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A very versatile system

Multi-mission communications form a critical part in carrying out military operations today and the demand for them has seen a steady increase. A considerable amount of money is earmarked for the development of these communications systems. Helen Jameson spoke to Greg Giaquinto, Senior Aerospace/Defence Analyst for Forecast International about what these communications offer and what he expects for the future.

Question: Many thanks for giving us your time, Mr. Giaquinto. Can you please introduce Forecast international to our Readers?

Greg Giaquinto: Forecast International provides strategic counsel and services to clients regarding the aerospace & defense businesses.

Question: We are talking today about multi-mission communications. Can you begin by explaining why multi-mission communications are so vital to the military and what benefits they offer?

Greg Giaquinto: It may help to first provide a definition of multi-mission communications systems. Multi-mission communications systems are military communications systems that could be installed in multiple platforms and configured in more than one way. For example, the PRC-150 is a single radio unit that could be carried on the back of a dismounted soldier, installed in a vehicle, mounted in a helicopter, or configured on the ground as a base station radio.

Multi-mission communications systems are vital to executing military operations. These communications systems enable information to be shared among defense personnel as well as military weapons and other defense systems.

The primary benefit of a multi-mission communications system is its flexibility of use. The same radio can be used by a soldier flying in a helicopter, riding in a vehicle, or patrolling on foot.

Question: How significant is the market for multi-mission capabilities at present? Do you feel this will be sustained?

Greg Giaquinto: Current demand for multi-mission communications is robust. Forecast

International is projecting that defense departments worldwide will spend over US\$12 billion on 26 different multi-mission communications development, acquisition, or maintenance programs in the coming years. More specifically, this amount will be allocated for the development, procurement or maintenance of multi-mission communications systems or technology.

This healthy level of spending is likely to continue for the next couple of years.

Question: Militaries around the world, primarily in the US and UK, are working on updating their tactical radio systems and are investing huge amounts of money in doing so. What is driving this trend and how will these systems change the way in which the military communicate?

Greg Giaquinto: The primary factors driving this trend are the desire of defense departments to use military communications systems that run by software, and the high costs and delays of the development of the US Department of Defense's next-generation radio, the Joint Tactical Radio System (JTRS).

Defense departments have a penchant for software-operated military radios. Software-operated military radios send and receive communications signals via software. Traditional military radios send and receive communications signals via hardware. This engineering design difference gives software-operated military radios two major advantages over traditional hardware-operated military radios.

First, upgrading the communications capabilities of a hardware-operated military radio essentially requires building an entirely new radio unit. Conversely, upgrading a software-operated military radio entails install-

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Key areas of market research include military and civil aerospace, weapons and missile systems, electronics, naval systems, and power systems. All reports come complete with 10-year unit and value forecasts, as well as projected market share calculations for competing manufacturers.



ing new software to the existing radio unit – an entirely new radio unit does not have to be manufactured. As a result of this fact, military radio buyers believe:

- Upgrading the communications capabilities of a software-operated radio is less expensive than upgrading the communications capabilities of a hardware-operated radio;
- Upgrading the communications capabilities of a software-operated radio is less time-consuming than upgrading the communications capabilities of a hardware-operated radio; and
- Software-operated military radios take longer to become obsolete than hardware-operated military radios.

Second, the software installed in software-operated radios allows different software-run communications systems to communicate with one another. For example, the ITT manufactured SINCGARS radio and the Thales manufactured MBITR PRC-148 radio can communicate with one another by running the appropriate software in each radio. Conversely, the hardware-driven technology behind traditional hardware-run radios does not permit two different hardware-operated military communications systems to communicate with one another.

Question: Interoperability between radio systems is a burning and vital issue. What are the main challenges facing militaries regarding interoperability?

Greg Giaquinto: Developing software-based waveforms and modifying current software-operated radio systems to run these software-based waveforms. A waveform is the shape and form of a communications signal. Radios that run via software use software-based waveforms to send and receive communications signals. Interoperability between different software-run radio systems is largely dependent upon this software.

Question: We have heard so much about the delays in the development of the next-generation BOWMAN system and JTRS. What are the issues behind these delays? Is it down to upgrading costs?

Greg Giaquinto: The UK BOWMAN program is actually not doing too badly. It had a rocky start but seems to be getting on track. General Dynamics United Kingdom Ltd is the prime contractor for the BOWMAN program and has chosen ITT Corporation and Harris Corporation to supply most of the multi-mission communications systems purchased under the BOWMAN program.

The primary delay in developing the US Joint Tactical Radio System is software development: developing both software-based waveforms and security software. Because the JTRS is, in effect, a computer, the Na-

tional Security Agency is particularly concerned with the vulnerability of the JTRS to computer “hacking.” The JTRS program will take a major step forward once contractors develop encryption software (or crypto algorithm software) that is satisfactory to the NSA.

Question: Who will be the major players in the delivery of multi-mission communications systems? What products and systems will they be offering and which do you feel will see most take-up on the battlefield?

Greg Giaquinto: ITT Corporation, Harris Corporation, and Thales will sell a healthy share of multi-mission communications systems in the near future. ITT offers its Single Channel Ground and Airborne Radio System (SINCGARS), also known as the PRC-119 in the US. Harris sells three popular radios from its FALCON line: the PRC-117, the PRC-150, and the PRC-152.

Finally, Thales offers two military communications systems that are quite popular among defense departments today: the

Poste Radio de 4eme Generation (PR4G) and the Multiband Inter/Intra Team Radio (MBITR) PRC-148.

ITT Corporation’s PRC-119, or SINCGARS, will likely be the biggest seller in the coming years.

Question: What trends do you expect to see over the next year with regard to multi-mission communications?

Greg Giaquinto: I see militaries continuing to purchase software-operated multi-mission radios that are smaller in size and weight than their current systems.

Question: The demands of modern militaries are becoming ever more complex. How long do you think it will take to successfully take military communications well and truly into the 21st Century?

Greg Giaquinto: I think technology development is a funny thing - the more we learn, the less we actually know. Given this reality, I believe engineers are getting closer each day to taking military communications into the 21st Century. ■



Photo courtesy of US Army.