The International Forum to Advance First Responder Innovation

Capability Gap 5 "Deep Dive" Analysis

September 2019

International Forum to Advance
FIRST RESPONDER INNOVATION

Introduction

Background

The International Forum to Advance First Responder Innovation (IFAFRI) is an organization of government leaders from across the globe, focused on enhancing and expanding the development of affordable and innovative technology for first responders worldwide.

IFAFRI does this by:

1. Working with the global first responder community to define a list of common, high priority capability gaps;
2. Providing a platform for international collaboration on innovative research and development (R&D) initiatives and solutions;
3. Characterizing the global first responder markets, to inform and guide industry and academia about market opportunities and to incentivize these actors to develop and produce innovative technology solutions to first responder capability gaps; and
4. Providing information about relevant and available first responder technologies to the first responder community, while not endorsing any specific technology, product, or manufacturer.

In order to respond more safely, efficiently, and effectively to everyday and catastrophic incidents, first responders around the world need technologically advanced tools and equipment that are affordable and innovative. However, there is no centralized mechanism for first responders to identify and discuss shared needs and requirements. In addition, overall purchasing of tools and equipment is fragmented into smaller quantities, which provides little incentive for industry to commercialize innovative technologies. Therefore, the lack of consolidated requirements for first responders, along with fragmented purchasing, results in an inadequate amount of affordable, new technology being available for first responder use.

The purpose of this document is to characterize the markets and identify technology solutions relevant to IFAFRI's Capability Gap 5: *The ability to maintain interoperable communications with responders in any environmental conditions.* IFAFRI is publishing this information to identify potential areas of R&D where there may be opportunity for industry and academia to develop innovative solutions. Further, it is intended to provide industry and academia with key data points and analysis that will inform their decision on entering or expanding into related markets.

🧑‍🦱	**Interoperable Gateway Device**

C-AT® Communications

C-AT® Communications (United States) designs and manufactures communications equipment that addresses technical and physical requirements faced by civilian and military agencies. The company's radio interoperability products bridge dissimilar equipment, bands and frequencies, allowing homeland security, public safety, and military first-responders to have immediate, on-scene tactical communications. C-AT®'s intercom and wireless radio systems are designed for extreme environments such as hazardous, biological and nuclear cleanup, and for personnel operating in armored vehicles, mobile command posts, crewed boats, and aircraft. C-AT® products are designed for quick and simple deployment, without requiring specialized training or excessive maintenance.[22]

C-AT® Communications offers the **ICRI Interoperability Communications System** designed for mutual aid operations and incident response communications device connection for municipal, state and federal agencies. The Bridge can connect radios, land-line and satellite phones, devices running on the 700Mhz, 800Mhz, UHF, VHF and VoIP frequencies, TETRA devices and cellphones. The ICRI is available in a wide range of operational configurations for customization.[23]

Figure 7: ICRI

L3Harris

L3Harris (United States) is an aerospace and defense technology company that delivers end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains. L3Harris produces wireless equipment, tactical radios, electronic systems, night vision equipment and both terrestrial and spaceborne antennas for use in the government, defense and commercial sectors.[24]

L3Harris offers the **Harris Interoperability Gateway** a multi-channel analog voice interface designed for OpenSky, NetworkFirst and Project 25 (Phase 1 and 2) packet-switched digital networks. The gateway supports up to 12 audio channels for analog equipment, such as consoles and analog voice base stations, to the internet protocol (IP) digital network. Each gateway receives and transmits packetized digital voice over an ethernet interface. When used to provide

Figure 8: Harris Interoperability Gateway

interoperability with other communications systems, network users are automatically connected to legacy system users by selecting them as designated voice groups. For secure transmissions, the digitized voice within the digital network is coded using advanced multiband excitation (AMBE) for OpenSky systems or improved multiband excitation (IMBE).[25]

About

IFAFRI, the International Forum to Advance First Responder Innovation is an organization set up by international government leaders. It gives a greater voice to first responders.

The Forum focuses on the technologies needed to help first responders conduct their missions safely, effectively and efficiently. To assist industry and academia and stimulate and shape the development of solutions, it provides information on the relevant global markets.

4 strategic objectives

- **Identify common capability gaps**
- **Provide a platform** for international collaboration on innovative research and development initiatives and solutions
- **Describe global first responder markets** to inform and guide industry
- **Supply unbiased information** about relevant and available first responder technologies

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- **Capability Gaps:** pinpoints and prioritizes areas that can benefit from new or improved solutions for first responders.
- **Research & Development:** provides industry and academia with market information to generate momentum for the development of the necessary affordable, innovative technologies.
- **Stakeholder Engagement:** cultivates IFAFRI's relationships with first responders and contacts in industry and academia.

IFAFRI also reaches out to Standards Developing Organizations (SDOs), encouraging them to participate in the Forum's committees. While IFAFRI does not create or modify standards, it may highlight challenges that standardization could help to resolve. Its members also seek involvement in SDO committees to better inform the relevant processes.

15 members

IFAFRI was established in 2014, building on a commitment to collaborate on innovation that founding members had already confirmed through various bilateral or multilateral agreements.

As of 1 June 2019, representation to the Forum is comprised of members from Australia, Canada, the European Commission, Finland, Germany, Israel, Japan, Mexico, the Netherlands, New Zealand, Singapore, Spain, Sweden, the United Kingdom and the United States.   #