reached enormous proportions worldwide. According to some sources, USD \$100 billion is lost worldwide each year from the piracy of intellectual property.³ The U.S. International Trade Commission estimated that U.S. companies lost between \$43 billion and \$61 billion in 1986 due to intellectual property piracy.⁴ Piracy of intellectual property causes severe distortions in international trade and thwarts prospective investments and research activities throughout the world. Investors have little incentive to finance new projects when the results of their labor can be quickly copied by parasitic firms or entrepreneurs who do not incur substantial research expenses. As a result, the International Intellectual Property Association (IIPA) called on the Clinton administration to threaten retaliation against 35 foreign countries that have allegedly failed to adequately protect the intellectual property rights of U.S. companies abroad. Among the countries cited by the IIPA was Russia.⁵

Russia has a long and widespread tradition of disregarding intellectual property rights. The deficiencies in protecting intellectual property rights in Russia are partly rooted in the absence of a tradition of private ownership in the former Soviet Union. Soviet domestic legal practice did not confer exclusive property rights in immaterial goods to individuals. The Soviet ideology that a discovery or creation was made for the good of the whole people and thus owned by all of the people placed the overwhelming bulk of intellectual products into the "public domain." Accordingly, the primary goal of intellectual property law was to disseminate creative works and inventions to a wider sector of the population rather than to curtail undue competition and protect the individual rights of creators.

Indeed, the term "property of the whole people" did not provide a direct and clear answer to the question of "whose is it?" Economic, social, and legal "depersonalization" of property in the USSR led to a situation where there were no subjects who possessed the combined integral interest and valuable characteristics of an owner-proprietor. Such a "diffusion" of the right of ownership, and its anonymous character, facilitated the flourishing of bureaucratism and corruption and produced powerful monopolistic structures that usurped the property rights of "the whole people." As a practical matter, this meant that property rights rested in the hands of the state monopolistic structures and bureaucrats. Property law was replaced by a pervasive system of "entitlements," vested in those who were appointed by the government to make decisions affecting resource use. Unlike legal property

rights, entitlements in a command economy are ambiguous in their content, contain numerous restrictions, are not freely transferable, and are frequently revised. Therefore, while inventions may have been essentially in the public domain, their application in a given type of product may have been controlled more by the monopolistic positions of a particular sector of industry than by intellectual property rights.

The task of protecting the intellectual property rights of foreign intellectual property owners, and investors, was further complicated by the fact that the Soviet Union resisted joining the international intellectual property organizations, conventions, and treaties aimed at compelling member-nations to treat all intellectual property owners fairly under domestic laws. Thus, the Soviet legal regime of intellectual property protection was inadequate under the established international policy and legal practice of other nations in this area.

With the collapse of the Soviet Union, one of the goals of legal reform in post-Soviet Russia was to bring Russian intellectual property law into accord with Western practice. However, although most of the deficiencies of the Soviet-type system of intellectual property rights were eliminated and the new legislation in Russia does address domestic intellectual property protection on a par with international standards, remnants of old Soviet practices still manifest themselves in the day-to-day experience of foreign investors in Russia.

There are four general situations in which foreign companies encounter problems of intellectual property rights protection under Russian legislation: (1) when a foreign company brings its own intellectual property to a cooperative venture in Russia, (2) when a Russian partner brings intellectual property to the venture, (3) when joint intellectual property is developed during the activities of the venture, and (4) when a foreign company utilizes Russian intellectual property exclusively outside of Russia. While the first situation relates to the enforceability of existing Russian laws, the last three mainly reflect the drawbacks of the former Soviet legislation.

Thus, there are two major aspects of the general problem of protecting intellectual property rights in Russia: (1) clarification of the intellectual property rights of various legal entities, collectives, and individual inventors with respect to technology predating the current legislation, and (2) enforcement of the existing legislation. Although, with the passage of time, the problems associated with technology developed prior to the new laws will become less critical in some, though not all, cases, the problem of enforcing the laws has become the stumbling block for the implementation of the new standards of intellectual property protection in Russia. A sense of the necessity of protecting intellectual property rights does not yet imbue either the minds of the Russian people or government institutions. At present the Russian government attaches very little importance to the protection of such rights since it considers the tasks of economic and social stabilization to be more important.

This chapter examines some of the changes taking place today in Russian intellectual property law and explores existing obstacles to implementing and enforcing the law. Since the law on intellectual property vests protection in the three general areas of patents, copyrights, and trademarks, the following analysis will adhere to that common division.

II. The Patent Law of the Russian Federation

Generally, patent protection promotes new discoveries by granting a limited monopoly on use of inventions before they enter the public domain. Besides promoting the general progress of science and useful arts, patent law serves three major functions: (1) stimulation of research by providing researchers with a monopoly on their innovations, (2) fostering of an efficient allocation of resources so as to prevent duplicative research,⁶ and (3) identification of the legal owner of particular inventions. Since Soviet patent law failed to achieve these objectives, rectification of this situation was at the heart of the patent law reform in post-Soviet Russia.

A. Protection of Inventions in the Soviet Union

In contrast to the Western legal model, the Soviet system for inventions was characterized by collective ownership of certified inventions protected by inventors' certificates of authorship (*avtorskoe svidetel'stvo*). An inventor's certificate offered a guarantee of a fixed royalty-like payment and certain other material and immaterial rights and privileges for the inventor, whose authorship was officially certified, and it entitled the Soviet state to organize freely the commercial exploitation of the invention. Although the inventions protected by inventors' certificates could not be liberally exploited by individual citizens, they could be used without the special permission of the Soviet state, cooperatives, public enterprises, and other legal entities "in pursuance of the interests of the state and of [the cooperatives', public enterprises', and other legal entities'] interests."⁷ The inventions for which an inventor's certificate were issued were thus placed in a semi-public domain. The state also monopolized control over the use of Soviet inventions outside the USSR by entering into licensing agreements with regard to the exploitation of inventions abroad and by fulfilling various preparatory tasks for such exploitation, such as patent applications and patent litigation.

However, an inventor's certificate was not the only legal technique employed to protect the intellectual rights of Soviet inventors. Inventors were granted the traditional "freedom of choice" to protect their inventions either by an inventor's certificate or by a patent. In contrast to the "semi-public domain" status of the inventions protected by an inventor's certificate, a patent provided patentees with the exclusive rights of utilizing their inventions. For instance, no one could use a patented invention without the consent of the patentee, and the patentee was entitled to valuable consideration for the use of his or her inventions by state enterprises and other entities.⁸

Although Soviet law provided for patent protection, in practice only foreigners opted for patents.⁹ Patents were extremely costly to apply for, maintain, market, and defend, in addition to not being freely exploitable. Indeed, in a socialist economy the incentive structure was such as to make individual inventors favor an inventor's certificate over a patent as the means of protecting their rights. Besides the guaranteed payments for the exploitation of their inventions, inventors also avoided the expenses related to the vending of their inventions, and they were provided with substantial social benefits as well, such as the right to be named as the author and advantages of employment, promotion, preferential admission to universities, additional housing space, etc.,¹⁰ none of which were extended to the holders of

patents.¹¹ Furthermore, while there were filing and issuance fees for patents, inventors' certificates did not require such fees.¹² Moreover, if a patent application was rejected, the fees and expenses were imposed on the applicant, but there were no fees for an application for an inventor's certificate. The failure to pay annuities terminated patent protection as well. And a patent could be opposed and canceled during the period of protection.¹³ In contrast, an inventor's certificate could be contested only in the first year after its issuance.¹⁴

Thus, the dominant means of protecting the intellectual property rights of individual inventors in the former Soviet Union was an inventor's certificate. Furthermore, patents were not available in the most important practical case of employee inventions (*sluzhebnye izobreneniia*), for which only an inventor's certificate could be issued. According to some data, at least 80 percent of all Soviet inventions were employee inventions.¹⁵ The state was considered the holder of all intellectual property rights to the scientific-technical products of the research and development (R&D) institutes and state enterprises, as long as the intellectual product was created by the engineers and technical staff of these institutes during the scope of their employment, in connection with the work of the inventor in a state enterprise, on the institute's or enterprise's facilities, upon the direction of such enterprises or institutes, or by utilizing government funds which had been apportioned to the institute or enterprise by the state. Under these circumstances, the overwhelming majority of capital-intensive inventions and know-how in the high-technology area were qualified as "employee inventions," for which the intellectual property rights belonged to the state. However, R&D institutes and state enterprises, as legal persons, also had certain rights to their intellectual products under the ambiguous right of "operative management" (*operativnoe upravlenie*) and later of "full economic control" (*polnoe khoziaistvennoe vedenie*).¹⁶ For instance, these rights provided state enterprises with some royalty payments for the use of their inventions.

The overlap of the old Soviet legislation with the new Russian law on intellectual property presents a number of problems. The inventors' certificates predating the current legislation still remain in effect if they have not been exchanged for patents. Thus, the use of the inventions protected by inventors' certificates is not exclusive to the holders of the certificates, and in practice these inventions can be freely utilized by the state or any private company without compensation. Foreign businesspersons should therefore insist that a Russian partner exchange its inventors' certificates for patents under the new Russian law. In addition, foreign companies should always inquire about a Russian company's outstanding obligations to individual inventors. If such obligations exist, the company should insist that they be fully satisfied by the Russian partner.

Moreover, as a result of the recent privatization of state enterprises and R&D institutes, it is currently unclear who holds patent rights to the inventions that formerly belonged to the state-owned enterprises. Reorganization of the state industrial ministries, abolition of the industrial-technical consortia, and restructuring of privatized state enterprises has only complicated the problem of recognizing patent holders. In addition, a great number of the modern technological processes and inventions currently used in privatized companies were developed during a time when they were protected only by inventors' certificates. While patents are usually transferred with other assets during privatization,¹⁷ inventors' certificates cannot be conveyed to a privatized enterprise since the state enterprise never had exclusive rights to the inventions protected by inventors' certificates in the first place. In practice, any

private company, public organization, or state entity may assert a claim of intellectual property rights to the inventions protected by such certificates, because the inventions are presumably owned by all the public. This becomes particularly important if a Russian company is planning to export a technology that promises to provide a handsome income. The government may also claim its property right to the intellectual product in order to protect national strategic interests, obstruct suspicious projects, or bargain with large foreign investors.

According to civil law, a privatized enterprise assumes all obligations of the state enterprise being privatized from the time the privatization is completed. However, due to the "semi-public domain" status of most Soviet inventions, a privatized enterprise may not be able to assert rights to its inventions if the privatization of the enterprise was not conducted properly. An infringer of the intellectual property rights of such an enterprise can always contest the claim of infringement on the basis of the intellectual property rights never having passed to the enterprise because of the violation of certain privatization formalities. Therefore, it is sometimes more important to analyze the process of privatization rather than the corporate papers of a new privatized enterprise.

In situations where the Russian partner is a privatized enterprise or a former state R&D institute, it is highly advisable to comply with the following strategy: (1) inquire into the decision of the State Property Committee (Goskomimushchestvo) regarding privatization of the enterprise, (2) obtain the assistance of an attorney to verify the fulfillment of the legal formalities reflected in the privatization plan, (3) check the contract of purchase regarding the intellectual property rights provisions if the enterprise was privatized by way of leasing the enterprise with the right of purchase or by selling the enterprise at auction or by comparative bidding (konkurs), and (4) inspect the balance of the enterprise to determine whether patents and other intellectual property rights are recorded as part of the enterprise's assets. However, very rarely are intellectual property rights clarified in either the charter of the privatized enterprise or its privatization plan. The best course of action in such a situation would be to insist that the Russian partner disclose in the joint-venture agreement all its legal rights and obligations with regard to the intellectual property in its possession, including assurances that (1) it has a right of conveyance, (2) that no outstanding encumbrances affect this right, and (3) that the Russian partner will remedy all possible legal defects and disputes that might arise in the future with regard to the provenance of these rights. The Russian partner should account for its existing obligations to the inventors, as well as disclose whether it possesses exclusive use of all inventions. To further protect one's interests in the transferred rights to an invention, one should insist on a special provision imposing liquidated damages on a Russian partner in case of possible cancellation of these rights in the future.

B. The New Patent Law of the Russian Federation

The Patent Law of the Russian Federation, which places the protection of intellectual property in Russia on a par with international standards, was adopted on September 23, 1992, and became effective on October 14, 1992.¹⁸ An overview of the Patent Law of the Russian Federation must consider several major points:

(1) Subject Matter of the Law. The Patent Law covers inventions, utility models, and industrial designs.

(i) Patents. Similar to U.S. patent law, the Russian law limits patentable inventions to those that possess three characteristics: (1) novelty, (2) inventiveness, and (3) industrial applicability. An invention is novel if it is not known from prior art, including any kind of information published anywhere in the world and made available to the public, as well as information available from prior Soviet patents, inventors' certificates, or prior applications for patents or certificates. Inventiveness is established if, for one skilled in the art, the invention does not obviously proceed from prior art. As some commentators note, since there are no qualifying words, this standard may become somewhat more subjective than that in U.S. patent law, although the Russian Patent Office regulations are expected to contain instructions which should clarify the non-obviousness criterion.¹⁹ Industrial applicability refers to the invention's practical usefulness in industry, agriculture, public health services, and other fields of activity. Besides the inventions analogously patentable in the United States under 35 U.S.C. § 101, the new Russian law specifically includes patent protection for cell cultures and microorganisms. Patent protection has not been extended to scientific theories and mathematical methods; methods of economic organization and management; conventional signs, schedules, and rules; methods of mental health therapy; algorithms and computer programs; designs and schemes for the planning of installations, buildings, and districts; decisions affecting only the external appearance of a product; topography of integral microcircuits; varieties of flora and fauna; or solutions which are contrary to social interests or the principles of humanity and morality.²⁰

(ii) Utility models. The Patent Law introduces the new concept of the utility model as another form of intellectual property, which is unknown in U.S. legislation. While virtually anything can be patented as an invention, as long as it meets certain legal prerequisites, the subject matter of a utility model is narrowly circumscribed. Utility model certificates are provided only for technical devices, such as constructed objects, machines, instruments, or industrial equipment. Processes, substances, cell cultures, and microorganisms are explicitly excluded from being certified as utility models.²¹ On the other hand, the legal prerequisites for a utility model are less stringent than for inventions: no level of inventiveness is required, and although novelty is required, the prior art standard is less strict than in the context of inventions.²² In addition, since there is no material examination, utility model certificates do not enjoy any guarantee of validity and are issued under the full responsibility of the applicant with regard to such validity.²³

(iii) Industrial Designs. Similar to U.S. law, the Russian law defines industrial designs as an "artistic solution of an article."²⁴ This expression is professionally used and understood in the fields of architecture and the artistic modeling of industrial designs. "To solve an article" means to create an original, previously unknown model with a unique outward appearance, which allows the subsequent manufacturing of a series of articles in accordance with it. According to Russian law, a design enjoys legal protection if it is (1) novel, (2) original, and (3) industrially applicable.²⁵ In contrast to patents, instead of being non-obvious, an industrial design must be "original." Although the definition of originality is rather vague,

according to some commentators it lies in the creative nature of the aesthetic characteristics of the article, such as its “unexpectedness” or “unusualness.”

(2) Patent Application. Contrary to the U.S. practice, Russia grants a patent to the first to file a patent application. The United States applies a first-to-invent standard, under which the first to file is not necessarily the party who is ultimately awarded a patent. There is only one office in Russia for the issuance of patents—the State Committee of the Russian Federation on Patents and Trademarks (Rospatent). However, the Scientific Research Institute for State Patent Expertise (SRISPE) is designated to handle all applications and examine the patentability of the inventions on behalf of Rospatent.

The application for an invention must include: (1) a petition specifying the inventor, (2) a description of the invention “with fullness which is sufficient for effectuation,” (3) the formula of the invention expressing its essence, (4) sketches if necessary, (5) an abstract, and (6) evidence that fees have been paid.²⁶ Patent applications must be in Russian, although the supporting documents can be in another language at the time the application is submitted provided the translation is submitted within the following two months. Similar to the United States, the filing date is that on which the application is received at SRISPE. It takes from six to twenty-four months from the date of the application to receive a definitive decision from SRISPE.

(3) Patent Examination. In contrast to the United States, the Russian law follows the practice of many European countries in dividing the patent examination into two steps: preliminary examination and substantive examination. Preliminary examination is aimed at ascertaining whether the documents comply with established formalities and whether the invention applied for is among the objects to which legal protection is granted.²⁷ Substantive examination is an evaluation of the complete merits. Both of these examinations are appealable.

(4) Term of Patents. Similar to most industrial countries with first-to-file systems, a patent protection is granted for twenty years from the date the application is submitted to SRISPE. The twenty-year term is emerging as the international standard, adopted by various countries in Eastern Europe, Asia, and Latin America. It is also the minimum patent term to which World Trade Organization members must adhere, according to Article 33 of the Uruguay Round’s TRIPS Agreement.²⁸ Thus, the Russian patent law is in this respect on a par with the world’s standards.

(5) Rights of Inventors and Owners. As in the United States, an inventor’s authorship right (the right to be recognized as the inventor) is inalienable. However, other substantive rights flowing from the patent, as well as the right to obtain the patent itself, are transferable.²⁹ Foreign investors should note, however, that in order to effectuate the assignment of patent rights under the Russian law, such an assignment should be handled by a licensed patent attorney and should be registered with SRISPE. Thus, it is always wise to check the records of SRISPE whenever one is dealing with a transfer of any patent rights (e.g., in cases of privatization, establishing joint ventures with Russian partners, takeovers, or other changes of patent holders). Otherwise, the patent may be useless. Moreover, U.S. licensees also

should note that Russian law goes further than U.S. law in requiring that a license, even a non-exclusive one, must also be recorded.³⁰ In cases of joint ventures with Russian partners, the foreign party should also understand that unlike U.S. law, joint inventors may not preserve their rights by applying independently but must agree with each other with regard to their respective rights.³¹ Although the joint patent owners may individually use the invention, they may not assign or license it without the consent of all the owners. Therefore, it is advisable for foreign partners to reach an agreement regarding the future rights of each of the parties with respect to inventors' rights before establishing a joint venture or to make such an agreement a part of the corporate articles or bylaws. Furthermore, unlike U.S. law, the rights of employers and employees with regard to inventions are mainly prescribed by statute rather than by a labor contract. There is a presumption in Russian law that the employer owns the right to obtain the patent unless there is an agreement to the contrary. Thus, on the one hand, the inventions of Russian inventors employed by foreign companies or joint ventures belong to these companies. Analogously, as a rule, Russian inventors cannot legally assign their rights to inventions under development to foreign companies without the permission of their Russian employer. On the other hand, patents for the inventions of foreign inventors employed by joint ventures with Russian participation or by Russian companies will be recognized as belonging to the companies rather than to the individual inventors. Therefore, to avoid an abdication of their rights to inventions, foreign inventors should either work for Russian companies as independent contractors instead of being employed by them or explicitly stipulate their rights to any inventions in employment contracts.

(6) Rights of Foreigners. Foreign individuals or legal persons enjoy equal rights with Russian citizens according to international treaties of the Russian Federation or on the basis of reciprocity.³² If the rules of an international treaty contradict those of the Russian Patent Law, the former shall apply.³³ However, despite the equal treatment of foreign and Russian inventors, commentators have observed that fees for a patent application in Russia are likely to be higher for foreign applicants as long as this practice is not prohibited by international treaty.³⁴

Thus, the new patent law of the Russian Federation provides adequate patent protection, comparable to international standards.³⁵ Although the enforcement infrastructure is not yet sufficiently developed, the new patent law creates a promising legal framework that substantially increases the protection of the intellectual property rights of foreign investors in Russia.

III. The Copyright Law of the Russian Federation

Cultural piracy in Russia and the former Soviet Union was so widespread and audacious that many major U.S. film studios stopped licensing films for this market and boycotted the Moscow Film Festival. Russian video salons and cable television channels regularly aired

bootlegged Western movies and freely played Western music without the payment of royalties.

On July 9, 1993, President Yeltsin signed comprehensive copyright legislation that extended copyright protection to films, videos, and music.³⁶ The legislation finally enabled Russia to join the Berne Convention and the World Intellectual Property Organization (WIPO). Russia joined the Berne Convention for the Protection of Literary and Artistic Works on March 9, 1995. In addition, Russia signed the Universal Copyright Convention (UCC), as well as Protocols 1 and 2 to the October 29, 1971 Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms.

The new Russian Copyright Law is in full compliance with the Berne Convention and provides intellectual property protection equivalent to modern Western legislation. Moreover, as some commentators note, the new Russian Copyright Law even strengthens the European continental approach to authors' rights, for instance through recognizing non-alienable moral rights of individual authors, removing procedural formalities for obtaining copyright protection, and institutionalizing a separate category of neighboring rights.³⁷

The Russian Copyright Law protects works of science, literature, and art that are the result of creative activity and exist in some objective form.³⁸ For instance, the scope of copyright protection applies to the following categories of items: written works (including computer programs); dramatic and musical works; film scripts; choreographic works and pantomimes; audiovisual works; paintings, sculptures, graphics, designs, comics, and works of decorative art; works of architecture, urban construction, and garden-park art; photographic works; geographic, geological, and other charts, maps, sketches, and plastic works related to geography, topography, and other sciences; and more.³⁹ Foreign authors of audiovisual works are specifically included within the scope of copyright protection.⁴⁰ Complying with international norms, the Russian Copyright Law offers extensive protection to the above classes of works without any formal requirements.

The rights of television broadcasters over their programming, as well as the rights of the creators or authors of the programming, are also regulated by the new Russian Copyright Law.⁴¹ No formalities are required for neighboring rights to arise and be effectuated.⁴² According to the Copyright Law, the rights of a broadcasting or cable organization are recognized if the organization is officially located within the territory of the Russian Federation and issues the transmission from transmitters located within the territory of the Russian Federation.⁴³ However, in order for American broadcasters to protect those of their programs that originated outside of Russia and are transmitted through the global satellite communications system, they do not have to establish an office in Russia and ensure that the final phases of the broadcast transmission emanate from transmitters located within Russian territory. If a foreign broadcasting company does not plan to be licensed in Russia as a broadcasting company, to sell its programs it can simply enter into a licensing agreement with a Russian broadcasting company.

According to the Russian Copyright Law, the author of a work is "the natural person by whose creative labor the work was created."⁴⁴ Besides the economic rights traditionally provided to authors by European copyright laws, the Russian Law recognizes five inalienable moral rights of an author: (1) the right of authorship (the right to be recognized as the author of a work), (2) the right to a name (the right to use or authorize the use of the work

under one's own name, under a pseudonym, or anonymously), (3) the right of disclosure (the right to decide whether a work is ready for communication to the public in any form), (4) the right to withdrawal (the right to withdraw the work from circulation),⁴⁵ and (5) the right to protect the author's reputation (the right of the author to prevent any changes in his or her work).⁴⁶ These personal moral rights always belong to authors irrespective of their property rights and are retained by them in the event of the assignment of exclusive rights for the use of the work.⁴⁷

The Russian Copyright Law further protects foreign authors' works which exist in some objective form within the territory of the Russian Federation whether they are disclosed or not. However, if such works are not found in Russia, adequate protection is provided according to international agreements, the principal ones being the Berne Convention and the Paris version of the UCC.⁴⁸ Furthermore, since the Russian Federation became a legal successor of the USSR, all obligations of the Soviet Union under the Geneva Universal Copyright Convention (1952) and other bilateral agreements of the USSR with foreign countries are binding on Russia as well.

IV. The Protection of Computer Programs, Databases, and Semiconductor Chips under the Russian Intellectual Property Rights System

Although the Russian Patent Law specifically exempts computer programs, databases, and semiconductor chips from the scope of its protection, the special Law "On the Legal Protection of Computer Programs and Databases" and the Law "On the Legal Protection of Topologies of Integrated Microcircuits" were introduced in 1992 to regulate these relationships.⁴⁹ The legislation, which conforms to the European Commission's Directive on Legal Protection of Computer Programs passed in 1991, is the first ever to recognize software as intellectual property in Russia and the former Soviet Union. With a piracy level generally believed to run up to 95 percent of all computer programs available in Russia, these laws put a significant break on software bootlegging in Russia.⁵⁰

Consistent with the Berne Convention, the Universal Copyright Convention, and the United States–Russian Agreement on Trade Relations, the Russian law treats computer programs as literary works.⁵¹ Thus, the law vests in the author of a computer program or database the same personal rights as those historically enjoyed by authors of literary works, such as the right to be recognized as the author, the right to protect the work against distortion, and the exclusive right to engage in or authorize publication, reproduction, distribution, or modification of the program or database.⁵² The law imposes penalties for illegal copying, and empowers courts to confiscate profits from illegal software sales and to seize assets and equipment from software pirates.⁵³

Computer programs are protected from the moment of their creation without requirements to comply with any special formalities. Although registration of computer programs is not a prerequisite to protection, it may provide procedural advantages in case of infringement by shifting the burden of proof from the registered claimant to the infringer.⁵⁴ However, the registration of such sensitive products as computer programs and databases is

not always advisable due to the great likelihood of secret information being leaked by corrupt government officials.

Under the Russian law, when a program is created under an employment relationship, the substantive rights (except the right to authorship) are vested in the employer. Anyone who wants to use a computer program must obtain a license to do so. However, the person who legally possesses a copy of the computer program may reproduce it provided that such reproduction is solely intended for archival purposes.⁵⁵ Moreover, the person who legally possesses a copy of a computer program may analyze the program's "pseudo" source code to obtain information as to the underlying ideas through decompilation or disassembly of the program on the condition that this is done for the purpose of interoperability.⁵⁶ The technique of manipulating the object code in order to reconstruct the source code in which the program was originally written, known as "reverse engineering," is allowed not only in Russia but also in the European Community under the Council Directive on the legal protection of computer programs, which, notwithstanding contractual provisions to the contrary, authorizes the legal user of a program to reproduce and translate the program's machine-readable code without authorization of the copyright owner for interoperability purposes.⁵⁷ Thus, with regard to reverse engineering, the Russian law conforms to the European rules.

After enacting the computer software laws discussed above, the Supreme Soviet adopted the new Russian copyright law on July 9, 1993.⁵⁸ However, instead of including the 1992 Law on Protection of Computer Programs and Databases as such in a separate chapter of the new Copyright Law, the legislators chose to apply the rules of the 1992 law alongside the relevant provisions of the Copyright Law. While both of these laws grant similar protection to computer programs, the Law on Copyright is broader in scope than the Law on Protection of Computer Programs and Databases in the following aspects:

- (1) The Copyright Law brings computer programs under the heading of "literary works," thus eliminating any uncertainty regarding the level of software copyright protection.⁵⁹
- (2) The Copyright Law makes clear that the possibility of reproducing a copyrighted work for personal use (which is allowed with respect to literary works) does not apply to computer programs.⁶⁰ However, the exceptions of making backup copies, loading the computer program on a hard drive, adapting it for use on a specific computer, and reverse engineering still apply.
- (3) The Copyright Law provides for the regulation of so-called "shrinkwrap" license agreements used in the mass distribution of computer programs.⁶¹ Such agreements generally express the user's acceptance of the terms of the agreement by opening the shrinkwrap packaging or by use of the computer program.
- (4) The Copyright Law expands the courts' remedies for imposing penalties for infringement. For example, the new Copyright Law authorizes the court to issue an injunction ordering an infringer to abstain from illegal activity.⁶²
- (5) The Law on Copyright provides for the formation of nonprofit independent non-government organizations founded by authors themselves to oversee and regulate copyright transactions. In accordance with this legislative norm, President Yeltsin issued a decree

dissolving the Russian Intellectual Property Agency (RAIS) and authorizing the establishment of the Russian Authors' Society (RAO).

Thus, the new copyright legislation has met the prerequisite level of protection necessary to accede to the Berne Convention. The new laws broaden Russia's participation in international trade by opening trade relations with more than eighty other member nations.⁶³ Enhancing copyright protection of computer programs and databases clearly encourages foreign investments in the Russian economy and provides Russian domestic businesses with greater access to new technology.

V. The New Russian Law on Trademarks and Service Marks

The Russian law "On Trademarks, Service Marks, and Names of Places of Origin of Goods" was adopted by the Supreme Soviet of the Russian Federation on September 23, 1992.⁶⁴ Trademarks and service marks are recognized by the Law as marketing instruments capable of distinguishing the respective goods and services of companies from those of the same type provided by other companies.⁶⁵ There are different types of trademarks recognized by Russian laws: verbal, pictorial, and dimensional, as well as combinations of these and other designations.⁶⁶ Under the name of the place of origin of goods, the law protects the name of the country, locality, or other geographic region used to designate goods whose special properties are exclusively or principally determined by natural conditions or human factors characteristic of the particular geographic district or by natural conditions and human factors simultaneously.⁶⁷

The legal protection of a trademark in the Russian Federation requires official registration⁶⁸ and the issuance of a certificate for a trademark, which attests the priority date of the trademark and the owner's exclusive rights to use and dispose of the trademark, as well as to prohibit the use thereof by other persons.⁶⁹ Therefore, no right may be acquired without registration of a trademark. Thus, simply the use of unregistered trademarks on the territory of the Russian Federation does not imply any legal protection or even priority position with regard to the trademark. Under the registration principle established by the Russian Law on Trademarks, only an official registration provides the trademark with the regime of legal recognition. However, according to the Russian Law on Trademarks, which conforms to the Paris Convention, the so-called "well-known" or "notorious" marks of foreign origin unregistered in Russia are still protected in Russia by virtue of international treaties to which the Russian Federation is a party.⁷⁰ Therefore, although it is always advisable to register trademarks, in order to determine whether the unregistered foreign trademark is protected in Russia one has to analyze the international treaties and bilateral agreements between Russia and the country of the possessor of the trademark. As for Russian trademarks, they should always be registered with the State Patent Department of the Russian Federation.

The Law on Trademarks explicitly precludes registration of the following marks: designations which do not possess a distinguishing capacity; state flags and emblems; official names of states; abbreviated or full names of international inter-governmental organizations; official control, guarantee, assay marks, seals, awards, and other marks of distinction;

names which have entered into general use as designations for goods of a particular type; and generally accepted symbols and terms.⁷¹ In addition, the registration of designations as trademarks is not permitted if they are false or are capable of misleading the consumer with respect to the manufacturer of the goods or if they are contrary to social interest and principles of humanity and morality.⁷²

The legal protection in the Russian Federation of the name of the place of origin of a good also arises on the basis of official registration, which ends up with issuance of a certificate, or by virtue of international treaties of the Russian Federation.⁷³ However, since the Russian Federation is not yet a member of the Lisbon Agreement, protection of the rights of foreigners in the Russian Federation is effectuated under the principle of reciprocity; that is, the rights of foreigners in Russia are protected to the same extent as those of Russian citizens or entities in the corresponding foreign countries.⁷⁴

Applications for both trademark and the name of the place of origin of goods are subject to expert examination.⁷⁵ The decision of the experts is appealable to the Chamber of Appeals of the Patent Department and the Supreme Patent Chamber of the Russian Federation.⁷⁶ The decision of the Supreme Patent Chamber is then final.⁷⁷ The registration of the trademark and the name of the place of origin operates for ten years, calculated from the date the application was received.⁷⁸ The information relating to registration is published and available to the public.⁷⁹ Various civil and criminal sanctions are established for violating the substantive rights of others under the provisions of the Law on Trademarks.⁸⁰ Disputes regarding violation of the exclusive right to a trademark or illegal use of the name of the place of origin, as well as all disputes involving intellectual property, fall under the jurisdiction of both the Russian arbitration courts (arbitrazh) and the people's courts.⁸¹

VI. Recommendations

With the collapse of the Soviet Union, Russian lawmakers have managed to remedy most of the problems of protecting intellectual property rights. It is fair to say that the modern Russian intellectual property laws provide adequate protection of the interests and rights of foreign investors doing business in Russia. However, residual problems arising from previous legislation and undeveloped enforcement mechanisms weaken the practical protection and therefore create various obstacles to foreign participation in joint ventures with Russian partners. Moreover, in light of frequently changing legislation and flourishing corruption among Russian officials, it is irrational to rely exclusively on the letter of the law in protecting one's rights. Instead, self-help measures might be more practical.

There are some general recommended self-help measures which can enhance the protection of intellectual property rights in Russia. First, the emphasis on protecting one's intellectual property rights should shift from the legislative level to the individual level with strong contractual provisions. It is much easier to resolve all ambiguities between the parties at the negotiation stage than to rely on the default rules provided by legislation for the resolution of disputes. Contractual provisions should not only clarify the parties' mutual rights and obligations, but provide guarantees for enforcement of such rights and remedies in

the case of a breach of contract. For instance, providing for liquidated damages in the contract is a more feasible and practical alternative to legislative sanctions.

Second, as some commentators have observed, until effective enforcement mechanisms become a reality in Russia, a strong presence in the Russian market is often the critical factor. A “presence” can be established through franchise or exclusive dealership-distribution systems. Although a foreign company may be able to protect its rights abroad, it is much easier for its franchisees and dealers located inside Russia to identify and thwart infringement of the company’s intellectual property rights in the country, as well as to represent the company in Russian judicial and administrative infringement proceedings.⁸²

Third, to limit potential infringement of intellectual property rights, foreign businesspeople should avoid or minimize distribution of especially sensitive products. To narrow the circle of individuals having access to sensitive information, one should segregate license provisions (containing a substantial amount of technical information) from primary joint ventures or technology transfer contracts, as well as from any other contracts between the parties. Moreover, due to the corruption of state officials, foreign businesspersons should disclose the minimum information necessary to government patent agencies and arbitration courts. In certain situations it may be better not to register an intellectual product, such as a computer program, rather than risk subjecting the product to potential abuses by government officials.

Finally, there are several practical suggestions regarding how a U.S. investor should behave while doing business in Russia. First, for cultural reasons, one should treat a Russian partner equally. Indeed, very often concern about equal distribution of profits is much more the issue for a Russian negotiator (who is afraid he will not be treated fairly) than anything else. Second, it is always wise to establish good personal relations with the key persons on the Russian side of the partnership. If possible, involve Russians on your side when negotiating with other Russians. Third, documents speak louder than words. Try to put everything in writing. Fourth, the support of local municipalities is always helpful and should never be ignored. One should establish amicable relations with the local authorities in order to avoid unnecessary obstacles in the future.

Finally, foreign companies should supplement these basic precautions with professional legal advice. Despite the tremendous legislative advances detailed in this chapter, the Russian market continues to undergo rapid change. This market still operates according to unwritten principles that frequently contradict those recently legislated. Competent legal counsel can provide timely insight and ensure a higher probability of success for foreign companies doing business in Russia.

Notes

¹ It has been estimated that intellectual property accounted for 25 percent of U.S. exports in 1991, up from 12 percent in 1983. Register of Copyright Ralph Omann’s Address to the Atlanta Meeting of the Patent, Trademark and Copyright Section of the American Bar Association, 42 BNA PATENT, TRADEMARK & COPYRIGHT JOURNAL 427 (Aug. 30, 1991). The copyright sector of the U.S. industry alone accounted for more than \$206 billion in U.S. revenues, or 36 percent of the U.S. Gross Domestic

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Product. Between 1977 and 1991, this sector (the movie, software, music, and book industries) grew at 4.2 percent whereas the overall growth rate of the U.S. economy was 1.5 percent. Kim Newby, *The Effectiveness of Special 301 In Creating Long Term Copyright Protection For U.S. Companies Overseas*, 21 SYRACUSE J. INT'L L. & COMP. 29 (1995).

² Raymond Damadian, *Viewpoints*, *NEWSDAY*, Nov. 29, 1995, available in Westlaw, ALLNEWS Database (1995 WL 5128525). Intellectual property is, in fact, the second largest U.S. export. Orrin G. Hatch, *Extending Copyright Protections*, State Judicial Committee Hearing On S. 483, *The Copyright Term Extension Act of 1995*, Sept. 20, 1995, available in Westlaw, ALLNEWS Database (1995 WL 10524349).

³ Rhea Wessel Zollo, *Law Enforcers Discuss Battle Against Surging Video Piracy*, *THE VANCOUVER SUN*, Nov. 17, 1995, at C7, available in Westlaw, ALLNEWS Database (1995 WL 3535553).

⁴ John T. Masterson, Jr., *Protection of Intellectual Property Rights in International Transactions*, 863 PRACTICING LAW INSTITUTE 333 (Oct. 1994); See also Frank Emmert, *Intellectual Property in the Uruguay Round—Negotiating Strategies of the Western Industrial Countries*, 11 Mich.J.Int'l L. 1317, 1325 (1990). According to the International Intellectual Property Alliance (IIPA), losses from copyright piracy in 1992 alone were estimated at \$12–15 billion USD. Philip H. Lam, *Copyright Protection of Foreign Computer Software in the Peoples's Republic of China: Significant Progress in Two Years*, 17 LOY. L.A. INT'L & COMP. L.J. 861, 862 (1995). According to other sources, software companies alone lost an estimated \$15.2 billion USD worldwide in 1994 as a result of software piracy. *Counterfeit Software: FBI Nabs Suspected Autocad Software Counterfeiter; Second Major \$1 Million Criminal Prosecution In Two Months*, *EDGE: WORK-GROUP COMPUTING REPORT*, Dec. 25, 1995, available in Westlaw, ALLNEWS Database (1995 WL 13722278).

⁵ See *U.S. Companies Call for Action Against 35 Nations*, 4 JOURNAL OF PROPERTY RIGHTS 41 (Apr. 1994), available in Westlaw, TP-ALL Database. According to The International Intellectual Property Alliance (IIPA), the U.S. copyright industries alone lost \$805 million due to piracy in Russia in 1994. *News in Brief*, 20 BP REPORT, June 26, 1995, available in Westlaw, ALLNEWS Database (1995 WL 8066062). See also Sue Kendall, *US Industry Wants Action Against Asian, European Copyright Pirates*, *AGENCE FRANCE-PRESSE*, Feb. 13, 1995, available in Westlaw, ALLNEWS Database (1995 WL 7758839).

⁶ See e.g., Edmund W. Kitch, *The Nature and Functions of the Patent System*, 20 J.L. & ECON. 265 (1977).

⁷ *Polozhenie ob Otkrytiakh, Izobreneniakh i Ratsionalizatorskikh Predlozheniakh*, art. 27, para 1, affirmed by Decree of the Council of Ministers of the USSR on August 21, 1973, 19 SOBR. POST., item 109 (1973), also available in 10 VOPROSY IZOBRETATEL'STVA 55 (1973).

⁸ *Id.*

⁹ About ten thousand foreigners hold patents obtained in the former Soviet Union. Most of them applied for and registered patents to protect their products and technology licensed or sold to Soviet entities. See e.g., Iosife Mamiofa, *The Draft of a New Soviet Patent Law*, 1 EIPR 21 (Jan. 1990).

¹⁰ See Decree of 1973, arts. 136–141, *supra* note 8.

¹¹ Art. 5, *id.*

¹² Art. 9, *id.*

¹³ Art. 155, *id.*

¹⁴ Art. 144, *id.*

¹⁵ See e.g., Iu. E. Maksarev, *Torzhestvo Leninskikh Printsipov*, 1 VOPROSY IZOBRETATEL'STVA 5 (1974).

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¹⁶ See e.g., Andrei A. Baev, *Civil Law and the Transformation of State Property in Post-Socialist Economies: Alternatives to Privatization*, 21(1) *UCLA PACIFIC BASIN LAW JOURNAL* 131 (1993).

¹⁷ *Zakon Rossiiskoi Federatsii O privatizatsii gosudarstvennykh i munitsipal'nykh predpriatii v Rossiiskoi Federatsii*, adopted on July 3, 1991, No. 1531-1, art. 18, para 2, in *PRIVATIZATSIIA GOSUDARSTVENNYKH I MUNITSIPAL'NYKH PREDPRIATII V ROSSII* 5, 26 (Respublika ed, 1992).

¹⁸ *Patentnyi Zakon Rossiiskoi Federatsii* [Patent Law of the Russian Federation], adopted on September 23, 1992, 42 *VSND I VS RF*, item 2319 (1992), translated in W.E. BUTLER, ET AL., *INTELLECTUAL PROPERTY IN THE RUSSIAN FEDERATION* 86 (Interlist ed., 1994).

¹⁹ See e.g., Mark Douma, Rudolph Chistyakov, *The First Patent Law of the Russian Federation*, 1 *U.BALT.INTELL. PROP. L.J.* 162, 166 (Spring, 1993).

²⁰ *Patent Law of the Russian Federation*, art. 4, para 3, *supra* note 20.

²¹ *Id.*, Art. 5, para 2.

²² A utility model is sufficiently novel to be certified if the totality or aggregate of its essential features is unknown from prior art. Moreover, novelty is assessed on the basis of both worldwide publication and the local use or application of such information within the Russian Federation. *Id.*, art. 5, para 1.

²³ *Id.*, Art. 23, para 1. The main purpose of the utility model certificates is to establish the priority of filing, rather than confirm the level of inventiveness and novelty of the discovery. Nonetheless, in order to protect itself against future disputes, the applicant has an option of requesting an informational search which will provide the patent judge with valuable evidence of the strength of the utility model. *Id.* art. 23, para 3.

²⁴ *Id.*, art. 6, para 1.

²⁵ *Id.*, art. 6, para 1.

²⁶ *Id.*, art. 16, para 2.

²⁷ *Id.*, art. 21, para 1.

²⁸ John T. Masterson, Jr., *supra* note 5, at 333.

²⁹ *Patent Law of the Russian Federation*, art. 10, para 7, *supra* note 20.

³⁰ *Id.*, art. 13, para 2.

³¹ *Id.*, art. 7, para 2.

³² *Id.*, art. 36.

³³ *Id.*, art. 37.

³⁴ Douma, *supra* note 21, at 174.

³⁵ The Russian Patent Law is similar to that of the European Patent Convention (EPC).

³⁶ The Law of the Russian Federation "On Copyright and Neighboring Rights," which became effective on August 3, 1993, the day of its first official publication. Published in 32 *VEDOMOSTI SND RF*, item 1242 (1993), sometimes translated as *The Law on Authors' and Neighboring Rights*, see e.g., BUTLER, ET AL., *supra* note 18, at 11.

³⁷ See Michiel Elst, *The Rehabilitation of Copyright in the Russian Federation*, in *INTELLECTUAL PROPERTY IN THE RUSSIAN FEDERATION* 127 (Bruylant ed., 1994).

³⁸ *The Law On Copyright and Neighboring Rights*, Art. 6, para 2, translated in BUTLER, ET AL., *supra* note 20, at 11.

³⁹ *Id.*, art. 7, para 2.

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⁴⁰ See *id.*, arts. 5 and 13.

⁴¹ See e.g., Rosalind M. Parker, *Protecting Television Programming in Russia, China, Taiwan, and Japan*, 17 *HASTINGS COMMUNICATION AND ENTERTAINMENT LAW JOURNAL* 445, 449 (Winter, 1995).

⁴² The Law of the Russian Federation on Copyright and Neighboring Rights, art. 36, para 4, *supra* note 37.

⁴³ *Id.*, art. 35, para 3.

⁴⁴ *Id.*, art. 4.

⁴⁵ Although the “right of withdrawal” is recognized by Russian law, its practical applicability is ambiguous. There are no judicial precedents on the point yet.

⁴⁶ The Law of the Russian Federation on Copyright and Neighboring Rights, art. 15, *supra* note 37.

⁴⁷ Art. 15, para 3.

⁴⁸ See Ukaz Prezidenta Rossiiskoi Federatsii “O gosudarstvennoi politike v oblasti okhrany avtorskogo prava i smezhnykh prav,” issued on October 7, 1993, *ROSSIISKAIA GAZETA*, Oct. 14, 1993. See also Rasporiazhenie Prezidenta Rossiiskoi Federatsii “Voprosy prisoedeneniia Rossiiskoi Federatsii k riadu mezhdunarodnykh konvetsii v oblasti okhrany avtorskikh prav,” issued on March 25, 1994, 13 *SAPP RF*, item 1020 (1994).

⁴⁹ *Zakon Rossiiskoi Federatsii “O Pravovoi Okhrane Programm Dlia Elektronnykh Vychislitel’nikh Mashin i Baz Danykh,”* 42 *VSND I VS RF*, item 2325 (1992), translated in *BUTLER ET AL.*, *supra* note 18, at 126; *Zakon Rossiiskoi Federatsii “O Pravovoi Okhrane Topologii Integral’nykh Mikroskhem,”* 42 *VSND I VS RF*, item 2328 (1992), translated in *BUTLER ET AL.*, *supra* note 20, at 141.

⁵⁰ See e.g., Mattis et al., *Russia Passes Software Copyright Law*, 4 No. 8 *J. PROPRIETARY RTS.* 37 (Aug. 1992), available in Westlaw; Laurie Hays, *Microsoft Urges Russian Software Bootleggers: Join Us*, *THE WALL STREET JOURNAL*, May 18, 1993, at B4.

⁵¹ *Zakon Rossiiskoi Federatsii “O Pravovoi Okhrane Programm Dlia Elektronnykh Vychislitel’nikh Mashin i Baz Danykh,”* art.2, para 2, *supra* note 50. See also the United States-Russian Agreement on Trade Relations, approved by the Supreme Soviet of the Russian Federation on June 12, 1992, *DELOVOI MIR* 161 (1992).

⁵² *Zakon Rossiiskoi Federatsii “O Pravovoi Okhrane Programm Dlia Elektronnykh Arts.Vychislitel’nikh Mashin i Baz Danykh,”* arts. 9, 10, *supra* note 50.

⁵³ *Id.*, art. 18.

⁵⁴ Computer programs and databases can be registered in the Russian Agency on Legal Protection of Computer Programs, Databases and Integrated Circuit Layouts, which was specially established for these purposes. See *Pravila registratsii dogovora na programmy dlia electronnykh vychislitel’nikh mashin, bazy dannikh i topologii integral’nikh mikroskhem*, 3–4 *I.S.* 45–46, 58–59 (1993).

⁵⁵ *Zakon Rossiiskoi Federatsii O Pravovoi Okhrane Programm Dlia Elektronnykh Vychislitel’nikh Mashin i Baz Danykh*, art 15, para 3 (ii), *supra* note 50.

⁵⁶ Art. 15, *id.*

⁵⁷ OJ, Art. 6, May 17, 1992, L 122/42.

⁵⁸ *Zakon Rossiiskoi Federatsii “Ob Avtorskom Prave i Smeznykh Pravakh,”* 32 *VSND I VS RF*, item 1242 (July 9, 1993), published in *ROSSIISKAIA GAZETA*, Aug. 3, 1993, at 4–6, translated in *BUTLER ET AL.*, *supra* note 20, at 11.

⁵⁹ *Id.*, art. 7.

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⁶⁰ Id., art. 18, para 2.

⁶¹ Id., art. 32.

⁶² Id., art. 50, para 1.

⁶³ See Monica B. Vermeer, A New Era in Russian Copyright Law: Protecting Computer Software in the Post-Soviet Russian Federation, 5 *TRANSNAT'L L. & CONTEMP. PROBS.* 147, 169 (1995).

⁶⁴ 42 *VEDOMOSTI SND RF*, item 2322 (1992), translated in *BUTLER ET AL.*, supra note 20, at 56.

⁶⁵ Id., Art. 1.

⁶⁶ Id., art. 5.

⁶⁷ Id., art. 30.

⁶⁸ Id., art. 3, 4.

⁶⁹ Id., art. 2.

⁷⁰ Id., art 9.

⁷¹ Id., art. 6, para 1.

⁷² Id., art. 6, para 2.

⁷³ Id., art. 31.

⁷⁴ Id., 47.

⁷⁵ Id., art. 11, 12, 33.

⁷⁶ Id., arts. 13 and 34.

⁷⁷ Id., arts. 13, para 2; 34, para 2.

⁷⁸ Id., 16, 36.

⁷⁹ Id., arts. 18 and 38.

⁸⁰ Id., art. 46.

⁸¹ Id., art. 45.

⁸² See e.g., Judith Robinson, Protecting Intellectual Property in Russia, *BISNIS BULLETIN* 2 (Aug. 1995).

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Effects of Crime and Corruption on U.S. Cooperative Ventures in Russia

Elaine K. Wai

I. Introduction

U.S. companies cite different reasons for eschewing investment in Russia. Many are deterred by the rampant crime and corruption¹ in Russia and the inability or unwillingness of the Russian government to enforce crime legislation and thereby provide a stable environment for Western businesses and investment. Corrupt and criminal activities in Russia range from bribery and exorbitant and inconsistent tax collection to contract killings. Each adds greatly to the costs of doing business there.

Because Russia's current legislation relating to business or investment in Russia is generally ambiguous and prohibitive to Western investment, some of it may actually encourage corruption. Individuals and businesses seeking ways to exist and compete in this environment may attempt to avoid compliance. Likewise, crime legislation is often unenforced, and therefore lacks credibility.

Some observers locate the roots of corruption and crime in Russia in the norms and values of the Soviet system. Others attribute its rise to the breakup of the Soviet Union and the lack of legal and financial infrastructure to support Russia's turbulent transition to a market economy. Criminal groups have moved into the vacuum created by collapsed state institutions and created their own rules and services for conducting business in Russia.

Data for this report were gathered from interviews conducted with several U.S. and Russian companies over the past few years.² Since the data are anecdotal, it is difficult to

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quantitatively measure the effects of corruption on U.S. investment in Russia. The data may include perceptions on the part of the companies, secondhand knowledge, and actual events. Because of the potential risks to the company or enterprise, only a few companies shared how crime or corruption has affected their ventures. Several companies did not discuss this aspect of their business, and several were apparently not aware of how corruption may be affecting their ventures. In some cases, the Russian enterprise is the only party that has contact with criminal elements, and it may choose to protect its Western partner by not disclosing its involvement with criminal groups.

II. Types of Crime and Corruption in Business

There are several ways that crime and corruption manifest themselves in the business sector in Russia today. Corruption exists in the form of officials charging exorbitant and inconsistent taxes on retail items, and organizations and individuals involved in tax evasion, extortion, kickbacks, and bribery. Bribery has become more prevalent in Russia during the transition to the market economy as more and more people scramble for the valuable resources and property available in the new economy. Bribery is also evident within defense-related sectors, in which companies compete fiercely for a relatively small number of highly valued contracts which require government approval. In one year alone, government officials and bureaucrats took an estimated \$100 billion in bribes and other forms of illegal income.³ Employees of Western companies operating in Russia speak of a system in which it is difficult to know who is corrupt and who is not.

Crime also surfaces as acts committed by criminal groups, or the mafia,⁴ that control portions of the economy and engage in such activities as money laundering and demanding bribes for security services or protection from other groups. Organized crime existed in the Soviet era, although it was largely muted during Stalin's regime.⁵ Organized crime is on the rise in Russia. There were reported to be eight thousand organized criminal groups in Russia as of summer 1996.⁶ Crime groups are reported to have a hold on forty thousand economic organizations;⁷ several mafia groups also control the majority of assets in sectors such as real estate, transportation, oil/gas, and consumer goods. More than seventy percent of Russian enterprises are reported to be paying protection money,⁸ and criminal groups are widely believed to have control of more than five hundred banks in Russia.

Companies doing business in Russia have reported thefts of their technology and equipment and of their money during wire transfers through banks. Some of the companies interviewed in this study reported that employees of their Russian counterparts had been harassed and beaten by members of crime groups. One recalled the murder of an employee of its Russian partner. Western businesspeople have themselves been the victims of violent crime. Paul Tatum, an American who headed the Radisson Slavyanskaya hotel in Moscow, was gunned down in November 1996 at a metro station in Moscow, and one month later Richard Watson, the director of a small computer company, was killed in London, allegedly by the mafia. His murder has been linked to his business dealings in Russia. Similar killings have been as a result of the victims' debt or "questionable business practices."⁹

III. The Cost of Doing Business in Russia

The total amount of foreign investment in Russia today is \$11 billion, of which \$2.5–4 billion comes from the United States.¹⁰ Foreign investment in China, in comparison, reportedly totals \$172 billion, with \$6.5 billion from the United States.¹¹ The relatively low amount of foreign investment in Russia may stem in part from foreign investors' fear of investing in a country that is riddled with corruption and run by a government seemingly powerless to stop it. In a survey conducted in December 1995 for the Control Risks Group, major U.S. companies expressed the belief that business risks in Russia outweigh opportunities there.¹² Foreign companies are discouraged from investing in Russia because of the pervasive criminal activity, the corruption of government officials, banks, and financial institutions, and Russia's unstable government. Many U.S. companies believe corruption to be essentially a tax on business ventures there.

Because of the threats to their venture's employees and assets, companies often must obtain protection in the form of a security service. The price for this service is both a direct and an indirect cost, as the foreign company runs the risk of the security service being involved in the mafia. Western businesspeople report being visited by members of gangs who demand a stake in their venture through payment for a *krysha*, or "roof," of protection.¹³ This would allow the enterprise to be protected from either rival gangs or criminals, and can cost as much as 20 percent of the company's gross revenue. One account lists the cost of such a service as \$100,000 per year.¹⁴ This payment is viewed as a "typical off-the-books expense" for American companies doing business in Russia.¹⁵ In Moscow, according one report, "every business employs a *krysha* and sometimes it is the same as the local police force."¹⁶ "Some U.S. companies in our research have mentioned or alluded to the existence of such a payment by their venture. In many cases, it appears that the Russian company takes care of this payment without the American company's knowledge; therefore, it may be a more common occurrence than is reported.

Organized crime elements may also attempt to gain control of a company by investing in its assets and thus influencing its decisions.¹⁷ One mafia group reportedly controlled 25 percent of a company's shares.¹⁸ The mafia is more interested in the actual revenue of a business than its profits, and may demand 10–20 percent of the gross revenue,¹⁹ or up to 30 percent of monthly profits.²⁰

Exorbitant and often arbitrary taxes imposed on the company or venture are the greatest cost of doing business in Russia. Some U.S. companies argue that taxes on their ventures in Russia, as well as customs duties on imported goods, are so high and inconsistent that they often outweigh any profit that might come from the venture, particularly if the venture is hardware-intensive. Because individual customs officials charge different rates, companies often must spend valuable time negotiating with each for the most favorable rate. Customs duties on incoming equipment have been reported to be as much as 200 percent of the price of the equipment. This is especially onerous for small companies engaged primarily in research and development, as they depend greatly on equipment such as computer hardware for the activities of their ventures. There have been reports of companies circumventing the arbitrary taxes through organizations that are formed to handle these accounts.

Because businesses must contend with the various costs that crime and corruption impose on their activities, legitimate Russian tax authorities have difficulty collecting legitimate, albeit high, taxes. The books of Russian companies probably do not accurately reflect the amount of tax paid because of the protection payments and other costs they are unwilling to report. However, the exorbitant taxes charged to U.S. companies operating in Russia are an almost guaranteed source of income for the Russian government because U.S. laws and regulations penalize U.S. companies for corrupt business practices abroad—such as giving bribes or paying for services that are not included on the books. The U.S. Foreign Corrupt Practices Act (FCPA) “forbids U.S. companies from paying bribes to foreign government officials, directly or indirectly, for favored treatment in the award of contracts or other business opportunities.” Russian legislation prohibiting bribes is difficult to enforce. U.S. companies find they are at a substantial disadvantage when competing in Russia with companies from other countries that are not bound by similar legislation, and, in some cases, are even rewarded by their country’s government in the form of a tax break for “questionable payments.”²¹

IV. Causes of Crime and Corruption in Russia

A. The “Shadow Economy”

The breakup of the Soviet Union, and in particular the breakdown of the command economy, led to disarray in the legal system. The system in place to address crime and corruption was inadequate for the amount and variety of crime occurring in Russia. In addition, the transition to a market economy, especially privatization, made more assets vulnerable to criminal operations. The collapse of the Soviet Union revealed a legal infrastructure with gaps in the legislation governing business, as well as an overall lack of enforcement of criminal laws. The transition also encouraged the expansion of the preexisting underground economy built largely by the elements of corruption and crime. A new legal structure is still in the process of formation.

With Russia’s weak economic and legal system, some scholars argue that corruption is a link that is holding Russia’s economy together. They claim that the mafia acts as a sort of “shadow economy.”²² A characteristic of a shadow, or gray, economy is that legitimate transactions occur without being reported in order to avoid taxation. First Deputy Minister of the Economy Yakov Urinson has stated that 25 percent of Russia’s industrial output in 1996 was hidden from tax authorities, compared to 18–20 percent in 1995. This shadow economy is estimated to amount to 40 percent of Russia’s GDP.²³ In comparison, this figure is at least 30 percent higher than that reported for developed Western countries.²⁴

This suggests that these criminal groups—in their act of making order out of chaos—have created a pseudo-structure for Russia, or an organized system in which both criminals and law-abiding citizens act. This structure has been flourishing because of the inability of the Russian government to control credit operations and to identify and punish corrupt

officials within financial and credit institutions. Crime groups are even reported to have their own tax and administrative systems and security services.²⁵

Much of the revenue of this “shadow economy” is capital that is not being funneled back into the Russian economy but rather is sent abroad to foreign banks. It has been estimated that \$300 billion has been taken out of the country; much of it leaves “illegally and untaxed.”²⁶

B. Corruption Rooted in Russia’s Soviet Legacy

Differences between U.S. and Russian approaches to business are partially a result of the historical legacy of the Soviet system and its accepted norms and values. Corruption was prevalent under the Communist regime. Marshall Goldman, in a January 1996 article in *Challenge*, argues that the practice of “cheating the state” became socially, politically, and morally correct during the Brezhnev era. Doing business off the record, providing extra bonuses, and “taking care of one another” was the accepted mode of conducting business, and restrictive Soviet laws made many activities, including self-employment and “moonlighting,” into criminal acts.²⁷ Party officials also engaged in corrupt practices, although in the interest of Party loyalty they hid their actions from senior officials.²⁸ Some scholars argue that corruption was a by-product of the Soviet government’s inability or unwillingness to supply adequate and necessary goods for the population; other means were therefore necessary to procure them, and the underground economy flourished.²⁹

These practices continue today, but are not relegated to the underground economy. The difference today is that crime has become more violent and widespread with the opening of markets and the breakdown of the Communist regime. Bribery and other, more serious, crimes plague Russia’s market economy. While it is difficult to gauge the extent of corruption within the various agencies and ministries of the Russian government, there is speculation that several ministries are especially tainted. For instance, after only a portion of the 1996 defense budget was submitted for review by the Parliament, Duma officials launched an investigation into whether some of the money was diverted by commercial banks to certain ministry officials and therefore was not used for its intended purpose of military salaries.³⁰

The business cultures of the United States and Russia differ in important ways. The American business system is incentive-based. The Russian business system is not, and because of its lack of control over the economy and lack of capital the government is not able to compensate for the lack of private incentives. The business culture of the United States dictates strict adherence to business guidelines and laws. U.S. companies have been frustrated to find that this is not the case in Russia, and moreover that the Russian government has little will to enforce existing laws. Because of this, U.S. companies are at a disadvantage in Russia in relation to foreign competitors with similarly relaxed business ethics. Competition is difficult in an environment where not everyone is playing by the same rules.

Russian companies often must confront issues that, while viewed as improper in the United States, may determine the success and even continuation of their business. In order to conduct business in Russia, some U.S. companies have been rumored to have made arrangements for payments, often in cash, to their Russian partner that had to be creatively executed

in order to avoid excessive government taxes. This practice was viewed as a means to circumvent the lack of legal and financial infrastructure and the untrustworthy Russian banks. Some U.S. companies have reported that in the beginning of their venture the only way to pay their employees was to have someone bring the money over in a suitcase, since wire transfers were unreliable at best and the banks often “lost” the money or charged exorbitant rates to transfer it to the company.

C. Existing Russian Legislation Fuels Corruption within Business

Russian legislation addressing crime and corruption has existed since the adoption of the Criminal Code of 1960, though it did not directly address organized crime.³¹ The 1960 Code was established for the Soviet system and was therefore not designed to protect a market system. Several practices, including money laundering and the refusal of enterprises to repay debts, were not addressed by the code, and therefore not considered to be corrupt or punishable by law. While the Russian government encouraged Russians to employ market economic practices, leftover Soviet legislation continued to ban much of their economic activity.³² Russian officials argue that the Criminal Code has always contained legislation on crime and corruption, though enforcement was not always possible. Even recent legislation, such as Yeltsin’s decree of December 14, 1996 allowing the state police to search for tax offenders and to reward the police with a portion of the proceeds,³³ is seen as practically impossible to enforce since it potentially may target the majority of the population with exorbitant taxes. Some flaws in the Code of 1960 have been addressed in the new Criminal Code, which has been under discussion since 1992 and was signed into law on January 1, 1997.³⁴ One of these changes is an article instituting fines as punishment rather than imprisonment, a remedy to unburden the overcrowded, underfunded prisons. In general, the new code levies harsher fines as punishments for repeated offenders of economic crimes, and addresses money laundering and tax evasion. Trademark infringements and breaches of copyright are included in this new code and punishment for them is outlined. The new code also includes the first mention of punishment for bribery among commercial organizations. Despite these provisions, critics and officials agree that some of the key wording is not adequately defined and thus enforcement will continue to be difficult.³⁵ For example, money laundering by an organization on a “large scale” is a punishable offense under the new code, but “a large scale” is not defined. And, the new code does not apply to everyone. Duma deputies, prosecutors, and judges are exempt from prosecution, and only certain other government officeholders may be prosecuted.³⁶

The real weakness in Russia’s struggle against crime, however, is the lack of enforcement. Enforcement is the responsibility of the police units under the Ministry of Internal Affairs, which are understaffed, underpaid, and believed to often accept bribes themselves. Because of their inability to adequately enforce the legislation, crime is left virtually unchecked.

V. Conclusion

Some scholars and U.S. and Russian company employees argue that the amount of crime and corruption has been exaggerated by Western media and that the effect of corruption on Western businesses in Russia is evident only in a few cases. While some of the U.S. companies in our study have encountered obstacles that delay or hinder their work in Russia, few have attributed major setbacks in their ventures to criminal elements. It is possible that the company is exercising its right not to disclose this information in order to protect its venture, or, as mentioned earlier, it may be unaware of the presence of criminal influence. Some companies operate in Russia only on a cash basis and therefore shun exposure in the media. Likewise, Russian companies avoid publicity in Russia for fear of being targeted by crime groups. Most of the high-technology companies we interviewed have not been greatly affected by corruption in their day-to-day activities. Statistics have shown, moreover, that the majority of activities involving criminal gangs occur in sectors where large amounts of capital are involved, such as banking, the oil/gas and other natural resources sectors, credit and banking, export-import, transport, real estate, and consumer goods,³⁷ and not in the high-technology sector, where research and development is the primary business and there is a relatively low level of return.

Corruption and crime have had numerous deleterious effects on the Russian economy and on foreign investment there. Capital that leaves the country due to corruption cannot be reinvested into the economy. U.S. companies have expressed their frustrations with a system in which customs duties change daily, a maze of arbitrary rules governs how business is conducted, and both the assets and personnel of ventures must be continually safeguarded against crime. The lack of clear, comprehensive, and consistent legislation exacerbates the situation, as do inadequate enforcement mechanisms and corrupt government officials and agencies.

Crime and corruption are not new phenomena in Russia, however. Their roots are largely located in the norms formed in reaction to Soviet rule, and as such it is unrealistic to expect their rapid eradication. Rather, it is hoped that ongoing legal and economic reforms will build a foundation to supplant that created by criminal groups, and improve the climate for foreign investment in Russia.

Notes

¹ In this chapter crime refers to illegal acts or practices, and corruption refers to the departure from moral practices to commit acts of an unlawful nature such as bribery.

² Several interviews have been conducted over the period 1994–1996 with a larger sample of companies than is represented in this report. The data included in this chapter is from this broader sample and does not necessarily include the companies discussed elsewhere in this report.

³ Federal News Service, Prepared Statement by Ed Royce, U.S. Representative before the House Committee on International Relations, Global Organized Crime Hearing, January 31, 1996.

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⁴ For purposes of this paper, mafia is used to describe any organized crime group. No distinction is made herein between crime groups of different levels and organizations.

⁵ Marshall I. Goldman, "Why Is the Mafia So Dominant in Russia?" *Challenge*. January 1996.

⁶ Toby Latta, "Russia: Comrades in Crime," *Director* 50, no. 6 (January 1997), 22.

⁷ Sergei Boskholov, "Organized Crime and Corruption in Russia," *Demokratizatsiya* 3, no. 3 (Summer 1995) 270.

⁸ "Battling Corruption." *Journal of Commerce*, December 26, 1996, p. 6A.

⁹ Seymour Hersh. "The Wild East: Organized Crime in Russia," *The Atlantic* 273, no. 6 (June 1994), 61.

¹⁰ Foreign Investment in Russia Hits \$11Bln—Official," Reuters Financial Service, Money Report, January 27, 1997.

¹¹ Document of the U.S. Department of Commerce, International Trade Administration, AsiaBusiness Center. January 10, 1997.

¹² Guy Dunn. "Know Thy Partner," *Infrastructure Finance*, April 1996.

¹³ For a detailed description of the krysha in Russia, see Vladimir Shlapentokh, "Russia: Privatization and Illegalization of Social and Political Life," *The Washington Quarterly* 19 (Winter 1996) 1, 65.

¹⁴ Paul Klebnikov. "Moscow Cowboys," *Forbes* (December 16, 1996), p. 78.

¹⁵ "Swell of Criminal Activity Engulfing Russia Is Growing Deeper," *Houston Chronicle* November 24, 1996, Section A, p. 31.

¹⁶ David Hoffman. "The Man Who Rebuilt Moscow," *The Washington Post*. February 24, 1997. Section A, p.1.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ "'Frightened to Death,' but Still Doing Business in Russia," *USA Today* (November 20, 1996) p. 4A.

²¹ Lucinda A. Low and Kathryn Cameron, "Led by the U.S., the World Wages War on Corruption." *The National Law Journal*. March 3, 1997, p. B9. and also Wendy C. Schmidt and Jonny J. Frank, "FCPA Demands Due Diligence in Global Dealings," *The National Law Journal*. March 3, 1997, p. B16. See also, Christopher F. Dugan and Vladimir L. Lechtman, "In Russia, Bribe Ban is Causing Difficulties," *The National Law Journal*. October 7, 1996. p. C1.

²² For a more detailed discussion of Russia's "shadow economy," see: Oleg Utitsin, "Russia's Shadow Economy: Crush It or Legalize It?" *Moscow News* (July 25, 1996), 29.

²³ Federal News Service, Capitol Hill Hearing, Representative Benjamin Gilman, April 30, 1996.

²⁴ *Argumenty I Fauty*, July 96, No. 30, p. 8.

²⁵ Paul Klebnikov. "Joe Stalin's Heirs," *Forbes* (September 27, 1993), 124.

²⁶ David Remnick. "Can Russia Change?" *Foreign Affairs* (January 1997/February 1997), 35.

²⁷ Andrei Neschchadin. "Shadow Economy's Role in a Criminalizing Society," *Current Digest of the Soviet Press* 46 (October 19, 1994): 38, 5.

²⁸ Richard Layard and John Parker, *The Coming Russian Boom: A Guide to New Markets and Politics* (New York: The Free Press, 1996), 156.

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²⁹ Goldman, "Why Is the Mafia So Dominant in Russia?"

³⁰ Pyotr Yudin. "Lawmakers Decry Secrecy: Say Russian Budget Cloak Covers Widespread Corruption," *Defense News* (January 6, 1997), 3.

³¹ For more detail on the new Criminal Code and how it differs from the old code, see "The New Russian Criminal Code Battles Economic Crimes," by Alla Kazakina and Alexander Dneprovski in *CIS Law Notes*, published by Patterson, Belknap, Webb & Tyler LLP.

³² "Market Laws Irk Russians; Vague Rules Confuse Buyers and Sellers," *The Record*. January 19, 1997, p. A26.

³³ This decree further states that the Interior Ministry is to participate with the federal tax organs in the collection of taxes, with the police in charge of protecting employees of the tax service who are carrying out the inspections (Bernstein, Jonas, "Tax Powers Extended to Interior Ministry," *The Moscow Times* (December 18, 1996), 1111.

³⁴ For more detail on the new Criminal Code, see Alexander Osokin and Natalia Khoroshavina, "New Criminal Code Deals with Economic Crimes," *Moscow News* (September 19, 1996), 37.

³⁵ Jim Vail. "Criminal Code Tighter, Still Fuzzy," *Moscow Times* (December 31, 1996) 1118.

³⁶ Jeff Grocott. "New Law, Same Old Corruption," *Moscow Times*, August 27, 1996, No. 1033.

³⁷ *Demokratizatsiya*, Summer 1995.

G

The Capital Structure of Russian Companies

Tatiana Krylova

I. Introduction

Access to sources of finance has become one of the major conditions for survival for Russian enterprises in the evolving market economy. The problem is caused by the general lack of financial resources in Russia today, as well as by the restructuring of the former financing system of Russian enterprises. Under the planned economy, enterprises had just one source of finance—the state. State financing came in different forms, such as direct budget financing, loans from the state banking system, and short-term payables, but they had one common feature—financing was allocated to the enterprise by the government, and the financing decision was made at a level above enterprise management. Budget financing included direct investments to fulfill state orders, allocation of the depreciation charges collected by the state and their transfer to those enterprises which were considered by the state to be in need of capital repair of the fixed assets, and indirect financing in the form of allocation of undistributed profits.¹ Under the new system, enterprises have to make their own decisions about where and on what conditions to get financing. In their attempts to obtain financing, financial managers face two sets of problems: first, the lack of financing available to them and the high costs of these resources, and second, their lack of experience and skills in making investment and financing decisions. The current role of state financing of enterprises can be illustrated by the following data (Table 1):²

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Table 1: Capital investments in Russia according to the sources of finance (%)

Years	Sources of capital investments (in percent)						Total
	Federal budget	Local budgets	Economic entities	Individuals	JVs and foreign companies	Non-budget funds	
1992	16.6	10.3	69.3	0.9	–	2.9	100
1993	19.2	15.1	57.4	2.6	2.4	3.3	100
1994	13.4	10.6	64.2	2.3	1.7	7.8	100
1995	11.0	10.5	62.5	3.0	2.8	10.2	100

This paper provides a general overview of the current status of the capital structure of enterprises in Russia and describes the main financing resources currently available to Russian enterprises for their further growth.

One of the features of the Russian economy at the present stage is that all enterprises can generally be divided into two groups. The first group (leaders) of enterprises is focused on international markets and has a privileged position. This group of export-oriented enterprises mainly includes those in the energy, metallurgy, and chemical industries. The second group, which mainly includes enterprises in the machinery, textile, and food industries, is much less successful. As a consequence, the leaders have a better variety of available resources because of their relative financial stability and potential solvency. The number of leaders is not great, even in the industries that can be classified as being in a better position than others. That is why average figures (even when they are available) do not give sound information on the state of Russian enterprises as a whole.

It is also hard to get information on particular Russian enterprises. This is because enterprises normally do not make their financial statements publicly available. In those cases where this information is available, it is based on assumptions different from those required by developed financial markets, especially from the standpoint of accounting and reporting standards and adjustments for inflation.

Another problem with Russian statistics is that due to the underdeveloped financial infrastructure it is beneficial for enterprises to show worse than actual results in their financial statements. According to a statement by the head of the Federal Committee on Insolvency, at least 12 percent of the decrease in production registered by the State Statistics Committee for the first six months of 1996 can be explained by the shadow (unreported) sales of the enterprises.³

Therefore we have taken the approach of combining official statistical figures with financial reports of major Russian companies that are leaders in their industries. It is thus important to understand that many of the statistics in this paper should be accepted only as approximations. They would require detailed adjustments for a more profound analysis, which is not possible within the scope of this paper.

II. Major Sources of Financing of Russian Companies

A. Definitions and General Overview of Sources of Finance in Russia

As in any business practice all sources of finance of Russian enterprises can be classified into equity and debt.⁴ In fact this is how they are disclosed in financial statements in Russia.

According to Russian statistics the largest Russian companies have the following proportion of equity and debt financing (Table 2):⁵

Table 2: Proportion of equity and debt of selected major Russian companies (%)

Company	First quarter 1995		First quarter 1996	
	Equity	Debt	Equity	Debt
GAZ (automobile industry)	82.96	17.04	89.34	10.66
Lensviaz (communications)	90.25	9.75	93.40	6.60
Moscow city telephone network	94.18	5.82	95.01	4.99
RAO EES Rossii (largest Russian electroenergy company)	86.25	13.75	92.26	7.74
Rostelecom (largest Russian operator in intercity and international communications)	90.95	9.05	87.62	12.38
Seversky trubni zavod (pipelines for oil and gas companies)	80.89	19.11	86.43	13.57

The table reflects a rather typical financial picture presented by the financial statements of Russian companies, which have on average about 80 percent equity financing.

Calculating the debt to equity ratio is only the first step in analyzing the capital structure of Russian enterprises, however. At this point at least the following factors should be considered:

- conceptual differences between Russia and the market economies in defining equity.
- revaluation adjustments of balance sheet items after 1992.
- differences in the calculation of profit in Russia and in the market economies.

The concept of equity and debt in Russia is still that inherited from the planned economy. The major difference with the market concept of equity and debt is the concept of funds.

Under the Russian accounting and financial system, equity includes:

- contributed capital or statutory capital (*ustavny kapital*)
- additional capital (*dobavochny kapital*): capital in excess of par value and revaluation reserve
- legal reserves (*reservny kapital*): reserves in accordance with the Russian legislation and reserves in accordance with the enterprise's charter
- accumulation funds (*fondy nakoplenia*): capital for reinvestment and enterprise development
- social funds (*fondy socialnoi sfery*): funds for housing construction and other long-term developments in the social sphere such as hospitals and child care.
- special purpose financing (*tselevye finansirovanie i postuplenia*): budget financing
- retained earnings of the previous years
- undistributed profit of the current year

The major problem with such classifications is that social funds are in reality expenses of the enterprise, and their disclosure in the equity section distorts the picture of the owners' capital.

Another problem is that because of the inclusion of these funds in Russian accounting techniques, the figures on the balance sheet do not show the integrated amount accumulated by the enterprise over time, but consider only inflows and outflows of the funds during each accounting period. For this reason it is necessary to investigate the internal historical company accounts in order to determine an accurate equity figure. As a minimum one should at least exclude social funds from the total equity figure in order to understand the balance sheet.

Equity figures are also distorted by the fact that during 1992–1996, fixed assets in Russia were revalued four times (on July 1, 1992; January 1, 1994; January 1, 1995; and January 1, 1996), to reflect the high inflation rate. Revaluations were made according to decrees of the Russian government, and related both to fixed assets and accumulated depreciation on the basis of the state indexes (for the 1996 revaluation, enterprises were allowed for the first time to use indexes suggested by independent experts, providing the enterprises could justify the expert opinion). The result of this exercise is that the additional amount of the new value of the fixed assets is shown as Additional Capital under the equity section of the balance sheet. Since the debt section was not revalued, the proportion of equity in the total sources of financing is increased by this accounting technique.

Finally, undistributed profits of the current year are profits left after income taxes and other charges to the government, and after transfers to the accumulation fund, social fund, and consumption fund (the last one appears in the liability section). The problem here is that this profit is still not net income as it is understood in the West—there are expenses that are to be covered by this profit such as the expense of interest above that of the Central Bank, various penalties, and some other expenses. Retained earnings of the previous years are the sum of the amounts of the undistributed profits of all previous years.

The Capital Structure of Russian Companies

Liabilities are classified into long-term and short-term liabilities. Long-term liabilities are to be paid off over a period of more than twelve months and include

- long-term bank loans
- other long-term liabilities

Short-term liabilities are

- short-term bank loans
- other short-term loans
- payables, including
 - accounts payable
 - notes payable
 - salaries payable
 - social insurance payable
 - taxes payable
 - advances received
 - other payables
- dividends payable
- revenues of future periods
- consumption funds
- prepaid expenses
- other short-term liabilities

Russian statistics give the following breakdown of the liabilities of Russian enterprises (Table 3):⁶

Table 3: Breakdown of liabilities of Russian enterprises (trillion rubles, at year-end)

Liabilities	1993 ¹	1994	1995
1. Bank loans	10.4	39.6	65.8
2. Other loans	0.9	5.5	25.6
3. Payables	47.0	174	483
Total liabilities	58.3	219	574

Finally, it is important to look at the sources of financing of Russian enterprises from the standpoint of foreign and domestic investors. Most of the issues related to foreign investments in Russia are covered in other chapters of this volume, so here we will only consider some concrete aspects at the enterprise level.

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According to Russian data, foreign investments in Russia in 1995 came in the following forms (Table 4)⁷:

Table 4. Breakdown of foreign investment in Russia in 1995

Foreign investments	\$ mln	% of subtotal	% of total
A. Direct investments, ¹ including			
• contributions to the statutory funds	1346.9	71.8	
• loans received from foreign owners of the companies	329.1	17.5	
• other	200.9	10.7	
SUBTOTAL	1876.9	100	67.1
B. Portfolio investments, including		1.1	
• stocks	2.4	8.0	
• debt securities, including	27.6	92.0	
short-term (75.4%)			
long-term (24.6%)			
SUBTOTAL	30.0	100	1.1
C. Other investments, including			
• trade loans		18.3	
• other loans		54.7	
• bank deposits		0.7	
• other		26.3	
SUBTOTAL	889.8	100	31.8
TOTAL	2796.7		100

These figures raise some questions. For example, it is known that the well-known Russian oil company LUKoil received \$330 million from foreign investors in 1995 as a result of the issuance of convertible bonds on the international market.⁸ Another company, Mosenergo, was the first Russian enterprise to issue American Depositary Receipts (ADRs), and got about \$20 million for them. It is not clear how these data are classified in the table above. But in general Table 4 gives an overall picture of foreign investments in Russia.

B. Internal Financing

Internal financing consists of:

The Capital Structure of Russian Companies

- contributed capital
- retained earnings
- depreciation

Let us look more closely at each of these components.

Contributed Capital

Contributed capital in Russia is shown under the items Statutory Capital and Additional Capital on the balance sheet.

Statutory capital is capital initially contributed by the owners. Before privatization, statutory capital was allocated to the enterprise from the state budget. Since 1992 about 122,000 enterprises in Russia have changed their ownership status.⁹ In 1996 more than 60 percent of enterprises were in private ownership (including joint-stock companies) and only 14.3 percent of the 2,249,531 enterprises in Russia were in state ownership (this does not include the 8.8 percent of the enterprises that were in municipal ownership).¹⁰ The prevailing legal form is that of a joint-stock company (39.8 percent of all commercial enterprises) with closed joint companies and limited partnerships (29.4 percent) dominating.¹¹

Although the number of state enterprises decreased dramatically, the state still keeps its stake in different forms in many of the newly created joint-stock companies. In 1995 the state had a controlling share in almost seven hundred enterprises and also kept a “golden share” in 429 enterprises.¹²

Here are some figures on the status of the statutory funds in selected major Russian enterprises (Table 5):¹³

Table 5: Statutory capital of selected major Russian companies in 1996

Company	Statutory Capital				
	Total (bln. rbl)	Ordinary Shares (%)	Preferred Shares (%)	Number of Shareholders	
				indiv.	legal entities
GAZ	0.005924	75.46	24.54	168,000	103
Lensviaz	0.265189	75.00	25.00	5,161	22
Moscow city telephone network	1,277	75.00	25.00	1,519	51
RAO EES Rossii	21,558,451,684	95.19	4.81	503,681	514
Rostelecom	2.334	75.00	25.00	2,558	304
Seversky trubni zavod	240.645	100.00	–	11,966	34

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Additional capital is capital in excess of par value and additions to the statutory capital resulting from the revaluations of the fixed assets. According to Russian regulations, enterprises can issue stock on this revalued amount.

Retained Earnings

Retained earnings is an item that did not exist in Russian financial reports even as recently as a couple of years ago, and such figures are not found in Russian statistics. At the end of a year, income after taxes was fully allocated to the accumulation fund, social fund, and consumption fund. To get some approximation of this figure for a particular enterprise, an external reader has to sum up the accumulation fund and undistributed profit of the previous years and of the current year.

In 1995 the total income of Russian enterprises was 211,681 billion rubles.¹⁴ This figure does not give much information about their financial position.¹⁵ Another figure indicates that 36 percent of all Russian enterprises were unprofitable in 1995, compared with 15.3 percent in 1992. For industrial enterprises these figures were 26.8 percent and 7.2 percent correspondingly.¹⁶

Table 6 gives the profitability ratios of selected major Russian enterprises (Table 6):¹⁷

Table 6: Profitability ratios of selected Russian enterprises (%)

Companies	Profit margin*		ROA**	
	1995***	1996***	1995	1996
GAZ	26.1	9.9	3.9	0.9
Lensviaz	22.8	28.5	2.0	3.2
Moscow city telephone network	12.6	18.1	0.9	1.1
RAO EES Rossii	10.4	6.8	0.3	0.2
Rostelecom	35.6	7.0	2.8	4.6
Seversky trubni zavod	15.5	14.4	1.9	1.7

* Profit margin is profit divided by net sales; due to Russian accounting rules, the profit figure is profit before taxes.

** ROA is return on assets: profit before taxes divided by assets.

*** First quarter of each year.

It is important to note that high profitability ratios do not solve the liquidity problems of Russian enterprises, since in the majority of cases barter prevails as a mean of settlement and sometimes amounts to 80 percent of sales.

Depreciation

Depreciation is the third internal source of financing of Russian enterprises. In 1995, as a result of the third revaluation of fixed assets, total depreciation of Russian enterprises amounted to 165 billion rubles. Since total capital investments in 1995 was estimated at 240 billion rubles, out of which about 150 billion rubles was financed by the enterprises, we can see the importance of this source of financing. On the other hand, according to Russian statistics only 25–50 percent of accumulated depreciation is used in capital investment projects, while the rest of it is spent on the current expenses.¹⁸

The prevailing method of depreciation is the straight-line method. Accelerated depreciation is mentioned in Russian regulations as an allowed method for some special types of equipment, but it is not used much with the exception of the small enterprises.

Depreciation rates are set by the state and are very low compared with those used in the West. Depreciation rates on buildings can be as low as 1 percent, and most of the machinery has depreciation rates between 5 and 10 percent.¹⁹ The whole approach to depreciation is still based on the Soviet regulation from 1990.²⁰

C. External Financing

External financing includes stock issues, bank loans and other loans, different kinds of payables, and state financing. Availability of both equity and debt external financing is very different for the leaders and others mentioned above.

Stock Issues

Financial markets in Russia are underdeveloped compared with those in the West, but they demonstrate high growth rates. According to Russian statistics the number of transactions on the fifty-six currently registered stock exchanges grew from 83,000 in 1993 to 609,400 in 1995.²¹ On the other hand, stock transactions made up only 0.1 percent of all transactions with securities in 1995. The major portion were treasury bonds, which amounted to 99.1 percent in 1995, up from 47.6 percent in 1993.²²

The following are several reasons usually mentioned to explain the minor role of equity issues in financing of Russian enterprises:

- the general macroeconomic situation in Russia
- the underdeveloped infrastructure of financial markets in Russia and the lack of reliable financial information about Russian enterprises
- attempts of Russian managers to maintain control over the enterprises
- low prices of the stocks of Russian enterprises
- lack of expertise in equity financing

There are several factors that cause the opposite trends, however. One of them is the increasing interest of international markets in Russian enterprises. There already have been several issues of Russian stocks on the international markets in the form of level 1 American Depositary Receipts. Although normally these ADR programs do not bring additional

capital to the issuing companies, they are considered to increase liquidity and the stock prices of these companies. Financial publications report that in the case of Mosenergo the stock appreciation after an ADR issue was 270 percent in November 1995, from \$0.15/share in mid-April of that year.²³

Another trend is that increased interest in foreign financing forces companies toward financial transparency. This helps to improve the attitude of enterprise directors toward financial statements and disclosure, which is not yet understood as a tool to attract external financing. According to a survey conducted by the Russian Securities and Exchange Commission (RSEC) of eighty open joint-stock companies, only 25 percent of them publish their annual financial reports in the mass media (which is required by the Russian Law on Joint-Stock Companies, article 92), and more than 50 percent do not see any difference in the quality of these reports before and after the public audit.²⁴

Loans

In 1995 total loans in the Russian economy amounted to 134,508 billion rubles, with only 13 percent lent on a long-term basis.²⁵ As we can see from Table 3 above, bank loans made up only 11.5 percent of the total liabilities of Russian enterprises. Major problems with this source of finance are

- high cost of the loan financing
- uncertainty related to long-term projects
- lack of expertise in developing sound business plans and financial projections on the part of Russian enterprises to convince banks of the feasibility of proposed financing
- financial statements are not suitable to support lending decisions
- low profitability rate in the industrial sector compared with financial markets

Bank loans are a very expensive source of capital in Russia, even though interest rates are declining. On October 21, 1996 the Central Bank refinancing interest rate was decreased to 60 percent from 80 percent.²⁶ (In October 1995 the refinancing interest rate was 180 percent.)²⁷ For three-month loans directly from banks to enterprises, the nominal interest rate was reported to be 105 percent in October 1996²⁸ (165.5 percent in October 1995).²⁹

Unlike some other sources of finance, bank loans have to be repaid. This is a problem given the lack of cash in many of the enterprises. Although the bankruptcy law is not quite effective in Russia yet, so that insolvent enterprises are not normally being considered bankrupt, bank loans are apparently being paid back. According to Russian statistics only 12.4 percent of bank loans were overdue in 1995.³⁰ As we will see later this is small compared with payables, where overdue payables amount to 50 percent.

Finally, comparison of the return of the industrial sector to that of financial markets needs no commentary: in 1995 treasury bonds gave an annual return of 40–50 percent in real terms, while the industrial sector is not expected to provide more than a 12–15 percent annual return.³¹

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Payables

Payables are considered one of the most important means of financing of Russian enterprises. According to Table 3 above, payables amount to 84.1 percent of the total liabilities of Russian enterprises. Especially important are trade payables, salaries payable, and taxes payable.

Trade payables seem to be the best available resource for Russian enterprises since it causes fewer troubles than other sources of debt financing. Thus the fact that in 1995, out of 483,000 billion rubles of outstanding trade payables, 239,000 billion rubles were overdue³² does not look strange. Such an unhealthy financial structure causes huge cash-flow problems for the enterprises, since the payables of one enterprise are receivables for another enterprise. When financial statements of Russian enterprises are restated in accordance with international accounting and reporting standards, normally they would show a negative cash flow and problems with the availability of working capital. This leads to the fact that about 80 percent of business transactions in Russia are being financed through barter. It also causes delayed salary payments and overdue tax liabilities.

Total salary and wages payable amounted to 13,380 billion rubles as of January 1, 1996,³³ with more than half of it in the industrial sector.

One more substantial source is taxes payable. In some cases this source of financing can be tremendous. For example, one of the Russian automobile giants, AvtoVAZ, has almost completed construction of a plant for new car production, and the cost of that construction was equal to 90 percent of its unpaid taxes.³⁴ Unpaid taxes have led the government to create a special government commission on tax collection. The result is that during the second half of October 1996 the federal budget collected three times more taxes than during the first half of the month.

As of September 1, 1996, companies with the largest tax liabilities overdue were the following (Table 7):

Table 7: Russian companies with the largest tax liabilities as of September 1, 1996 (in billions of rubles)¹

AvtoVAZ	2,900
Yuganskneftegaz	1,300
Nizneartovskneftegaz	1,300
Uraltransgaz	900
Urengoigazprom	944
Noyabrneftegaz	853
Orenburgneft	663
Surgutgazprom	532

Although state measures of tax collection look impressive, it is unlikely that this source of financing will disappear in the near future. At present, the policy on tax collection is rather arbitrary. Also, the mechanism of tax collection requires that under the worst-case scenario an enterprise should be declared bankrupt, and in this event the state could lose its controlling share as a result of the reorganization procedures.

Nevertheless, the threat of forced bankruptcy is a tangible tool to make the enterprises' financial structure more healthy. It creates a sort of chain reaction: enterprises with overdue tax liabilities have become more active in getting their receivables paid by clients, in order to use this cash to pay taxes.

Other Sources

It is worth mentioning enterprise bonds, among other sources. Although in 1995 their share constituted only 1.3 percent of all securities transactions in Russia, there is a relatively increasing interest in such capital.

At present only LUKoil has been successful in bond issues. Total capital raised by LUKoil through convertible bonds is estimated at \$460 million. Another important effect of this issue was the company's stock appreciation from \$4.6 to \$5.8 after announcement of the issue. On the other hand, observers have noted the scant interest of Russian investors in this issue compared to that of foreign investors.³⁶

There are also announcements of bond placements on the European market planned by the Russian giant Gazprom³⁷ and of Euroconvertible bonds by RAO EES Rossii to be issued in the end of December in London and Amsterdam.³⁸

III. Conclusions

- There are three major problems in analyzing the capital structure of Russian enterprises:
 - lack of reliable statistics
 - lack of publicly available enterprise financial statements
 - incompatibility of these statements with generally used financial data
- In the capital structure of Russian enterprises, equity capital is prevailing. On the other hand, due to revaluation adjustments and inflation, and the conceptual differences in defining equity and profit, it is hard to arrive at true equity value. At present those enterprises that are looking for international financing are considering independent evaluation of the fixed assets in accordance with international requirements.
- Among liabilities, trade payables are the major source of finance. It constitutes more than 80 percent of the liabilities, with about 50 percent being overdue. This causes a shortage of working capital, negative cash flows, late salary payments, and overdue taxes. It also increases the risk associated with providing external financing to the companies and increasing their cost of capital.

The Capital Structure of Russian Companies

- Among bank loans, short-term loans with high rates of real interest still prevail, with a slight increase in long-term loans. This makes it difficult to find financing for long-term investment projects and for renovations required to improve enterprise performance.
- In choosing a capital structure, Russian financial managers face two sets of problems: the lack of available financial resources and their high costs, on the one hand, and the lack of training and professional skills in finance.
- New trends in the financing structure of Russian companies are evolving, such as increasing attention to international equity and debt financial markets, improvement of the legal infrastructure of national financial markets with the creation of the Russian Federal SEC, and state actions on tax collection with the potential result of decreasing the unhealthy use of payables as a financing source.

Notes

¹ Undistributed profits are profits after taxes for allocations to enterprise funds such as the accumulation fund, social fund, and economic stimulation fund, which were made until 1987 on the basis of the state normatives. Before the end of the 1970s enterprises had to transfer the rest of their unallocated profits to the budget. In the 1980s enterprises were allowed to keep all profit after taxes for allocation to the funds, which better reflected the results of enterprise performance. After 1987 enterprises were given the freedom to allocate profits to the funds at their own discretion.

² Russia in Figures, Goskomstat Rossii, Moscow, *Finansy i Statistika*, 1996, p. 228.

³ *Expert*, Moscow, #42, 1996, p.8.

⁴ In this paper, debt and liability are used interchangeably.

⁵ Based on the data of *Expert*, Moscow, #33, 1996.

⁶ Russia in Figures, Goskomstat Rossii, Moscow, *Finansy i Statistika*, 1996, p. 211. The data cover only industry, agriculture, construction, and transportation.

⁷ Ruble to USD rates were the following (Russia in Figures, op. cit., p. 181, *Expert*, Moscow, #45, p. 53):

December 1993	December 1994	December 1995	November 1996
1247	3550	4640	5487

⁸ Based on Russia in Figures, Goskomstat Rossii, Moscow, *Finansy i Statistika*, 1996, p. 243.

⁹ According to Russia in Figures, direct investments are those made by individuals or legal entities who either are owners of the company or control not less than 10 percent of its shareholders' capital. Portfolio investments are investments through the purchase of stocks, notes, and other debt securities which account for less than 10 percent of the shareholders' capital. Investments that are neither direct nor portfolio investments are classified as other investments. Op. cit., p. 243.

¹⁰ See for example *Securities Market* magazine, Moscow, #9, 1996, p. 23.

¹¹ Russia in Figures, op.cit., p. 270.

¹² Russia in Figures, op. cit., p. 251.

¹³ Russia in Figures, op.cit., p. 252.

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¹⁴ Russia in Figures, op.cit., p. 271. A golden share gives a veto right to its holder (i.e., the state) on such decisions as changes and amendments to the company's charter, reorganization or liquidation, and participation in other companies; collateral or lease agreements on the property included in privatization plan, and its sale or other disposal. The veto right is valid for three years. See Appendix D.

¹⁵ Based on data from Expert, Moscow, #33, 1996.

¹⁶ Russia in Figures, op. cit., p. 209. This is profit before taxes. According to Russian regulations the reported income figure was profit before taxes (both on the balance sheet and income statement). This situation has been changed only recently; beginning July 1, 1996, an enterprise also reports profit after taxes.

¹⁷ For references: Gross National Product in Russia in current prices amounted to 162, 300 billion rubles in 1993; 609,600 billion rubles in 1994; and 1,631,000 billion rubles in 1995 (Expert, Moscow #45, p. 50).

¹⁸ Russia in Figures, op. cit., p. 210.

¹⁹ Calculations based on data published in Expert, Moscow, #33, 1996.

²⁰ Expert, Moscow, #6, 1996.

²¹ Edinie normy amortizatsionnih otchilenii na polnoe vosstanovlenie osnovnih fondov narodnogo hoziastva SSSR, Postanovlenie Soveta Ministrov SSSR from December 22, 1990.

²² Polozhenie o poriadke nachislenia amortizatsionnih otchislenii po osnovnim fondam v narodnom hoziastve (approved by Gosplan, Minfin, Goskomstat, Goskomtsen, Gosstrois SSSR, December 29, 1990).

²³ Russia in Figures, op. cit., p. 247.

²⁴ Calculated from data from Russia in Figures, op. cit., p. 247.

²⁵ Central European, December 1995/January 1996, p. 32.

²⁶ Data are taken from a paper presented by an RSEC official at the Annual Conference of the CIS Coordinating Council on Accounting Methodology, Moscow, September 17–18, 1996.

²⁷ Russia in Figures, op. cit., p. 219.

²⁸ Expert, Moscow #42, 1996, p. 46.

²⁹ Expert, Moscow #11, 1995, p. 55.

³⁰ Expert, Moscow #42, 1996, p. 46.

³¹ Expert, Moscow # 11, 1995, p. 55.

³² Calculated on the basis of Russia in Figures, op. cit., p. 211.

³³ Expert, Moscow #6, 1996, p. 50.

³⁴ Russia in Figures, op. cit., p. 211.

³⁵ Russia in Figures, op. cit., p. 216.

³⁶ Expert, Moscow #42, 1996, p. 8.

³⁷ Kommersant Daily, October 16, 1996, p. 1.

³⁸ Securities Market, Moscow, #9, 1996, p. 23.

³⁹ Expert, Moscow, #43, p. 24.

⁴⁰ Expert, Moscow, #43. p. 15.

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Sources of Financing for U.S. Cooperative Business Ventures in Russia

Nina Olman and Elaine K. Wai

After the fall of the Berlin Wall, Western industrial countries established an array of financial vehicles and expanded others specifically for investment in the former Soviet bloc. A few years later a variety of private funds with similar objectives were established. Information about several of these funds is presented here. The managers of many of these funds have been aggressively searching for projects in Russia that are strong enough to finance.

The following compilation of sources of financing for United States/Russian cooperative ventures or Western investors in Russia is not intended to be a comprehensive listing but rather a partial grouping of available funds and funders, including those that are mentioned throughout this report.¹

U.S. Government Capitalized Sources of Financing

CARESBAC–St. Petersburg Fund

The CARESBAC fund offers equity, debt, and long-term debt investment to small and medium-sized enterprises located in St. Petersburg. It is capitalized by the European Bank for Reconstruction and Development (EBRD) at \$10 million and by the United States Department of Agriculture at \$3.5 million, with the individual investment size ranging from \$50,000 to \$300,000. As of June 1996, it had invested more than \$1 million and had

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approved \$998,000 worth of proposals. The fund also provides technical support to investees through organizations such as the Citizens Democracy Corps, the International Executive Service Corps, and the Volunteers in Overseas Cooperative Assistance. The sectors targeted by the fund include food processing and distribution, environmental services, light manufacturing, wholesale and retail distribution, and business services. The fund is managed by the Small Enterprise Assistance Fund (SEAF) organization, which was formerly the CARE Small Business Assistance Corporation.

The U.S. Civilian Research and Development Foundation for the Independent States of the Former Soviet Union (CRDF)

<www.crdf.inter.net/>

The CRDF is a private nonprofit organization created in 1995 by the U.S. government to address science and engineering in the Former Soviet Union. The foundation backs cooperative projects between U.S. and Russian researchers in areas of basic and applied science and engineering, as well as joint R&D ventures between U.S. and NIS businesses. The fund helps identify and partially support joint ventures between U.S. and FSU entities with the goal of funding non-defense objectives. The fund has been financed by the National Science Foundation and the Cooperative Threat Reduction program (CTR) of the U.S. Department of Defense in the amount of \$10 million.

Cooperation in Applied Science and Technology (CAST)

<www2.nas.edu/oia/219e.html>

CAST is a program funded by the U.S. Agency for International Development (USAID) for the purpose of providing grants for American scientists and engineers to host colleagues from the NIS for joint research in universities and research organizations. The National Research Council serves as the manager for this program. The grant amounts vary depending on the activity.

The Defense Enterprise Fund (DEF)²

The Defense Enterprise Fund (DEF) is a venture capital fund that was established in 1994 by the CTR program of the Department of Defense. It finances debt and equity investments in joint ventures between Russian former military enterprises and Western partners. In addition to financing, the DEF also provides management expertise. The total capitalization of the fund is \$50 million as of late 1996, with 60 percent of this amount designated for ten projects. Proposals from personnel or institutions that have been involved in the Soviet defense sector, with an emphasis on those involved in weapons of mass destruction, are considered. The regions targeted are Russia, Kazakstan, Ukraine, and Belarus, with joint venture partners in any non-CIS nation, preferably the United States.³

Sources of Financing for U.S. Cooperative Business Ventures

U.S. Export-Import Bank (Ex-Im Bank)

<www.exim.gov/index.html>

The U.S. Ex-Im Bank is an independent government organization that encourages trade between the United States and the former Soviet Union. The bank aids in the financing and promotion of the sales of U.S. goods and services worldwide. The bank provides export credit insurance as well as loan and working capital guarantees and direct loans, and is the sole U.S. government program that finances short-term exports. In Russia the Ex-Im Bank provides secured asset financing, primarily for the modernization of existing structures. There are also additional provisions for financing of exports to industries such as oil/gas and forestry. Ex-Im Bank's working partner in Russia is Vneshekonombank.

The New Russia Small Business Investment Fund, Inc. (NRsbiF)

The New Russia Small Business Investment Fund, Inc. was established in 1994 as a corporation, and is owned by the Fund for Democracy and Development. The NRsbiF is capitalized at \$3 million with funds donated by the U.S. Department of Agriculture; USAID supplied a grant to cover NRsbiF's operating expenses. The fund focuses on small business development through sound bank lending and therefore provides funding to Russian banks in support of these loans. NRsbiF's initial loan was provided in 1995 and since then it has supported sixteen projects in Russia.

The Overseas Private Investment Corporation (OPIC)

<www.opic.gov/>

The Overseas Private Investment Corporation, established in 1971, is an agency of the U.S. government that provides financing and financing services through direct loans and loan guarantees, political risk insurance, and investor services for U.S. private investment in developing countries. Since 1992 OPIC has been investing in Russia in projects directed at the privatization of companies, and new investments and improvements to existing facilities. OPIC's loan guarantees cover 100 percent of political risks and are generally best suited for investments of more than \$10 million. OPIC has invested \$3 billion in political risk insurance and financing in Russia, of which more than \$1 billion went to forty-four new projects in 1996. OPIC supports one hundred projects in Russia. In 1997, OPIC raised its political risk insurance coverage limit on American companies' investments in Russia to \$200 million per project. Many of the Russian investments are in production. The telecommunications sector has been the largest recipient of investment, with food processing, manufacturing, financial, mining, and oil/gas sectors also targeted.⁴ OPIC also capitalizes several investment funds directed at specific sectors in the NIS. Several are listed below.

OPIC-Supported Direct Investment Funds

AIG Brunswick Millenium Fund

The AIG Brunswick Millenium Fund is a \$300 million fund that finances equity investments in private enterprises undertaking large projects in power, transportation, natural resource

development, and related sectors. The minimum investment amount is \$5 million. The fund is sponsored by the American International Group and Brunswick Capital Management Ltd.

Allied Capital International Small Business Fund

The Allied Capital International Small Business Fund is capitalized at \$20 million and offers equity investment worldwide, including in NIS countries. As of June 1996, the fund had invested \$5 million in various projects. The sectors targeted by the fund include environment, services, telecommunications, and utilities; it primarily finances later-stage investments as opposed to start-ups. The fund is sponsored by Allied Capital Advisors.

CEENIS Property Fund, L.P.

This fund, established in July 1996 and capitalized at \$240 million with an OPIC guarantee of \$160 million and sponsor equity of \$80 million, offers equity investment and loans in Central Europe and the NIS and targets telecommunications, manufacturing, natural resource processing, pharmaceuticals, and consumer goods. Its objective is to acquire and develop light industrial, manufacturing, commercial, office, distribution, warehouse, and retail property for lease on a long-term basis to U.S. and other international companies both directly and through joint ventures. The fund is sponsored by Auburndale Central and Europe Realty Management Inc.

First NIS Regional Fund

The First NIS Regional Fund, capitalized at \$200 million with an OPIC guarantee of \$160 million, provides equity investments in all the Newly Independent States of the former Soviet Union and in the Baltics. As of June 1996, it had invested \$70 million in various sectors, including natural resources, telecommunications, light manufacturing, and consumer-related sectors. Russian companies targeted by the fund are privatizing enterprises involved in joint ventures. The average investment size is \$3–10 million. The fund is sponsored by Sovlink-American and Baring Asset Management.

Global Environment Emerging Markets Fund

The Global Environment Emerging Markets Fund makes minority equity investments in all NIS countries, with a particular focus on environmental infrastructure and environmental municipal services such as waste management and clean energy and water. The fund is capitalized at \$120 million, with an OPIC guarantee of \$80 million. It is interested in large enterprises that are privatized or in the process of being privatized. The fund was initiated in 1993, was renewed with an approval from OPIC in 1996, and by June 1996 had invested approximately \$50 million. The investment range per project varies from \$2 to \$10 million.

New Century Capital Partners Fund

The New Century Capital Partners Fund provides equity investment in several NIS countries, including Russia, and invests in the Baltics. It is capitalized at \$250 million and as of April 1996 had invested \$25 million. The fund targets the manufacturing and financial and service industries sectors and is sponsored by New Century Advisors.

Sources of Financing for U.S. Cooperative Business Ventures

Russia Partners Fund

The Russia Partners Fund is capitalized at \$155 million for equity investment in the NIS. Targeted sectors include natural resource development, telecommunications, light manufacturing, and consumer products and services. Investment size ranges from \$2 to \$20 million per investment. The fund is sponsored by Siguler, Gulf, and Co.

The U.S. Trade and Development Agency (TDA)

<www.tda.gov>

The U.S. Trade and Development Agency is an independent U.S. government agency that provides funding for U.S. companies to conduct feasibility studies on major projects in developing and middle income countries. The TDA has been operating in the former Soviet Union since 1991 and has approved approximately \$60 million worth of studies on more than 155 projects, including joint ventures. The TDA accepts requests for assistance from the NIS sponsoring entity, which can be government- or private-sector affiliated, for projects that fulfill the criteria set forth by the TDA, including that U.S. exports during the project much reach at least \$10 million. In the NIS the TDA targets the following sectors: oil/gas, transportation, defense conversion, and electronics. The following studies, which include companies discussed in this report, were funded by the agency:

- A study of the development of a new small aircraft with Ilyushin was conducted by Fairchild Aircraft.
- Studies on coproduction of the IL-96M aircraft with P&W engines, Rockwell avionics, etc. were conducted by Morgan Grenfell.
- A study of coproduction of highway trucks with Zil was conducted by PACCAR.
- A study of dual-fuel buses was conducted by Caterpillar.
- A study on a restructuring plan for Zil.
- A study of the establishment of a joint venture to produce sterile solutions and blood products was conducted by Baxter International.

The U.S. Agency for International Development (USAID)

<www.info.usaid.gov/>

USAID is an organization affiliated with the U.S. government that provides technical assistance and investment worldwide in the form of programs, business centers, and investment funds. Since 1992 USAID has contributed \$1.5 billion to finance projects in Russia. USAID has established three Russian investment funds, one of which is the U.S.–Russia Investment Fund.

U.S.–Russia Investment Fund

This fund was created in spring 1995 by the merger of the Russian-American Enterprise Fund and the Fund for Large Enterprises in Russia. It offers equity investment and loans to small and medium-sized Russian companies in diversified sectors, with an emphasis on funding joint ventures. The fund also provides technical assistance and training. It is

capitalized at \$440 million, with no minimum or maximum investment amount. Investments have ranged from \$20,000 to \$11 million.

EBRD (The European Bank for Reconstruction and Development)

<www.ebrd.com/index.htm>

The European Bank for Reconstruction and Development, which operated in the public and private sectors, was established in 1991 for the purpose of assisting transitioning economies in Central and Eastern Europe and the NIS. The bank provides assistance to promote the strengthening of financial institutions and legal systems, the development of infrastructure, restructuring, and privatization in the private sector. The bank assists Russia through loans, equity investment, guarantees, credit lines, funds, and assistance programs as well as technical cooperation programs. Joint ventures have been a major recipient of EBRD funds and programs.

EBRD-backed Sources of Financing

EBRD Regional Venture Funds

The EBRD provides ten regional venture funds to assist specific Russian regions. Most of the funds have approximately \$30 million for investment as capital in medium-sized privatized enterprises and other private enterprises. The funds provide for projects expected to provide a commercial return. The funds focus on particular regions, with a requirement of 75 percent investment in that region. The EBRD Regional Venture Funds are Black Earth, Central Russia, Daiwa Far East and Eastern Siberia Fund, Lower Volga, North West Russia, St. Petersburg, Smolensk, Southern Russia, Urals, West Russia, and West Siberia.

Framlington Russian Investment Fund

This fund, capitalized at \$65 million, including \$16 million from EBRD and \$8 million from the International Finance Corporation, provides equity investment for small and medium-sized companies in Russia. The fund was initiated in December 1993 and by June 1996 had already invested two-thirds of its funds. The investment size varies from \$500,000 to \$40 million, with an average size of \$2 million per investment.

Russia Small Business Fund

The EBRD's Russia Small Business Fund provides financing to small businesses in Russia in order to assist the Russian banking sector in its lending to them. The fund comprises \$300 million and is provided by the G-7 countries as well as additional contributors. Russian banks provide loans to production or service-oriented businesses on a commercial basis.

Russian Enterprise Support Project

The Russian Enterprise Support Project provides a credit line to finance investments of medium-sized to large Russian private sector enterprises. The joint EBRD/World Bank

Sources of Financing for U.S. Cooperative Business Ventures

project is a \$300,000 project and the credit line will be provided by Russian banks participating in the EBRD's Financial Institutions Development Project. The targeted enterprises are required to be primarily privately owned.

Small Enterprise Equity Fund

This fund, capitalized by the EBRD at \$5 million, offers minority investment and long-term debt loans to small and medium-sized companies in all of the NIS. The sectors targeted by the fund include construction, food processing and distribution, manufacturing, and sectors producing goods and services beneficial to local economies. As of June 1996, it had allocated \$458,000 in investment and \$77,000 in loans, with investment size varying from \$25,000 to \$200,000.

The World Bank Group

<www.worldbank.org>

The World Bank is a multilateral lending agency created in 1946 that provides financial and technical assistance to foreign and U.S. firms. The bank consists of four closely associated institutions, three of which are the International Bank for Reconstruction and Development (IBRD), the International Finance Corporation (IFC), and the Multilateral Investment Guarantee Agency (MIGA). The bank supports development projects and sector investment programs to rebuild capital infrastructure such as transportation and communication, to improve education, to expand economic opportunities, and to strengthen population-planning, health, and nutrition services. All of the NIS, with the exception of Tajikistan, are members of the World Bank. Russia became a member in the summer of 1992.

International Bank for Reconstruction and Development (IBRD)

<www.worldbank.org/html/extdr/backgrd/ibrd/ibrd.htm>

The IBRD provides funding for creditworthy developing countries with relatively high per capita income. The IBRD raises the money for funding through the sale of AAA-rated bonds in international capital markets. The interest rates are variable, set at half a percentage point above the bank's average cost of borrowing. Repayment is generally over twelve to fifteen years, including a grace period of three to five years. Loans are made only to governments or to agencies that can obtain a government guarantee.

International Finance Corporation (IFC)

<www.ifc.org>

The IFC was established in 1956 and is owned by more than 170 member countries. Its fundamental role is to promote economic development by encouraging private sector investment activities in developing countries. The IFC provides debt and equity finance to private sector projects, mobilizes large volumes of additional funding from other sources, and offers a broad range of advisory services and technical assistance to businesses and

governments. Through its advisory services and technical assistance, the IFC helps private businesses increase their chances of success, and assists governments in creating environments that encourage private investment.

Multilateral Investment Guarantee Agency (MIGA)

<www.miga.org>

MIGA was established in 1988 and encourages equity investment and other direct investment flows to developing countries by providing guarantees to foreign investors against loss caused by noncommercial risks. MIGA provides investment guarantees against the risks of currency transfer, expropriation, war, civil disturbance, and breach of contract by the host government. It is available for projects as small as \$500,000 and as large as \$50 million. MIGA also advises developing member governments on policies and programs to improve their environment for foreign investment and sponsors a dialogue between the international business community and host governments on investment issues.

Private Funds

Brunswick Fund

The Brunswick Fund is a private fund capitalized at approximately \$40 to \$50 million. Investment size varies from \$200,000 to \$600,000. The fund provides equity investment in Russia for industries in the mining, telecommunications, and utilities sectors.

Firebird Fund

The Firebird Fund, capitalized at \$40 million, offers equity investment to large enterprises in Russia. It has already endowed \$37 million, with investment sizes ranging from \$500,000 to \$2 million. The fund targets sectors including forestry, mining, oil and gas, and utilities.

Junction Investors Ltd.

This fund, capitalized at \$50 million, provides equity and debt investment to small- and medium-sized privatized companies in all NIS countries. The investment size varies from \$1 to \$5 million. Sectors targeted by the fund include construction, food processing and distribution, forestry, oil and gas, real estate, services, telecommunications, utilities, health care, publishing, and transportation.

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Russia and the Republics Equity Partners LP

This fund is available for equity investment to small and medium-sized companies in Russia with short-term and long-term profit potential. The investment amount targeted is \$1 to \$5 million.

The Russian Technology Fund, L.P.

The Russian Technology Fund is a limited partnership fund focused on technology-related investment opportunities in Russia. The fund will initially provide equity investments in small Russian companies that produce technology-related products for domestic markets. Initial investments will be \$200–\$500,000. SITRA, the Finnish National Fund for Research and Development in Finland, and Top Technology Limited of the U.K. both contribute to the Delaware-based fund.

Russia Value Fund, L.P.

The Russia Value Fund is capitalized at \$48 million for debt and equity investment in the NIS. Targeted sectors include telecommunications, utilities, oil and gas, transportation, and construction. As of June 1996 it had invested \$40 million.

Sector Capital Fund

The Sector Capital Fund is a private equity fund that provides first equity capital in investment opportunities in the transportation, telecommunications, power, and distribution sectors. Average investment size per investment is \$1 million. The fund does not target particular regions in Russia but tends to finance projects in autonomous regions.

Notes

¹ Much of this information was taken from “BISNIS’s Sources of Financing,” on the World Wide Web: <solar.rtd.utk.edu/oldfriends/economics/finance.sources/finance.source.tabtoc.html>. Web sites of individual organizations and funds, when known, are listed beneath each fund heading.

² For more information on the Defense Enterprise Fund, see the BISNIS Sources of Financing site on the World Wide Web.

³ According to the Defense Enterprise Fund’s 1995 Annual Report, the fund has financed such projects as the Nevamash joint venture with Caterpillar and Kirovskiy Zavod, Hamilton Standard’s joint venture with Nauka JSC, and RAIES International.

⁴ OPIC has funded projects for companies discussed in this report, such as Pratt & Whitney and Energomash.

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- George Bunn. *Arms Control by Committee: Managing Negotiations with the Russians*. Studies in International Security and Arms Control. Stanford: Stanford University Press, 1992.
- Gordon H. Chang. *Friends and Enemies: The United States, China, and the Soviet Union, 1948–1972*. Stanford: Stanford University Press, 1990.
- Sergei Goncharov, John W. Lewis, and Xue Litai. *Uncertain Partners: Stalin, Mao, and the Korean War*. Stanford: Stanford University Press, 1993.
- Seymour Goodman, Peter Wolcott, and Grey Burkhardt. *An Examination of High-Performance Computing Export Control Policy in the 1990s*. Los Alamitos, CA: IEEE Computer Society Press, 1996.
- Robert Hamerton-Kelly. *The Gospel and the Sacred: The Poetics of Violence in the Gospel of Mark*. Fortress Press, 1994.
- David Holloway and Norman Naimark, editors. *Reexamining the Soviet Experience: Essays in Honor of Alexander Dallin*. Boulder, CO: Westview Press, 1996.
- David Holloway. *Stalin and the Bomb: The Soviet Union and Atomic Energy, 1939–1956*. New Haven: Yale University Press, 1994.
- John Wilson Lewis and Xue Litai. *China's Strategic Seapower: The Politics of Force Modernization in the Nuclear Age*. Studies in International Security and Arms Control. Stanford: Stanford University Press, 1994.
- Michael McFaul. *Post-Communist Politics: Democratic Prospects in Russia and Eastern Europe*. Washington, D.C.: CSIS, 1993.
- Michael McFaul and Sergei Markov. *The Troubled Birth of Russian Democracy: Parties, Personalities, and Programs*. Stanford: Hoover Press, 1993.
- Norman M. Naimark. *The Russians in Germany: A History of the Soviet Zone of Occupation*. Cambridge: Belknap/Harvard University Press, 1995.
- Scott D. Sagan and Kenneth N. Waltz. *The Spread of Nuclear Weapons: A Debate*. New York: W. W. Norton, 1995.
- Scott D. Sagan. *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons*. Princeton: Princeton University Press, 1993.
- Judith Sedaitis, ed. *Commercializing High Technology: East and West*. Lanham, MD: Rowman & Littlefield Publishers, 1997.
- Condoleezza Rice and Philip Zelikow. *Germany Unified and Europe Transformed: A Study in Statecraft*. Cambridge: Harvard University Press, 1995.

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