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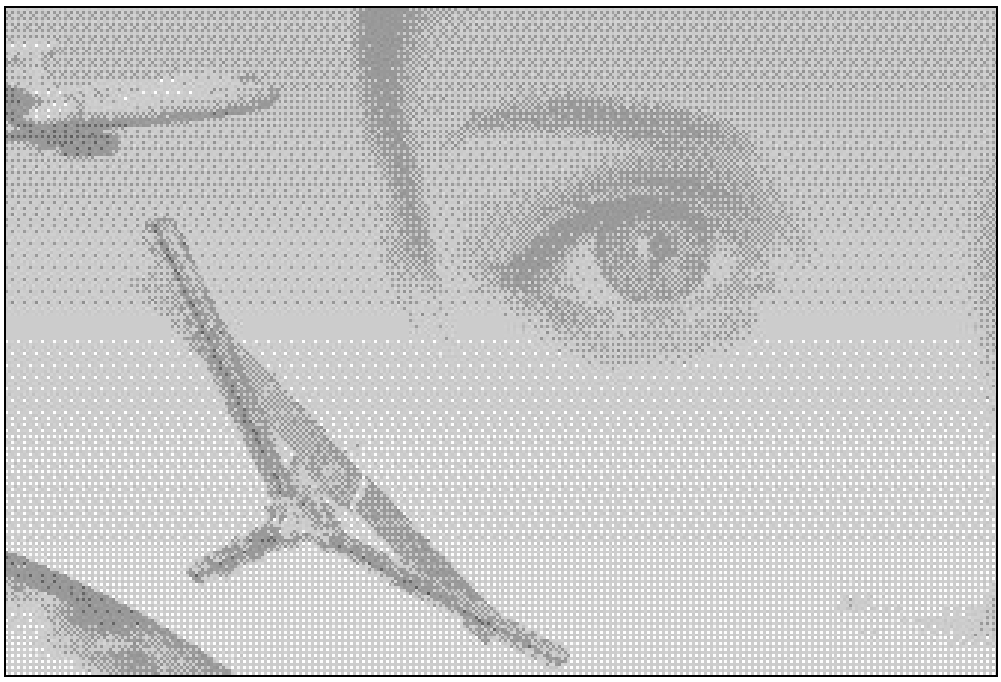
Charting the Developments and Uses of Network Centric Capabilities



SDA Roundtable with the support of

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CISCO SYSTEMS

Ericsson Microwave Systems and Cisco Systems

20 February 2006, Brussels
Rapporteur: John Chapman

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PROGRAMME

With the support of Ericsson Microwave Systems and Cisco Systems

CHARTING THE DEVELOPMENT AND USES OF NETWORK CENTRIC CAPABILITIES

NETWORK CENTRIC CAPABILITIES FOR EUROPEAN DEFENCE

Session I
12:00-13:30

Network Centric Capabilities (NCC) promise a new era of military and security technologies. But will these develop piecemeal, or can a planned industrial strategy be envisaged to prevent Europeans from pursuing divergent policies? What are the medium and longer term predictions for NCC systems, what will they cost and can governments afford them? What are leading European countries driving for and what role is Europe anticipating for network enabled technologies for ESDP? Is there a limited value of network centric technologies in 'asymmetric' operations, such as Iraq and should Europeans focus more on creating capabilities for a multitude of purposes ranging from traditional military operations and peacekeeping to post-conflict reconstruction and disaster management? How will smaller nations contribute to the development of these capabilities?

Moderator: **Giles Merritt**, Director, Security & Defence Agenda

Panellists:

- **Colonel Rainer Cramer**, Assistant Director for Capability Management (Knowledge), European Defence Agency (EDA)
- **Lieutenant Colonel Mikko Heiskanen**, National C3 Representative to NATO and EUMC, Finland
- **Lieutenant General Johan Kihl,** former Chief of Staff, Swedish Armed Forces
- **Colonel Ralph Thiele**, Director Faculty at the Führungsakademie of the Bundeswehr (German Armed Forces Command and General Staff College)

SDA Members' Lunch 13:30-14:30

WILL NETWORK CENTRIC CAPABILITIES BRING TOGETHER SECURITY AND DEFENCE?

Session II
14:30-16:00

How much can recent conflicts teach us about NCC? Iraq demonstrated both the strength and weakness of network enabled capabilities. High tech communications and surveillance systems contributed to winning the war, but not in winning the peace. How can Europe's capability development in network enabled capabilities ensure more long-term strategies for post-conflict reconstruction, low intensity crises and disaster management, the more likely operations to face Europeans. What is the value of these technologies in fostering more civil-military cooperation, and information gathering and sharing to improve correct decision-making? What do America's NATO Allies need to learn from US achievements and mistakes to ensure that the interoperability problems of Afghanistan and Iraq become things of the past? Can security applications developed for the commercial world be used for military purposes? What is the role of Europe's space aspirations and applications in building network centric capabilities? What ethical considerations do we have to consider?

Moderator: **Giles Merritt**, Director, Security & Defence Agenda

Panellists:

- **Svante Bergh**, Marketing Director, Ericsson Microwave Systems
- **Ulf Dahlsten,** Director, Emerging Technologies, and Infrastructures, DG Information Society and Media, European Commission
- **Terrence Morgan**, Director for Net-Centric Strategies, Global Defense, Space, & Security Group (GDSS), Cisco Systems

EXECUTIVE SUMMARY

At the latest SDA roundtable, there was general agreement that network centric capabilities would define the future of the defence industries on both sides of the Atlantic. However, the key word there was "future". With such capabilities still in their infancy, it became apparent that – despite repeated requests from industry – a coordinated European approach did not exist.

The Commission and the European Defence Agency were willing partners in the initiative, but the former could not lead the way while the latter was having major problems communicating with NATO. Ironically, the Alliance seemed to be the location where most of the network-centric action was taking place. The Commission wanted to get the project moving, perhaps in a small way at first. That approach would be fine, but it still needed a leader, someone who would stand up and be counted. Someone like the President of the United States of Europe.

As SDA Director **Giles Merritt** noted, network centric capabilities seemed to be still in the Middle Ages and the route towards an Age of Enlightenment was not clearly lit. Ericsson Microwave Systems' **Svante Bergh** wanted clear leadership from the EU, someone to act as a symbol for the development of these new and important technologies.

The German Armed Forces Command and General Staff College's **Colonel Ralph Thiele** noted that the US had developed a long-term plan towards network centric capabilities that covered the period 2001to 2016. That was perhaps too theoretical a timeframe for Europe, given that this was an area where technology was changing on an almost daily basis. As Thiele said, he who had the technology led the race … and a race it certainly was.

Swedish Armed Forces former Chief of Staff **Lieutenant General Johan Kihl** even suggested that a certain amount of risk-taking might be allowed, even to the extent of deciding who joined the network centric club (or clubs). That was an unlikely scenario, especially if the politicians were calling the shots.

EADS' **Admiral Pierre Sabatié-Garat** was concerned that if decisions were left in the hands of the politicians, then significant funding was unlikely as they would be concerned about sharing information with others. The Commission's **Ulf Dahlsten** put out that fire by explaining that grid technologies would allow several networks to interact so that information would be shared on a need-to-know basis.

Cisco Systems' **Terrence Morgan** went into more detail about the power of application specific chips – where data packets would be inspected and repackaged as necessary, so that part of the information might go to the appropriate community of interest, such as logisticians, medical, and the police or fire brigades, for actions complimentary to those for which the information was developed. However, he ended with a warning: there was no point in waiting for the next big event to happen, government, nongovernmental organisations (NGO) and private volunteer organisations (PVO) had to be developing the "potential to collaborate" before it was too late.

Participants at the Bibliothèque Solvay

DEBATE HIGHLIGHTS

RECOMMENDATIONS FOR THE FUTURE

- Using the successful US' DARPA project as an example, Europe should start a similar initiative to reinforce its competitiveness in a global world.
- Europe should start small, with a few pilot projects facilitated by the LoI countries and the EDA, to prove the concept and get the first successes going, and then scale fast.
- Dual use applications such as robotics or network centric capabilities would be appropriate candidate domains to start with. As support for civil applications, the Commission can be a direct facilitator.
- Duplication of efforts should be avoided and therefore the EU should be concentrating on civilian crisis management and NCC issues fulfilling those needs. This is not in contradiction of military aspects but could act as a gap filler. The civilian aspects are not well covered by US initiatives. NATO is the best arena for military issues.
- NCC is best taken forward by the research community and industry; research oriented future technologies mixed with industry.

SESSION I HIGHLIGHTS

- Filling the gap in the approach taking on network-enabled capabilities calls for: a) an agreed understanding between the EU and NATO on NCC, b) common "crypto" (cryptography) solutions to meet NATO and EU requirements, c) a phased approach in transformation so that EU Battlegroups fighting in a networked environment could be adequately controlled by EU command elements, and d) cohesion between the military and civil players within any conflict.
- In the post-Cold War world, most countries need to reflect upon what is needed – on a neighbourhood, regional and global basis. A greater degree of cooperation is needed in the 21st century, and above all a definition of the total requirements.
- In order for the West to meet future challenges and enemies, there is a need for much stronger integration of agencies and services and much faster reaction times.
- Compatibility with other EU nations and with the US is of prime importance.
- Traditional intelligence is fading, being replaced by a mix of intelligence, hi-technology sensors and open source systems. There is a need for new and more novel sources of intelligence, perhaps Google-like, from all sources including NGOs.
- The main lesson learnt from Iraq is that information needs change dramatically and rapidly.

SESSION II HIGHLIGHTS

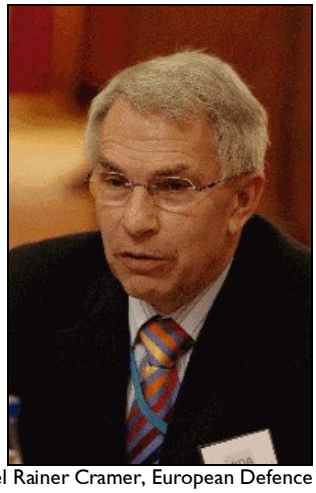
- Europe should emphasise the development of the civilian side of network centric capabilities, in order to build civil-centric systems supported by the military, this calls for: a) a response that could enable cooperation between agencies and over borders, as the threat would be diversified and both the timing and methodology would be unknown, b) a solution that was as close as possible to real-time (as the threat would use modern IT solutions, and c) an assessment of the total information picture and a dialogue on how to best use it in order to provide a flexible response.
- NCC should not focus on moving information around, but rather on the impact that such information has on the ability to make decision.
- Future capabilities will be increased based on the power of application specific chips.
- NCC is really all about using internetworking technology to build a network that could be entirely closed or, with guarded gateways allow access to the public Internet or other networks, and that deciding this set of connections is part of the risk mitigation.
- Commercial progress is striking, but it will be two-to-three years before commercial solutions are adequate for defence deployment.

SESSION 1: NETWORK CENTRIC CAPABILITIES FOR EUROPEAN DEFENCE

Setting the scene, the SDA's Director **Giles Merritt** foresaw a session that would look into the future. With network centric capabilities still in their infancy, he wanted to know if Europe could ever be as (network) capable as the US and what was the likelihood of the EU's Member States getting together in this domain.

AN EDA VIEW

Colonel Rainer Cramer, Assistant Director for Capability Management (Knowledge), European Defence Agency (EDA)



Colonel Rainer Cramer, European Defence Agency

Opening the debate, the EDA's **Colonel Rainer Cramer** identified a number of major obstacles to be overcome. Highlighting a need for greater communication across the board, he foresaw that an EU approach to NEC might not differ much from the NATO approach, but a more open discussion on some of the sensitive issues such as the exchange of sensitive information and on information security in NEC is needed.

> "We need more cohesion - we don't want EU Member States in NATO to take decisions that would be counter-productive to EU Network Enabled Capabilities in Crisis Management Operations"
>
> Rainer Cramer

Describing the current situation in network enabled capabilities, Cramer stated there was considerable activity within the 20 EU Member States that were members of NATO. An information infrastructure is under discussion in NATO and some EU Member States were conducting individual concept development, experiments and studies.

Referring to a C3 Study, conducted by the EDA supported by the EU Military Staff in early 2005, Cramer said it had identified a gap in the approach taking on network-enabled capabilities work. Worryingly, he added that there appeared to be insufficient long-term planning capabilities compared with those available in NATO's NC3A and ACT[1]. Cramer felt that the result, if no action were taken, could be a strong limitation in the ability of the EU to conduct autonomous operations in the future.

Cramer saw the need for:

- An agreed understanding between the EU and NATO on NEC
- Common "crypto" (cryptography) solutions to meet NATO and EU requirements
- A phased approach in transformation so that EU Battlegroups fighting in a networked environment could be adequately controlled by EU command elements
- Cohesion between the military and civil players within any conflict

As a formal EDA/NATO link is still missing, Cramer called for key topics (such as SDR, UAVs and a solution to the EU-NATO crypto question) to be more openly discussed in the EU/NATO Capability Group and no longer treated as political issues.

A PRAGMATIC APPROACH FROM FINLAND

Lieutenant Colonel Mikko Heiskanen, National C3 Representative to NATO and EUMC, Finland

Finland's development of network centric capabilities

- via concept development
- technical testing
- evaluation
- learning from experience
- coordination between its agencies
- cooperation with its international partners

Finland's C3 Representative to NATO and EUMC, **Lieutenant Colonel Mikko Heiskanen**, outlined his country's pragmatic approach based on an

1 NC3A – NATO Command, Control, and Communications (C3) Agency; ACT – NATO's Allied Command Transformation.

acceptance of proven technologies. He saw the development of network centric capabilities as being a natural evolution of opportunities arising from the information society.

> We have developed a system that enables situational awareness for all players, civil and military
>
> Mikko Heiskanen

Providing an overview of Finland's long tradition in handling security and defence issues, Heiskanen reasoned that networked-enabled defence was not yet a reality. However, Finland believed it could create its own network centric capabilities and it would be spending several billions of euros on C4ISR systems in the coming years.

Lieutenant Colonel Mikko Heiskanen, National Representative to NATO and EUMC, Finland

Information sharing was the current focus, to be followed by process development (processes, procedures and organisational changes), leading to total integration within C4ISR effects-based operations. Heiskanen described two deployed systems, in Kosovo and in Bosnia and Herzegovina, adding that national capabilities were being used to support international commitments. Systems had been developed to support the situational awareness (in the field) of both civil and military teams.

DEFINE THE REQUIREMENTS, AND USE THE NETWORK

Lieutenant General Johan Kihl, former Chief of Staff, Swedish Armed Forces

Swedish Armed Forces' former Chief of Staff, **Lieutenant General Johan Kihl**, saw a world full of misunderstandings. In this post-Cold War world, he argued that most countries needed to reflect on what was needed – on a neighbourhood, regional and global basis. A greater degree of cooperation was needed in the 21st century and, above all, a definition of the total requirements.

Lieutenant General Johan Kihl (R'td), Swedish Armed Forces

This scoping exercise would be useful to show the size of the needed requirements. However, Kihl felt that "size" alone would not change the actual network centric capabilities that would be implemented. Regardless of the size of the scope, Kihl contended that the most effective way to meet modern defence and security requirements was to "use the network".

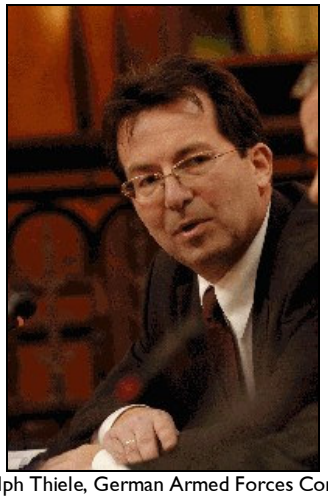
> Countries need to sit down and say what is required; on a neighbourhood, regional and global basis
>
> Johan Kihl

Kihl also argued against developing an exclusively military network. Within the civilian world, especially in the banking community, there were advanced developments that ensured data security at a very high level. Depending on the situation on the ground (from war-fighting to humanitarian aid), different types of information would be required. However the network would always be built in the same way, intelligence had to be improved so that the people making the decisions had the best information. It was that simple!

LEADERSHIP IS MISSING

Colonel Ralph Thiele, Director Faculty at the Führungsakademie of the Bundeswehr (German Armed Forces Command and General Staff College)

German Armed Forces Command and General Staff College Director, **Colonel Ralph Thiele,** closed the first session. Stressing that network centric capabilities were essential, he concluded that it was now necessary to identify someone who could take the concept forward.



Colonel Ralph Thiele, German Armed Forces Command and General Staff College

Agreeing with Kihl, Thiele also thought the situation was simple. In the future, enemies might not be as powerful as Western nations, but they would try to exploit weaknesses and inflict massive damage. Legacy capabilities would not allow the West to meet these new challenges, as there was a need for much stronger integration of agencies and services and much faster reaction times.

> The US says that 70% of the good stuff comes from Europe
>
> Ralph Thiele

According to Thiele, this "comprehensive reorientation" of forces, could only be met by the introduction of network centric capabilities. An inter-agency approach was required and the introduction of networked-based solutions would provide everyone with a clearer picture. Knowledge was power and experience showed that there was no competition when transformed forces met non-transformed forces.

Thiele added that a lot of experience and scientific background knowledge was available and the only decision remaining was how much to invest. If Europe wanted to be a global player, he argued that the introduction of network centric capabilities was essential. Funding was required for concept development, experimentation, modelling & simulation and, importantly, the full involvement of industry. The whole development had to be fully integrated within the NRF and battlegroup concepts. Network centric capabilities gave "more bang for the buck" and it was necessary to find someone to take the concept forward.

SESSION I – Q&A

INTEROPERABILITY AND THE NEED FOR COMPATIBLE SOLUTIONS

Having heard the speakers agree that network centric capabilities were essential, Thales' Senior Vice President **Edgar Buckley** argued that it was not possible to simply go out and buy such capabilities. Compatibility with other EU nations and with the US was of prime importance. He also stressed the importance of the architectural approach and to this end Buckley explained the importance of open solutions. As an example, he mentioned the Network Centric Operations Industry Consortium (NCOIC)[2], a global consortium aiming to develop an open framework into which individual countries could plug-and-play as desired.

Lieutenant Colonel Mikko Heiskanen also highlighted the need for interoperability – all equipment had to be EU and NATO compatible. The first essential step would be the creation of a requirements definition, the basis for all procurement.

Colonel Ralph Thiele said the US was already developing a global information grid – with a 10 gigabit bandwidth. If you were able to join, you were in the game, if not "you were in the desert". Countries that could not "plug to operate" would be obsolete. Knowledge was the key – traditional intelligence was fading, to be replaced by a mix of intelligence, hi-technology sensors and open source systems. You had to be able to assess what was happening, and you had to be on the network.

Buckley did not agree with Thiele that the US had a single architecture, as different ones were being developed for the army, navy and air force. But the US wanted interoperability with its (primarily) European allies. Thiele agreed that there were competing architectures in the US, and the military was getting various opinions from industry. As for what was needed, the key was a modelling and simulation environment, and that was missing for Europe as a whole. Europe needed a vision and an agenda – both were missing.

[2] See http://www.ncoic.org/home for more on the NCOIC.

Speaking personally, the European Commission's National Expert **Andrew Denison** wanted to know, in light of the DoD's Quadrennial Defense Review's "dismissal of Europe", if the panel thought that Europe was spending enough to join "the game," as defined by Colonel Thiele.

Lieutenant General Johan Kihl said it was certainly not spending enough to meet its ambitions. Perhaps nations had to measure the risks and the benefits – maybe, he concluded, it was alright to take risks. Kihl added that interoperability was not simply a technical matter as there was also a need to standardise procedures, symbols and language. Those would be greater problems.

Colonel Rainer Cramer agreed that the network was best but he wanted to be realistic. EU Member States were still wrestling to make their individual national forces interoperable. The next step would be to achieve interoperability between the various forces of the Member States. He added that it was difficult for the EDA to motivate nations to spend money on the next stage, at a time when Member States were focusing on internal matters.

THE EDA AND THE EUMC - TOWARDS A EUROPEAN FRAMEWORK

The Israeli Embassy's Head of Ministry of Defence Delegation **David Dahan** wanted some clarification on the role of the EDA. Wasn't there a danger that it would be re-inventing NATO's wheel in Europe? Following up, Giles Merritt wanted to hear more about the existence (or lack of) a European framework for network centric capabilities.

After explaining the EDA's overall mission, Cramer added that the Agency had been surprised to discover that there had been no discussions concerning network centric capabilities at the EU Military Committee (EUMC). As mentioned in his opening comments, Cramer said the EDA had identified this gap (in the C3 study) and the aim was to orchestrate the EU Member States' thinking, beginning with a seminar on network enabled capabilities in April.

He added that some nations had already conducted network centric activities within NATO, although no official reports were available for the EU. The EDA wanted strong collaboration between civil and military bodies, it wanted a common basis for discussion. However, he admitted that no framework existed yet, certainly not before the April seminar. Cramer added that EU Member States were reluctant to spend money, especially on activities that were already being conducted at NATO headquarters.

Denison thought it ironic – given the topic of interoperability - that the EDA was having difficulty in communicating with NATO. Cramer was concerned that the existing Capability Group (with over 100 members) was not a fruitful vehicle for this purpose. More information exchange was required, including more formal exchange mechanisms.

IMPROVING THE PROCUREMENT PROCESS

Kihl saw the need for a dramatic change in the way in which the procurement process (or rather processes) was conducted in Europe. Time was not on the EU's side. He thought that errors were being repeated, and used the various peacekeeping groups in Kosovo as an example - the right information systems were not in place.

Touching a controversial note, Kihl said that it was impossible to buy the wrong equipment in today's world. Products were cheap and they could be connected. If you got it wrong, then you simply replaced a component. Any type of system could be plugged-in.

Buckley disagreed and used the example of UAVs, bought by several Member States, which have now been taken out of service. He insisted that procurement had to be based on a capability-based approach that would fit into an existing architecture. Kihl admitted that several countries had got it wrong in regard to buying UAVs, as they had never checked how the equipment could be plugged into the network.

TRANSATLANTIC ISSUES

Merritt wanted to know if the EU should be buying from the US. Thiele thought not as American studies showed that 70% of the "good stuff" came from Europe. However, Thiele did agree that the US was ahead in terms of developing an overall architecture.

Buckley wanted to see the picture from a global perspective. Europeans were at a disadvantage as they were trying to merge proprietary networks. He wanted support from the governments in terms of a) clarifying requirements, b) transferring technology between Member States, and c) funding, similar to that being provided to US companies.

WHO IS THE GATEKEEPER?

Denison asked for information as to who could actually join in the "plug and play" society. Who defined who could join the club (i.e. get access to the network and the associated technology)? Heiskanen argued that no one had the answer to that question yet. Thiele, however, reasoned that

there would be several clubs. Today the US was leading the way (with Canada, Australia, France, UK, Italy and Finland) but the situation was changing rapidly. He stressed that the country that was in front [of the race] would dictate the terms and direction. China and India would be major players in the future, and that might lead to several clubs.

LESSONS LEARNT FROM IRAQ?

EADS' Senior Advisor **Admiral Pierre Sabatié-Garat** wanted to know what kind of information (e.g. the positions of tanks, the political landscape) was needed and how it might be used in an effects-based scenario. Kihl commented that the network (in Iraq) had been brilliant at the beginning of the war, but failed once the fighting was over. That was the main lesson learned – that information needs changed dramatically and rapidly.

Thiele stated that the US had been in the process of building a functional network centric system (from 2001 – 2016). Thus the US had fought the Iraq campaign just a few years into the project. He had been impressed by the knowledge gained by the military players, but it had to be understood that the network had not been designed to cater for the needs of a post-conflict campaign.

THE USE OF INTELLIGENCE

Dahan reminded the audience about the importance of intelligence, especially real-time information that could be transferred to the decision-makers. Cramer saw the need for new and more novel sources of intelligence (perhaps Google-like) from all sources, including NGOs. Heiskanen added that intelligence needed collaboration, using all available resources. He did not see technology as the biggest issue, training and organisation were the main obstacles to successful effects-based operations.

IT'S A WRAP

Merritt brought the session to a close. He saw network centric capabilities as having come out of the Dark Ages and having entered the Middle Ages. The age of enlightenment lay far in the future. As to how the interoperability between military and civil bodies would pan out, no one knew the answer with any certainty.

SESSION 2: WILL NETWORK CENTRIC CAPABILITIES BRING TOGETHER SECURITY AND DEFENCE?

IT SOLUTIONS AND OPEN STANDARDS

Svante Bergh, Marketing Director, Ericsson Microwave Systems

Svante Bergh gave an overview of how Europe could contribute to global efforts to develop network centric capabilities, efforts that should be driven by the use of commercial IT solutions and the introduction of open standards.

Svante Bergh, Ericsson Microwave Systems

> We need a person within the Commission who stands up and acts as a symbol
>
> Svante Bergh

Bergh argued that Europe should emphasise the development of the civilian side of network centric capabilities, in order to build civil-centric systems supported by the military. This can complement the US as they tend to build Networked capabilities only for the military. Defining how that could be done, Bergh called for:

- A response that could enable cooperation between agencies and over borders, as the threat would be diversified and both the timing and methodology would be unknown
- A solution that was as close as possible to real-time (as the threat would use modern IT solutions)
- An assessment of the total information picture and a dialogue on how to best use it in order to provide a flexible response

Based on Sweden's experience, Bergh stated that solutions should be based on proven commercial IT

solutions. He also wanted interoperability to be driven by open standards that would allow systems to be connected through the service layer (above the communications layer). Participants could choose to share (or not) their information with others (who would be mandated or not-mandated). In this way, Bergh said that, for example, both nations and agencies could share information across a network.

> Money's not the problem, focus is the problem
>
> Svante Bergh

Bergh added that the network configuration had to be dynamic (so the solution could be tailored to the threat) and everyone on the network had to know the "commander's intent" so that all could make a meaningful contribution. Among the outstanding issues was one of standardisation (Sweden was working in the area of ISO standardisation, choice of languages, etc), as information had to be exchanged between heterogeneous systems.

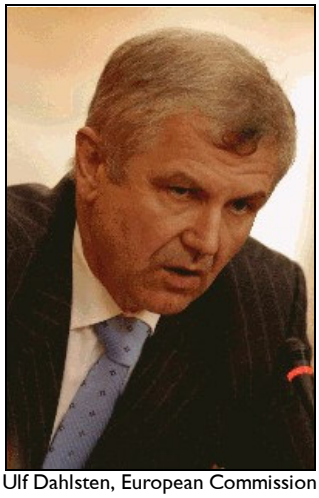
In Sweden, successful tests had been conducted on network-based defence systems, built on commercial standards. The architecture and systems design had been completed and implementation was planned. In Gothenburg, a "security arena" had been created, linking universities, politicians and industry. This would provide validated services for the "blue light" emergency authorities. Ericsson invite other interested parties to cooperate and to jointly demonstrate interoperability with international partners.

LET'S GET STARTED

Ulf Dahlsten, Director, Emerging Technologies, and Infrastructures, DG Information Society and Media, European Commission

Ulf Dahlsten said that it's time for Europe to take action. He recommended to start small, using the US' DARPA project as an example, that could encompass a number of projects, facilitated by the LoI countries and the EDA. As defence budgets get over-stretched, this might act as an incentive for the development of larger markets (in comparison to single Member States). He saw interoperability as another method for driving joint development.

Looking for ways that Europe could develop markets, Dahlsten explained that he was chairing a group (composed of Member States) that was looking at ways of developing "pre-commercial procurement" to drive innovation. Incentives were required so that different procurements bodies (national and regional) would come together to buy internationally. State aid was not ruled out, with another alternative being the new Commission's Competitiveness and Innovation Program (CIP) for possible support of civil dual-use applications.



Ulf Dahlsten, European Commission

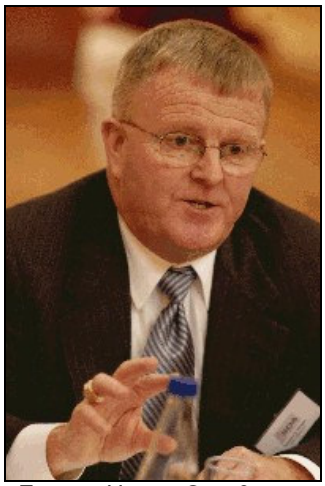
> US actions are all about strengthening US competitiveness in a global world; Europe must do the same
>
> Ulf Dahlsten

Dahlsten did see the possibility for civil-military dual-use applications (robotics was one area mentioned) as a first domain to start with and where the Commission can be an indirect facilitator in support of the civil application. He agreed with Bergh that commercial standards had to be taken into account to ensure common deployment. It just needs to get started.

SYSTEMS FOR PEOPLE, TO IMPROVE DECISION-MAKING

Terrence Morgan, Director for Net-Centric Strategies, Global Defense, Space, & Security Group (GDSS), Cisco Systems

Cisco Systems' **Terrence Morgan** did not want to focus on technology. He argued that the hard part was developing the correct organisation and processes, and developing a culture that accepted innovation. For Morgan, although a necessary requirement, network centric capabilities should not be focused on moving information around, but rather on the impact that such information had on the ability to make decisions.


Terrence Morgan, Cisco Systems

Morgan looked at how the introduction of network centric capabilities could improve the performance of people – be they soldiers, police, first responders, etc. Looking for one word to describe the concept of network centric capabilities, Morgan chose "change". Everyone had to become familiar with moving information around their own personal networks, and to quote Toffler, everyone had to "unlearn and relearn".

> Network centric capabilities provide information that impacts the ability to make decisions
>
> Terrence Morgan

Morgan saw the development of network centric capabilities as being fuelled by innovation and occasionally blocked by institutional constraints. He argued that technology was the easy part (noting that Cisco was spending $3.2 billion per annum on further development of the internet protocol to improve the technology and its ease of use) and that it would be harder to implement the right organisations, processes and procedures.

Adding some definitions, Morgan stated that network centric capabilities gave immediate access to the information required to complete a mission and also connected disparate groups of people, places and things. He expected nations to look at their overall requirements, to define threats and to say what was needed to help other nations and then based on national priorities make investment decisions. Warning that network centric capabilities would be used by the enemy as well, Morgan emphasised the role of commercial companies that were now playing a significant part in the defence market of the future.

SESSION 2 – Q&A

WHAT'S THE FUTURE?

Finmeccanica's Vice President **Giovanni Barontini** asked about Cisco's plans at the service delivery level, what could be expected? Terrence Morgan foresaw dramatic changes in the coming years. Capabilities would be increased based on the power of application specific chips – "application recognition" would be improved and data within packets would be interrogated and repackaged as necessary, e.g. part of the data from messages about fire support missions might go to the logistics community to trigger resupply activity.

CIVIL AND MILITARY – DUAL USE, SAME SECURITY NEEDS?

Barontini wanted to know if there were differences in capability between existing civil and military networks. Morgan commented that commercial applications had been built to be as secure as was necessary to meet business requirements. He suggested that if other domains, such as the military, had additional requirements, it should adapt commercial developments and improve them as necessary using available APIs.[3]

Ulf Dahlsten agreed that progress was striking, but contended that it would be two-to-three years before solutions were adequate for defence deployment. This was primarily due to the outstanding work necessary on dynamic firewalls.

Svante Bergh threw a spanner into the works by stating that no network was secure and that it was all a matter of risk management. Networks should not be used for top secret information, they were best for "time restricted" data. "Secure enough" was the way in which Bergh described today's networks. Clarifying the situation, he said that it was not a matter of using the Internet, but rather of "building society's intranet," a virtually closed network that could be reinforced to meet specific requirements.

SUPPORT FROM THE COMMISSION – MORE DETAILS PLEASE

Thales' Edgar Buckley wanted more detail on how the Commission would be supporting European industry in its efforts to move forward and develop interoperable network centric solutions. Dahlsten wanted industry and the procurement bodies to work in parallel. He suggested the current activity in robotics as an example, where requirements had been identified across a number of domains, e.g. defence, space, medical, etc. Once the requirements

[3] Application Program Interface.

had been agreed, the Commission could facilitate the process. Dahlsten added that political support was essential and called on industry to encourage support from governments. He felt that the European economy would benefit tremendously if industry could work together in this "DARPA-like" way.

Bergh wanted to see a leader emerge from the EU pack, someone who could act as a symbol. There were several initiatives in the pipeline but they were going too slowly – it needed a catalyst, and some leadership.

SUPPORT FROM THE GOVERNMENTS – IN EUROPE?

Giles Merritt intervened to ask if European industry should get financial support in the same way that US companies were being assisted (by government).

Bergh agreed that the US was doing more but he argued that Europe was improving. He wanted a transatlantic partnership with Europe focusing on what it did best, i.e. developing network centric solutions that helped to "win the peace". Money was not the problem according to Bergh, the problem was a lack of focus.

The need for a business case in Europe

Colonel Ralph Thiele asked the panel what could be done to [help industry to] build better business cases, as there would be casualties if the process was not kick-started.

Morgan emphasised the need for "all business to be good business". Decisions had to be taken with that in mind. Cisco's $3.2 billion in R&D was Cisco-funded and was being used to improve commercial products. One problem he highlighted was the inability to communicate correctly at the political level. Picking up on an earlier point, Morgan said that talk of using the public Internet was a cause for concern. Net Centric Capability is really all about using internetworking technology to build a network that could be entirely closed or, with guarded gateways, allow access to the public Internet or other networks, and that deciding this set of connections was part of the risk mitigation.

Morgan currently saw the development of Internet capabilities with packaging to suit particular environments. Business could be carried forward in this way, but there was always the need for a good business case.

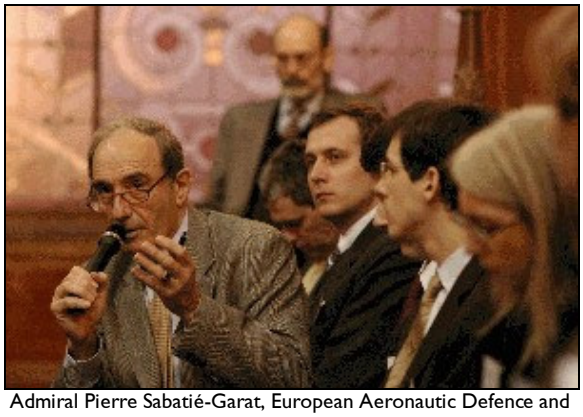
Dahlsten commented that whatever the US was doing, it was with the intention of strengthening US competitiveness in a global world. That being the case, Europe had to do the same. That did not rule out EU-US partnerships, but it did mean that there were certain basic steps to be taken:

- European defence industry had to have public support
- Procurement bodies had to work together
- Requirements had to be defined; the Commission and the EDA had important roles to play but the first steps had to be realistic (projects should not be spread too thinly)
- A dialogue with industry was essential

David Dahan observed that industry needed a clear direction in order to develop network centric solutions and he doubted if the Commission's direction was clear enough. In regard to security and dual-use applications, Dahan saw a wide scope and he suggested that a greater focus was required so that a good business case could be developed.

ONE NETWORK FOR ALL OR SEVERAL?

Admiral Pierre Sabatié-Garat agreed that the scope was broad. However he had doubts that individual nations would be willing to share [their secrets] with others on a single network. Sabatié-Garat feared that funding might not materialise because of such political reasons.



Admiral Pierre Sabatié-Garat, European Aeronautic Defence and Space Company

Dahlsten did not see it that way. Grid technologies would allow different networks to work together and share information and resources *at different times depending on requirements.* Dahlsten added that dynamic firewalls were an essential part as that would allow deployment as and when required. Giving examples, Dahlsten indicated that software-defined radio would allow better connectivity and coordination, whereas the use of dynamic firewalls would allow nations to deploy resources together (e.g. a French soldier could use an American robot). He did add that a command structure was also needed, almost certainly to be built based on military experience.

Bergh added his view of the network centric world by describing a situation where various service providers (police, military, emergency services) would own their specific information and allow others to share (or partially share) it within the network service layer. No one could see everything, people would be able to see what they were allowed to see.

Morgan commented that it was important to develop "the potential to collaborate". Waiting for a galvanizing event would be too late. The potential to collaborate might never be used but if you can collaborate between nations, NGOs, PVOs then it will be much easier for politicians to agree to collaborate.

Giles Merritt had two questions to end the debate[4]:

1. Who would be responsible for agreeing on the use of surveillance techniques in the EU, given society's potential reaction to such methods?
2. Would network centric capabilities change the face of the European and US defence industries?

Table 1	Surveillance responsibilities	The face of the defence industries
Ulf Dahlsten European Commission	A difficult discussion as the public is concerned about the development of an Orwellian society (and linking networks takes us closer to that).	
Edgar Buckley Thales	British citizens would rather be safe. The issue is what you do with the information.	The face of the defence industry will continue to change, but legacy systems will remain and play a part.
Jacques Bus European Commission	A debate is needed but network centric technology is not the same as the use of surveillance techniques; there are solutions to make the network closed as required – not all information will be available to all.	
Scott Harris Lockheed Martin		The defence industry has already changed and adapted to the new challenges. It is all about taking IT solutions and making them useful for military operations. The key now is systems integration - less players in the industry but the remaining ones are more significant.
Terrence Morgan Cisco Systems		The business proposition for the service providers (of trucks, ambulances, ships, etc) is making everything "a node in the network" and letting those nodes accomplish more than one task. Different skill sets are being brought together to deliver advanced services.
Svante Bergh Ericsson Microwave Systems		The future is all about integration and it is about ensuring security and utilising the military together with different aspects of civilian industry.

[4] See table 1.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Terrence Morgan, Edgar Buckley, Scott Harris, and Giles Merritt


Participants sharing a laugh


Scott Harris, Robert Bell and Edgar Buckley discussing


Lars Karlén and Jan Närlinge


Participants at Bibliothèque Solvay


SDA members' lunch


Networking afterwards


First panel

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ABOUT THE SECURITY & DEFENCE AGENDA

The Security & Defence Agenda, formerly the New Defence Agenda (NDA) has become established as the only regular Brussels-based forum where political figures and journalists gather to discuss the future of European and transatlantic defence and security policies.

La Bibliothèque Solvay

The aim of the SDA is not to replicate more academic research-based projects but to give greater prominence to the complex questions of how EU and NATO policies can complement one another, and how transatlantic challenges such as terrorism and WMD can be met.

Bringing clarity and new ideas to the rapidly-changing defence and security policy scene has been the SDA's aim from its beginning. SDA's activities range from monthly roundtables and international conferences to reports and discussion papers, all of which attract high-level speakers and authors and institutional, governmental and industry support.

One of our prime objectives is to raise the profile of defence and security issues among the Brussels-based international press. To encourage more in-depth coverage of these topics, the SDA holds regular, informal dinners for journalists with high profile decision makers.

Recent speakers and participants include

Gijs de Vries, Counter-terrorism Coordinator, Council of the EU; **Richard Falkenrath**, Research Fellow, Brookings Institution and former Deputy Homeland Security Advisor to the US President; **Franco Frattini**, Commissioner for Justice, Freedom and Security, European Commission; **Bill Giles**, Director General, Europe, BAe Systems; **Vecdi Gönül,** National Defence Minister, Turkey; **Scott A. Harris**, President, Lockheed Martin International; **Patrick Hennessey**, Director, DG Enterprise, European Commission; **Hilmar Linnenkamp**, Deputy Chief Executive, European Defence Agency; **Alessandro Minuto Rizzo,** Deputy Secretary General, NATO; **Sergei Ordzhonikidze**, Director General of the United Nations Office in Geneva; **Zonghuai Qaio**, Vice Foreign Minister, Ministry of Foreign Affairs, China; **George Robertson**, Former Secretary General, North Atlantic Treaty Organisation; **Gary Titley**, MEP, Committee on Industry, External Trade, Research and Energy, European Parliament; **Michel Troubetzkoy**, Senior Vice President, Director for Relations with European Institutions, EADS; **Günter Verheugen**, Commissioner for Enterprise and Industry, European Commission; **Antonio Vitorino**, former Commissioner for Justice and Home Affairs, European Commission; **Karl von Wogau**, Chairman, Subcommittee on Defence and Security, European Parliament, **Geoffrey van Orden**, Vice-Chairman, Committee on Foreign Affairs, European Parliament

"[NATO] An Alliance in which Europe and North America are consulting every day on the key security issues before them. Acting together, in the field, to defend our shared security... Because in a dangerous world, business as usual is not an option"
NATO Secretary General **Jaap de Hoop Scheffer**, Annual Conference 17 May 2004

***"Homeland Security = a concerted, comprehensive and nationwide effort to prevent future terrorist attacks, to protect the most vulnerable targets against future terrorist attacks and to be ready to respond against possible attacks and minimize loss of life and damage if such attacks occur"* Richard Falkenrath**, former Deputy Assistant to the President and Deputy Homeland Security Advisor, 17 November 2003 Annual Conference

"The agency should generate ideas and speak the truth to defence ministers."
Nick Witney, Chief Executive, European Defence Agency 28 April 2004 Press Dinner

"There is an opportunity for Europe to take advantage of the US's investment by issuing collaborative programmes – paid for to a certain extent by the US taxpayer. The European Defence Agency could foster transatlantic cooperation rather than follow more traditional approaches"
Scott Harris, President Continental Europe, Lockheed Martin, 28 April 2004 Press Dinner

ACTIVITIES

MONTHLY ROUNDTABLES

SDA's series of Monthly Roundtables are attended by some 70+ defence and security experts who participate actively in the debates. Their discussions are summarised in concise reports that are circulated to a wide range of stakeholders across the globe. Roundtable topics include:

- Is the transatlantic defence marketplace becoming a reality?
- Defence aspects of EU and NATO enlargements
- What policies will create effective peacekeeping?
- Strategic priorities for protecting Europe's infrastructure against terrorism
- Will the EU get tough on opening-up national defence procurement?
- The powers and responsibilities of the European Defence Agency
- Europe's drive to implement an anti-terrorist strategy
- On the eve of Istanbul – Can NATO become a motor for reform?
- Does Europe need a Black Sea security policy?
- Is maritime security Europe's Achilles' heel?
- Space and security in Europe

REPORTS on Monthly Roundtables discussions are available on the SDA website. The SDA also published a **Discussion Paper** *'Fresh Perspectives on Europe's Security'* in 2004 and its Bioterrorism Reporting Group has published three in depth analyses on bio threats and our responses.

INTERNATIONAL CONFERENCES

The SDA organises a number of major conferences with partners, in Brussels and elsewhere. Conferences gather 200+ senior defence and security policymakers, industrialists and media to discuss current policies and decision-making.

- **Towards an EU Strategy for Collective Security**, Feb 2005
- **Defending Global Security: The New Politics of Transatlantic Defence Cooperation,** May 2004
- **Towards Worldwide Security: Building the Transatlantic Agenda,** Nov 2003
- **Reinventing Global Security**, June 2003
- **The Relaunching of Transatlantic Relations and Anti-Terrorism Cooperation**, May 2003
- **How credible are Europe's Anti-Terrorism Defences?**, Oct 2002

PRESS DINNERS

Correspondents of top European newspapers take full advantage of these rare opportunities to explore in informal circumstances the thinking of senior MEPs, industry executives, ambassadors and EU and NATO officials. Recent press dinners featured **Nick Witney**, Chief Executive of the European Defence Agency (EDA) 'Powers and Responsibilities of the new European Defence Agency (April 2004); **Erkki Liikanen**, EU Commissioner for Enterprise, 'Europe's Defence and Security Research' (November 2003); **General James L. Jones**, Supreme Allied Commander SACEUR, NATO 'NATO's Transformation Process and Cooperation with the EU in the future' (October 2003); **Margot Wallström**, EU Commissioner for Environment 'Civil Protection and Bioterrorism' (May 2003); and **Robert Cooper,** Director General for External & Politico-Military Affairs, Council of the EU (Oct 2002)

General James L Jones, Supreme Allied Commander, NATO with Thomas Enders, Executive Vice President, EADS April 2004 Press Dinner

BIOTERRORISM REPORTING GROUP

Following the interest generated in past SDA events, the SDA decided to create a venue for more focused discussions on the area of bioterrorism. The Bioterrorism Reporting Group meets every three months and will allow the discussions not only to be tailored to the evolving developments in the biological field but most of all, the resulting reports will act as a catalyst for the political world.

- 21 June 2004 **'Countering Bioterrorism: Prevention and Protection'**
- 18 October 2004 **'Countering Bioterrorism: Science, Technology and Oversight'**
- 25 January 2005 **'Next Generation Threat Reduction: Bioterrorism's Challenges and Solutions'**
- 25 April 2005 **'Countering Bioterrorism: How can Europe and the United States work together?**

ABOUT THE SDA

THE SECURITY & DEFENCE AGENDA (SDA) WOULD LIKE TO THANK ITS PARTNERS AND MEMBERS FOR THEIR SUPPORT IN MAKING THE SDA A SUCCESS

SDA IN 2006

19 JANUARY 2006
Book presentation
UTILITY OF FORCE: THE ART OF WAR IN THE MODERN WORLD
WITH GENERAL SIR RUPERT SMITH AND JAVIER SOLANA

30 JANUARY 2006
Monthly Roundtable
IS A TRANSATLANTIC DEFENCE INDUSTRY INCREASINGLY ON THE CARDS?

20 FEBRUARY 2006
Monthly Roundtable
CHARTING THE DEVELOPMENT AND USES OF NETWORK CENTRIC CAPABILITIES

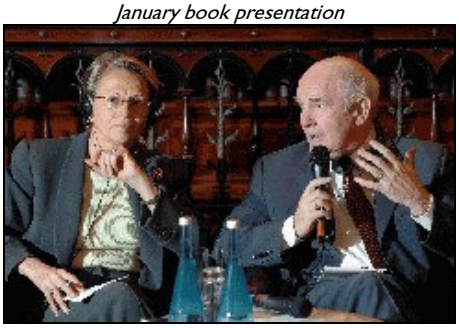
24 APRIL 2006
Monthly Roundtable
BORDERS & PEOPLE: THE LIBERTY AND SECURITY BALANCE

28 APRIL 2006
Monthly Roundtable
THE ISSUES SHAPING ASIAN SECURITY

30 MAY 2006
Annual Security Conference
DEFENDING EUROPE: HIGH-TECH OPTIONS FOR ENHANCING ANTI-TERRORISM PROTECTION IN THE EU

***General Sir Rupert Smith**, former NATO DSACEUR, **Giles Merritt**, SDA Director and **Javier Solana**, EU's High Representative for CFSP at the 19 January book presentation*

*Press dinner with **Robert Stevens**, CEO, Chairman and President of Lockheed Martin, 29 September 2005*



***ichèle Alliot-Marie**, French Minister of Defence, and **John Reid**, British Secretary of State for Defence at an evening debate organised with Fondation Schuman, Friends of Europe and Hans Seidel Stiftung on 21 November 2005*

*Turkish Defence Minister **Vecdi Gönül** and NATO Secretary General **Jaap de Hoop Scheffer** at the 'Reinventing NATO: Does the Alliance reflect the changing nature of transatlantic security? 24 May 2005*

A *Security & Defence Agenda* Roundtable Report

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