Smart Mobile Technology for Emergency responders: Opportunities and Challenges

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The Canadian public safety sector is at the verge of a technological evolution where smart mobile devices become an essential part of everyday operations of emergency responders. These devices (i.e., smartphones and tablets) will give emergency responders the ability to collect, share, and access different types of data that can ultimately enhance their operational efficiency and effectiveness. However, realizing this vision requires considering a multiplicity of technological, operational, and economical attributes when designing mobile applications for these devices. This article unveils ten key attributes that should be taken into consideration. These attributes are then projected onto a software solution that gives emergency responders necessary and sufficient building information while en route to an emergency scene.

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I. Smart Mobile Devices

Smartphones and tablets are mobile electronic devices that run a mobile operating system, e.g., Android or iOS, which have advanced computing and communicating capabilities. Modern smart mobile devices are multi-use devices that support portable media players, have low-end compact digital cameras, and Global Positioning System (GPS) navigation units. They also include high-resolution touch-screens and web browsers that can display standard and mobile-optimized web pages. These devices can be connected to a number of wireless communication technologies, e.g., 3G, 4G, Wi-Fi, and Bluetooth.

The number of smart mobile devices in the world has been steadily growing over the past decade [1]. Currently, there are more than 2.6 billion smartphone subscriptions in the world, representing more than 35% of all mobile subscriptions. However, this ratio is much higher in developed countries.

These devices allow police officers to see incoming 9-1-1 calls, access the city's databases, and access a number of sources of information

For instance, by the end of 2014, 66% of Canadians 18 years of age and older owned a smartphone, which represents more than 82% of all mobile subscriptions in the country [2]. Furthermore, by the same time, 49% of Canadians 18 years of age and older owned a tablet, compared to 39% in 2013 [2]. A primary reason behind the ever-increasing number of smart mobile devices is mobile applications. Smart mobile devices often come with a number of pre-installed applications, e.g. web browsers and email clients. However, most mobile applications are available through distribution platforms called application stores, e.g., Google Play, which are operated by the owner of the mobile operating system. Mobile applications are available for free, fermium, or a premium. Combined, App Store and Google Play have more than 2 million applications that were downloaded more than 125 billion times [3]. On average, a

How mobile is transforming emergency services in Toronto

By **Vawn Himmelsbach**

Valentine's Day was a heartbreaker this year for Toronto historians. The city's venerable Badminton and Racquet Club went up in flames — a six-alarm fire that required the assistance of 120 firefighters, forced the evacuation of thousands of office workers and residents, and crippled public transportation in a densely-populated area of the city.

While the building was destroyed, there were no serious injuries. But the outcome could have been different if fewer resources had been available.

Like emergency services across the country and around the world, Toronto Fire Services and Toronto Police Service are looking at how technology can help to improve overall efficiencies and response times during emergency situations. While technology isn't a panacea, it could help.

But implementation is not easy. "Operational changes can be slow in a large organization," says Frank Pappone, Division Chief with Toronto Fire Services (TFS), "but new technologies are definitely coming." Firetrucks, for example, are already equipped with mobile data terminals, but TFS is in the process of rolling out 150 ruggedized, Windows-based tablets that will untether crew from vehicles.

"With the direction we're seeing fire services going — particularly in Toronto where we're looking at transforming the traditional role of the firefighter, getting them more engaged in the community — we have to provide them with the toolsets to engage in a level that traditionally they haven't done," says Pappone. "We want to be able to leverage our biggest resource, which is our staff."

TFS is replicating its current system in a tablet format, but towards the second half of this year it will be looking at enhancing the functionality of front-line staff through mobile technology, such as providing data on buildings.

"When you're looking at fire emergency response, our target travel time is four minutes — we've got four minutes to digest information, at least for the first truck," says Pappone. "We do have links in the backend with paramedic services; we don't have that yet with police and 911, but we hope to make some progress this year." That means, while some technology is interconnected with paramedic services, we could see more integration between all emergency services in the future.

First, though, that requires digital data. Currently, firefighters collect data with pen and paper, and then manually input that into a records management system. The challenge is not only collecting this information, but keeping it current. TFS has already started mapping vulnerable occupancies, such as vacant buildings where there could be squatters, and multi-unit residential buildings. This information will help to classify risk and determine if firefighters should take a defensive or offensive approach during a fire.

But having access to building information is only half of the equation. Firefighters need to know where all the critical components are, such as where hydrants are located and where the first line will be laid. And it's one thing to understand the building; it's another to understand building construction and how they burn. Having that information at their fingertips could be transformative.

"It really comes down to gathering information and distributing it when required

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Photo: Toronto Police Service

Toronto Police Service uses technology to be where needed most. Officers equipped with mobile technology can be more engaged with the public.

smartphone user spends more than 29 hours per month on the top five mobile applications categories as shown in Table 1.

Realizing the importance and usefulness of smart mobile devices, a number of cities are taking steps towards equipping their emergency responders with these capable devices. For instance, New York Police Department (NYPD) has equipped all its officers (36,000 officers) with smartphones and equipped 2,000 police vehicles with tablets [4]. These devices allow police officers to see incoming 9-1-1 calls, access the city's databases, and access a number of sources of information, like the Domain Awareness System (DAS), which is a mobile application that allows police officers to access surveillance cameras across the city. Canadian cities are following suit. In 2016, Toronto police service has released a roadmap for modernizing community safety. One of the major enablers of this modernization is smart mobile technology [5]. Similarly, Ottawa police are equipping their officers with smart mobile devices as part of its technology roadmap released in May 2016 [6].

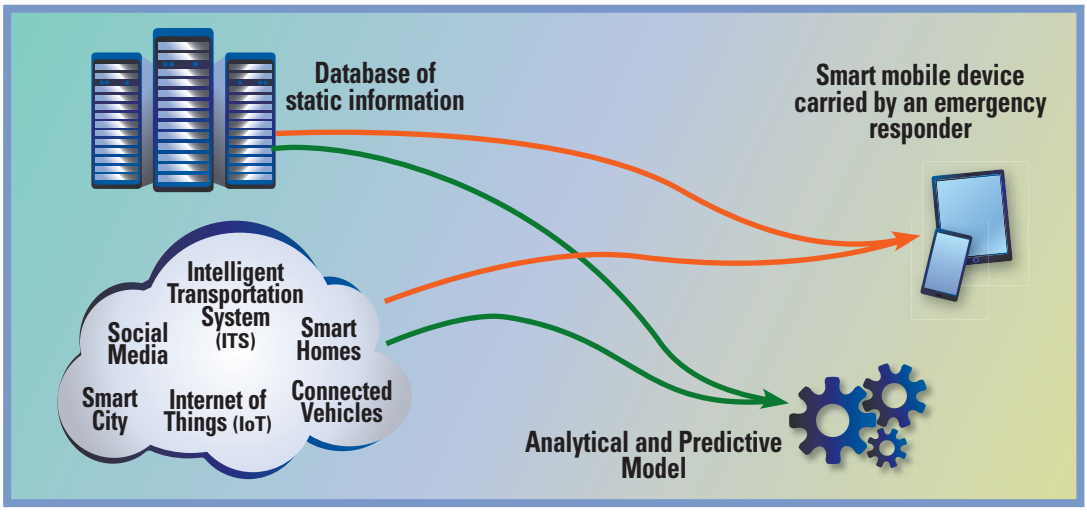

Figure 1: Different types of information that can be used by emergency responders.

MOBILE APPLICATION CATEGORY	AVERAGE HOURS SPENT PER MONTH
Search Engines, Portals and Social	10hr and 56 min
Entertainment	10hr and 34 min
Communication	3hr and 48 min
Productivity and Tools	2hr and 16 min
Commerce and Shopping	1hr and 33 min

Table 1: Average time users spend on the top five mobile applications

This heightened adoption of smart mobile technology has led to a growing number of mobile applications built specifically for emergency responders. These include emergency reporting applications, team management and tracking applications, volunteer finder applications, and supplementary information applications (e.g., hazmat). These applications range from cause-driven applications, e.g., PulsePoint mobile application for Cardiopulmonary Resuscitation (CPR)-trained volunteers, to for-profit applications, e.g., BeOn secure group communication mobile application. The vast majority of these applications were developed with minimal or no coordination between the developing firms and the emergency responders community. This has led to negligible adoption. In April 2013, the Association of Public Safety Communications Officials (APCO) launched an online Application Community (AppComm) to collect and promote mobile applications built for public safety in general and emergency responders in particular [7]. Currently, this website includes more than 200 mobile applications. In addition, AppComm provides design guides and best practices for mobile developers based on the works of the National Institute of Standards and Technology (NIST) [8] [9] [10] and the Department of Homeland Security (DHS) [11].

This article reviews the technological, operational, and economical attributes that should be considered during the design process of mobile applications for emergency responders. In part, these attributes were solicited from the works of NIST, APCO, and DHS. They are also based on our work on the operational requirements of a Building Tactical Information System (BTIS) software solution that gives emergency responders necessary and sufficient building information while en route to an emergency scene [12]. The remainder of this article is organized as follows. Section II gives a summary of the different types of information that can be used by emergency responders. Section III introduces the ten attributes that should be considered during the design process of mobile applications. In section IV, these attributes are projected onto the aforementioned BTIS. Finally, conclusions are drawn in Section V.

II. Types of Information

The ultimate objective of any mobile application is giving emergency responders necessary information at the right time and the right location. In general, emergency responders are interested in three types of information: static information, dynamic information, and inferred or calculated information [13]. These three types of information, shown in Figure 1, are discussed subsequently.

II.1 STATIC INFORMATION

This information does not change with time, or changes at a very slow pace. For instance, it includes a building's address, entrance, floorplan, and location of fire panel. It also includes a person's name, address, occupation, and age. Currently, emergency responders access some of this information electronically using vehicle-mounted Mobile Data Terminals (MDTs) or verbally by calling dispatch. Existing records are often limited to criminal records, civic addresses, and vehicle registration. In general, emergency responders do not have (technological) means or procedures to collect static information in electronic format.

II.2 DYNAMIC INFORMATION

This type of information changes with time on a frequent basis. For example, the readings of a fire alarm system or an access control system. It also include the whereabouts of emergency responders (e.g. inside a building). Currently, emergency responders have very limited access to dynamic information. For instance, they can access the readings of a fire panel or the stream of a surveillance camera only on site, but not en route. They can track the locations of each other outdoors but not indoors. This limited access is due to two main reasons. First, limited availability of dynamic information, e.g. vast majority of buildings do not have intelligent monitoring and control systems.

Second, there is a lack of unified information sharing protocols between different sources of dynamic information and the emergency responders [14].

While static information is currently the dominant type of information available to emergency responders, it is expected that dynamic information will become equally dominant—if not the dominant—as the Smart Grid, Smart City, Internet of Things (IoT), and Intelligent Transportation Systems (ITS) become realities [15].

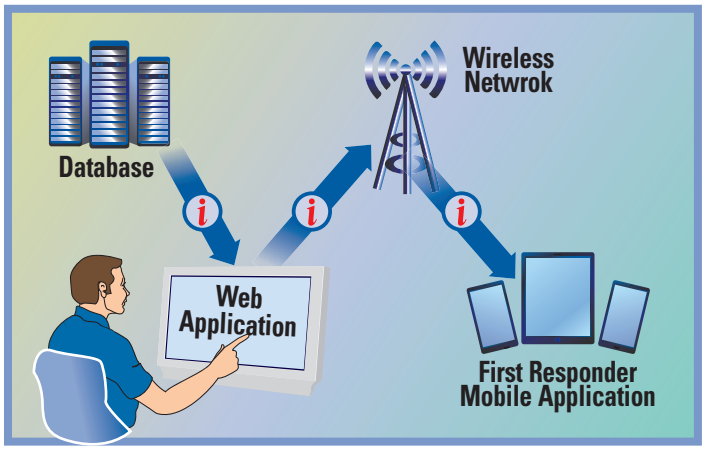

Figure 2: Building Tactical Information System (BTIS)

II.3 INFERRED OR CALCULATED INFORMATION

Unlike the previous two types, this type comes out of analytical and predictive models. These models digest static and dynamic information and give emergency responders accurate analysis and predictions of the ongoing emergency. For instance, a model might use some social media feeds about a multivehicle accident along with traffic information in that particular part of a city to give law-enforcement personnel the best course of action in terms of road closures and traffic rerouting.

Limited instances of this type of information are available these days. For instance, emergency responders can use data analytics to digest social media feeds related to a certain emergency without reading every post. However, it is predicted that the increase in the volumes of static and dynamic information that emergency responders have access to will stimulate interest in inferred or calculated information [16].

III. Desired Attributes of Mobile Applications

The emergency responders market is fundamentally different from the consumers market for many reasons. First, emergency responders work in teams with a strong sense of hierarchy and accountability. Second, emergency responders deal with a lot of private and sensitive information. Third, emergency responders follow very specific standard operational procedures and response protocols. Fourth, emergency responders have limited financial resources. When they invest in a new technology, they are very conscious of the resulting Return on Investment (ROI). These differences are naturally reflected in terms of attributes for mobile applications. In the following, we highlight the main attributes.

III.1 ROI

A mobile application has to address a current need, solve a problem, or enhance the performance of emergency responders with a measurable and significant ROI.

III.2 OPERATIONAL COMPATIBILITY

A mobile application has to blend with, or cause minimal change to, existing operational procedures and protocols. For instance, emergency responders often work in groups with close collaboration between field officers, dispatch, and the main office. Accordingly, the mobile application has to allow for seamless exchange of information between these three groups to guarantee uniformity of information sharing.

III.3 CYBERSECURITY

This is probably one of the most critical attributes. The sensitivity of the information that emergency responders use make it an attractive target for cyberattacks. Hence, mobile applications have to be secure by design. This includes user authentication, data encryption, and secure storage.

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III.4 ACCOUNTABILITY

The information provided by a mobile application is likely to guide the decision-making process of emergency responders. Hence, an access log has to be maintained for each user along with time and location. In case of accessing information over the Internet, the log has to include whether information was successfully received or not.

III.5 PLATFORM AND NETWORK NEUTRAL

As the public safety sector is embracing smart mobile technology, it is consciously aligning itself (to a large degree) with the consumers market to leverage economies of scale. This was most apparent when Long Term Evolution (LTE) technology was used to build the upcoming Public Safety Broadband Network(PSBN) [17]. Accordingly, any mobile application is expected to be agnostic to the wireless technology (LTE, 3G, Wi-Fi, etc.), device hardware, and operating system.

III.6 SCALABILITY

Every emergency is unique, and the number of responders needed at an emergency scene is unpredictable. Some major incidents draw responders from different jurisdictions. Hence, a mobile application should be able to guarantee a constant level of service regardless of the number of served responders.

III.7 UNIFORMITY OF PRESENTATION

Operational integrity of emergency responders requires that all members of a response team have access to the same amount of information using the same presentation. The reason behind this is the dynamic and unpredictable nature of emergency response. Different responders might do different things in different situations. Hence, guaranteeing delivery of the right information to the right person requires using the same presentation to all team members.

III.8 BILINGUALISM

The mobile application should account for situations where emergency responders use more than one language. This can be encountered, for instance, near the borders of Quebec. In this case, the mobile application needs to support all used languages.

III.9 INTUITIVE/USER FRIENDLY

This is a very important design challenge for mobile applications. Emergency responders come from different backgrounds, with different levels of education, and different levels of comfort with mobile technology. Furthermore, emergency management tends to be a fast-paced profession where responders have very limited time to use a mobile application. Accordingly, the mobile application has to be intuitively designed. Users need to find information in the most likely places and with the least number of steps.

Table 2: Key attributes of a mobile application as applied to BTIS

DESIRED ATTRIBUTE	HOW BTIS ACHIEVES IT
ROI	• The solution results in a measurable reduction in response time by cutting about five minutes of incident assessment and response planning times. • The solution can be used for every building emergency incident, i.e., meet a daily need.
Operational Compatibility	• The solution preserves the same command hierarchy that emergency responders currently use. • The solution requires minimal effort from the dispatcher while giving him full information about the response team (who is available, who received the information and who did not, who is online and who is offline, etc.).
Cybersecurity	• The solution does not store building information locally on any device. • The solution uses encrypted communication to send information to the response team. • The database is hosted in a Tier 3 or Tier 4 datacenter. • The solution does not send information to off-duty responders (they are marked as offline).
Accountability	• The solution uses acknowledged communication to confirm reception of information. • The database is populated and maintained by the emergency response department. • Formal training is conducted prior to employing the solution.
Platform and Network Neutral	• The software is platform agnostic. It runs on any mobile device and any desktop operating system with a modern internet browser. • The software works on any public or private wireless network.
Scalability	• The solution is not affected by the number of members on the response team.
Uniformity of Presentation	• All members of the response team have the same information presentation on their devices.
Bilingualism	• The solution supports English and French.
Intuitive/User Friendly	• The solution has an intuitive user interface for both responders and dispatchers.
Battery and Data Efficiency	• The solution does not store or process information locally. • Compressed information is sent to the response team to reduce data traffic.

III.10 BATTERY AND DATA EFFICIENCY

The mobile application has to be as efficient in power and data as possible. Emergency responders sometimes operate for prolonged periods of time without access to power chargers. Hence, the application needs to be as conservative in its power consumption as it possibly can. On the other hand, emergency responders operate in all types of environments, some of which might have bad wireless coverage. In fact, even with good coverage, emergency responders will ultimately use the PSBN that will have a 20MHz bandwidth [17]. Hence, efficient use of wireless resources will always be a necessity.

IV. Case study: Building Tactical Information System (BTIS)

Let us now apply these attributes to a mobile application that gives emergency responders access to building information while en route to an emergency scene. This application is part of a software solution referred to as a Building Tactical Information System (BTIS) [18]. This solution is illustrated in Figure 2.

Upon dispatching a response team to an emergency scene, the dispatcher pulls available building information from the database and pushes it to the response team through a wireless link. Table 2 above summarizes how BTIS meets the above mentioned attributes.

V. Conclusions

The public safety community is facing unique challenges as they embrace smart mobile technology. A growing number of mobile applications and software solutions are being built for this sector without proper consideration of technological, operational, and economical requirements. This article has discussed the potentials of smart mobile technology and highlighted ten key attributes that have to be considered in the design process. These attributes are then applied to BTIS. ■

VI. References

[1] "Ericsson Mobility Report: On the Pulse of the Networked Society," Stockholm, Sweden, 2016.

[2] "Communications Monitoring Report," Canadian Radio-Television and Telecommunications Commission (CRTC), Gatineau, Quebec, Canada, 2015.

[3] "The future of mobile application," UAB Collat School of Business, 2016. [Online]. Available: http://businessdegrees.uab.edu/resources/infographics/the-future-of mobile-application/. [Accessed 15 July 2016].

[4] "The Five T's: Taking Effect," 23 May 2016. [Online]. Available: http://www.nyc.gov/html/nypd/downloads/pdf/home_features/2016-05-23_nypd-five-t-s.pdf. [Accessed 20 Sep 2016].

[5] Transformational Task Force, "Action Plan: The Way Forward Modernizing Community Safety in Toronto," Toronto Police Service, Toronto, ON, Canada, Jan. 2017.

[6] "The Ottawa Police Technology Roadmap," CATAAlliance, 18 May 2016. [Online]. Available: http://www.cata.ca/Media_and_Events/Press_Releases/cata_pr05181601.html. [Accessed 20 Sep 2016].

[7] "Application Community - The Destination for Public Safety Apps," APCO International, APril 2013. [Online]. Available: http://appcomm.org/. [Accessed 20 Sep 2016].

[8] M. Ogata, B. Guttman and N. Hastings, "Public Safety Mobile Application Security Requirements Workshop Summary," National Institute of Standards and Technology (NIST) - U.S. Department of Commerce, Gaithersburg, MD, USA, Jan 2015.

[9] S. Quirolgico, J. Voas, T. Karygiannis, C. Michael and K. Scarfone, "Vetting the Security of Mobile Applications," National Institute of Standards and Technology (NIST) - US Department of Commerce, Gaithersburg, MD, USA, Jan 2015.

[10] Y.-Y. Choong, J. M. Franklin and K. K. Greene, "Usability and Security Considerations for Public Safety Mobile Authentication," National Institute of Standards and Technology (NIST) - U.S. Department of Commerce, Gaithersburg, MD, USA, Jul 2016.

[11] Office of Emergency Communications, "First Responder Mobile Application Development Best Practices Guide," US Department of Homeland Security (DHS), Washington, D.C., US, Dec 2014.

[12] A. Abu Alkheir and H. T. Mouftah, Smart Technology Use with Public Safety and First Responders, Ottawa, ON, Canada: Internal Report, Sep 2016.

[13] W. W. Jones, D. G. Holmberg, W. D. Davis, D. D. Evans, S. T. Bushby and K. A. Reed,

"Workshop to Define Information Needed by Emergency Responders during Building Emergencies," National Institute of Standards and Technology (NIST) - US Department of Commerce, Gaithersburg, MD, USA, Jan 2005.

[14] D. G. Holmberg, M. A. Raymond and J. Averill, "Delivering Building Intelligence to First Responders," National Institute of Standards and Technology (NIST) - US Department of Commerce, Gaithersburg, MD, US, Feb 2013.

[15] R. Felts, M. Leh, D. Orr and T. A. McElvaney, "Location-Based Services R&D Roadmap," National Institute of Standards and Technology (NIST) - US Department of Commerce, Gaithersburg, MD, US, May 2015.

[16] R. Felts, M. Leh and T. McElvaney, "Public Safety Analytics R&D Roadmap," National Institute of Standards and Technology (NIST) - US Department of Commerce, Gaithersburg, MD, US, Apr 2016.

[17] J. Pagotto, G. Scribano, R. Cayouette, S. Braham, J. Gurnick, C. Auger, E. Lafond, J. Fournier, T. Doumi, C. Lucente, M. Dixon and L. Samson, "Public Safety Broadband Network Architecture Description," Defence Research and Development Canada (DRDC) - Department of National Defence, Ottawa, ON, Canada, Aug 2013.

[18] D. G. Holmberg, W. D. Davis, S. J. Treado and K. A. Reed, "Building Tactical Information System for Public Safety Officials," National Institute of Standard and Technology (NIST) - US Department of Commerce, Gaithersburg, MD, USA, Jan 2006.

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in a format that's digestible," says Pappone. That means all forms of information, including audio and video. Thanks to Hollywood movies, the public already believes emergency response personnel can do this stuff, he says.

"People think they can send video clips and images to 911, and that's certainly not the case," he says. There's also a danger of overwhelming the system; a single traffic accident on a major highway in Toronto can result in 200 calls to 911. "The technology only gets you part way; we need to have staff in place and filtering mechanisms. Artificial intelligence is going to have to kick in."

The Toronto Police Service is also modernizing its IT infrastructure, rolling out mobile technology that allows them to access data, collect evidence and file reports on smart phones and tablets. TPS is in the pilot phase of moving to mobile, which it hopes to fully roll out in the next two to three years.

In a report released in January, the TPS's Transformational Task Force says vehicles are a physical barrier that create a sense of isolation from residents. It also says in some cases officers file paperwork and respond to emails at divisional stations, preventing them from patrolling communities. Both issues could be resolved through the use of mobile technology.

"In the next three years, we're going to be undergoing a modernization process, and among those goals is leveraging technology to ensure we're being efficient and effective in our policing efforts," says Sergeant John Apostolidis, a member of the TPS's task force implementation team." This is where that mobile platform will further enable us."

Of course, mobile technology is only as good as the content that's on it. Some police forces are experimenting with mobile applications; the Prince Albert Police Service in Saskatchewan, for example, is piloting a Building Tactical Information System (BTIS) developed by Ottawa-based firm APX, which can provide officers with information on buildings they enter in response to emergency calls, equipping them with everything from floor plans to satellite photos.

The Toronto Emergency Safe School System (TESS) and Toronto Operational Response Information System (TORIS) allow TPS to access information such as floor plans, emergency contacts, fire plans and evacuation strategies in buildings ranging from schools to small businesses to big towers in the downtown core. This information allows TPS to appropriately develop an emergency response if needed.

Once officers are equipped with mobile technology, they'll have access to this type of information at their fingertips. It will also allow for "proactive action," where they can access data for situational awareness and crime prevention. And they can collect evidence and statements (including audio and video) directly from their mobile device.

"There's a completely different reaction from the public when you're outside of a vehicle," says Apostolidis. "I rode a bicycle quite a bit; having that direct contact certainly made my role more approachable. We're extending that with now being able to be reached through a mobile device."

As with Toronto Fire Services, it's all about providing the right information, to the right person, at the right time. "We're looking at how we can garner efficiencies," says Pappone, "so it's not only giving them the information they need to respond but also providing full sets of data to create greater efficiencies overall." ■

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Upcoming IEEE Mobile Communications Events

PIMRC'17and 5G Summit in Montreal in October

Personal, Indoor & Mobile Radio Communications (PIMRC '17), will be held October 8 -13. One of IEEE Communication Society's flagship conferences, it is widely regarded as a premier conference in the field of wireless research. The conference has a long history of bringing together academia, industry and regulatory bodies, and PIMRC 2017 will be no exception.

Covering the latest research and innovation in wireless communications technologies, the comprehensive technical and industry program includes core wireless PHY, MAC, and networking, and also encompasses microwave components and circuits, antennas and propagation aspects, DSP, VLSI, circuits and systems design, power electronics, machine learning and artificial intelligence. For more information please see the website: http://pimrc2017.ieee-pimrc.org/

PIMRC 2017 IMPORTANT DATES:

- 5 May 2017 — Call For Special-Session Proposals

- 5 May 2017 — Call For Workshop Proposals

- 19 May 2017 — Regular Paper Submission

The 5G Summit is expected to be collocated with PIMRC 2017. With the support of IEEE Montreal Section's award-winning ComSoc Chapter, the Summit will be one of 18 held this year. The Summit series was launched in 2015, with the second hosted by Toronto Section's ComSoc Chapter in November of that year. Please consult the web site for further information: http://www.5gsummit.org/montreal/

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