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RSIS COMMENTARIES

Future Soldier Systems:
Promise or Hubris of the Network-centric Infantryman

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Future Soldier Systems promise to plug the individual infantryman into the networked battlefield, but silver bullet to the 'human-centric' complexity of urban warfare it is not.

NETWORK-CENTRIC technology has long been a primary focus of advanced militaries such as the US Army and the Singapore Armed Forces (SAF). The adoption of such technology however, has been largely restricted to big-ticket systems such as fighter aircraft, warships and armoured vehicles with very little adaptation by the individual infantry soldier. The necessity to upgrade the capabilities of the individual infantryman to deal with the complex challenges of dismounted operations in urban warfare compelled the US Army and other militaries to explore the possibilities of Future Soldier (FS) systems.

FS systems such as the US Army's Land Warrior System (LW) and the SAF's Advanced Combat Man System (ACMS) promise to deliver Command and Control (C2) integration and the 'multiplier effects' of the 'networked' Infantryman. In practical terms, FS systems empower the infantryman with satellite/digital navigation, streaming video from remote sensors, Blue Force tracking, Red Force marking, Medic Alert, Contact Alert, text messaging and 'round corner firing' capabilities. Nevertheless, these sophisticated systems do have their technological limitations. More importantly, FS systems in themselves do not address the complex 'human-centric' issues associated with urban warfare.

The Promise and Limits of Technology

In April 2007, the LW-trained 4th Stryker Brigade Combat Team (SBCT) which deployed in Iraq as part of the 'Surge' strategy became the first unit to test the LW system in combat. The need to continuously recharge or resupply LW batteries was a key consideration behind the decision to furnish Stryker Infantry Armoured Vehicles (IAV)-equipped units rather than airborne/airmobile units with the LW system. In the case of the SAF's ACMS project which is expected to be completed by 2012, it is only practicable that the system equip urban warfare specialist units outfitted with the recently

acquired Terrex Infantry Carrier Vehicle (ICV). In short, successful deployment of battery-hungry FS systems is currently slaved to advanced IAVs and hinge upon solving the logistical challenge of sustained power supply.

Current FS systems tend to be 'tortoise-shells' that would barely let an infantryman 'drop and roll' with hare-like reflexes. Users of both the LW system and ACMS often found that their Helmet Mounted Displays (HMD) hindered movement and aiming. On top of reduced mobility, another common criticism is that the sheer weight of FS systems wears a soldier out thus leading to unnecessary casualties. In order for full-fledged FS systems to be practicable and cost-effective, a 'Revolution in Battery Affairs' that results in longer lasting, more miniaturised battery units and lighter loads must take place.

Managing costs has been a serious issue in the development of both the LW system and ACMS. In the case of the LW system, by the late 1990s, its cost had skyrocketed past the US$85,000 per soldier mark. The LW programme was saved only when high-cost military-spec components were suitably replaced with cheaper commercial technologies. Likewise, cost management is also a major concern with the ACMS project. Indeed, putting the promise of the network-centric infantryman into action has proved to be more difficult and expensive than the prophets of network-centric warfare had imagined.

Enabling Mission Success or Inhibiting the Human-factor

Urban warfare takes place in a complex human terrain of interlocking political, civil, social, religious, and military systems. Fighting the 'Three-Block-War', junior military leaders -Strategic Corporals of section/squad-sized units will increasingly find themselves in urban terrain where they have to engage with hostile, friendly and neutral forces within an amorphous and unpredictable space of a single building block. FS systems are intended to empower the Strategic Corporal with the necessary smart tools to make sense out of a hazy picture. In the hands of a less than strategic corporal with a 'kill them all' mentality however, such systems can prove to be a liability.

Magnification sights and round-corner aiming devices that make every infantryman a marksman can have the detrimental effect of removing the face-to-face element associated with infantry-type operations. In an urbanised 'Three-Block-War' environment, pixelised figures on an LCD screen does not tell the soldier if the targets are hostile, friendly or neutral. Knocking on doors and interacting with the local population does. As such, the introduction of push-button warfare to the infantryman threatens to remove the human interface – the essence of infantry operations. In short, FS sytems might provide the infantryman with smart tools, but they do not guarantee battlefield astuteness.

The US Army prides itself in having a highly motivated and ingenious corps of squad leaders. Critics of the LW system argue that what grunts need is the freedom and flexibility to innovate within mission orders (or *Auftragstaktik*) - not heavier loads and systems that encumber freedom of action. The SAF too is cognizant of the necessity to empower its small unit leaders (the Specialist Corps), but initiative at that level is often inhibited by a 'play-it-safe' culture that is deeply embedded in Singaporean society. The fielding of the ACMS in the SAF does create a more competent 'combat technician' out of the average infantryman, but that in itself is no wellspring of innovative ability.

Instead of empowering the Strategic Corporal, FS systems can have the opposite effect of encouraging 'Tactical Generals' to micro-manage. The plugging of 'salt of the earth' grunts into the networked battlefield may seem like a logical progression in the journey of military transformation. But current technological limitations, per unit cost of FS systems and potential of encumbering (physically and cognitively) rather than empowering infantrymen, do beg the all important question: Is it really necessary to network each and every individual rifleman?

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