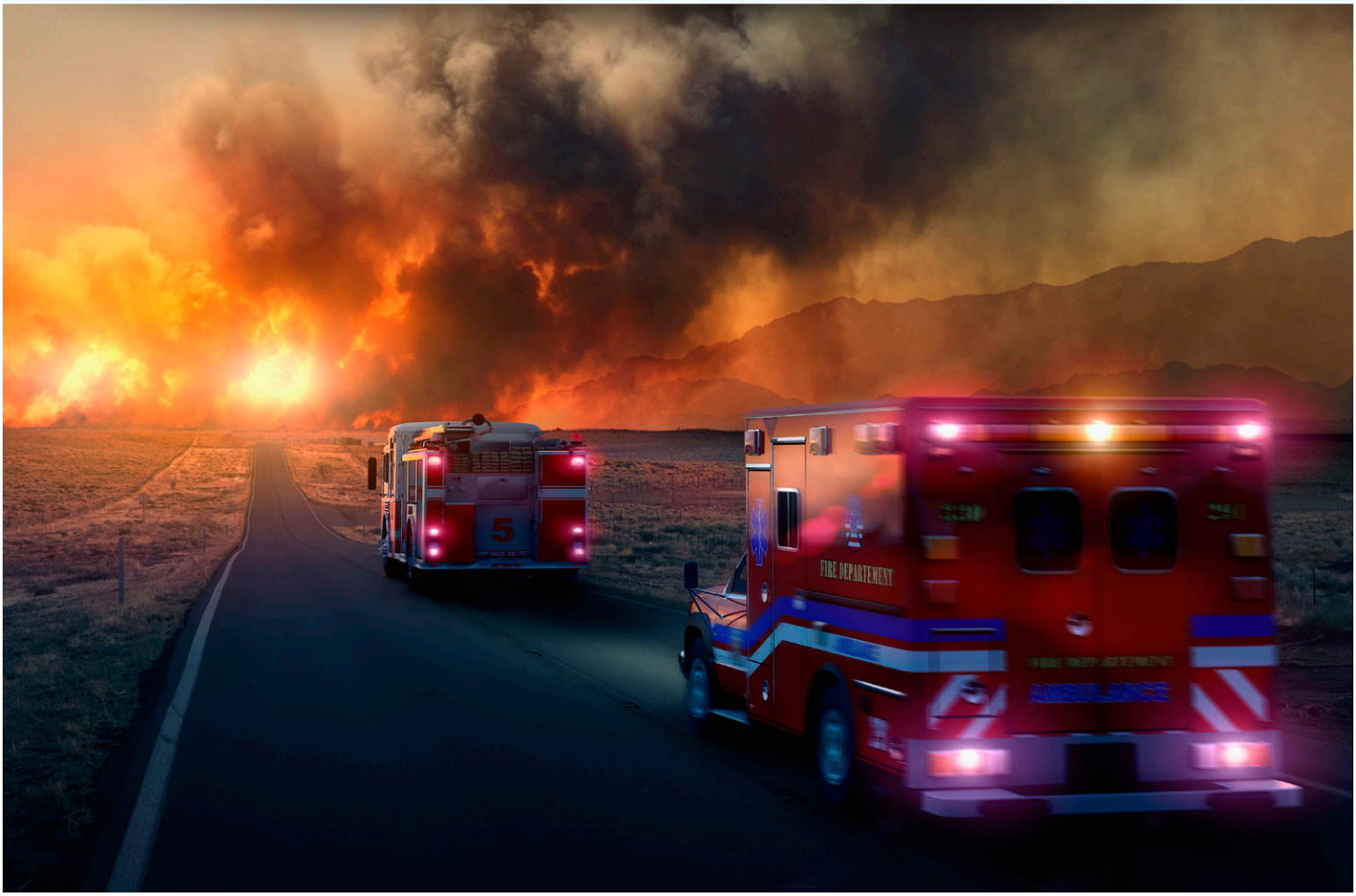
Panasonic CONNECT

TOUGHBOOK®

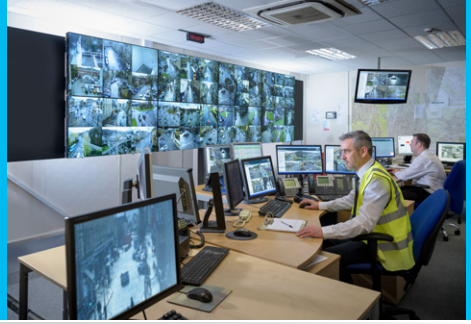
PUBLIC SECTOR ORGANIZATIONS AND 5G

Five questions (and answers)



THE IMPACT OF 5G FOR LAW ENFORCEMENT, FIRST RESPONDERS AND UTILITIES

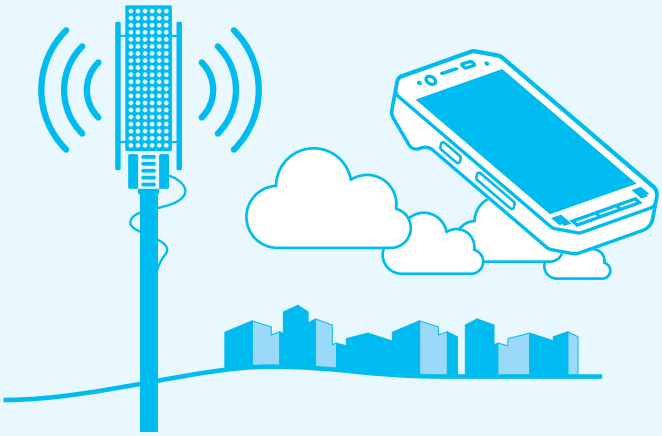
THE IMPACT OF 5G
What 5G can do



The transformative power of 5G will change the daily routines of public sector organizations in significant ways, impacting how frontline mobile workers meet mission-critical goals and affect outcomes. As these advanced 5G technologies are launched, here are five things that public sector organizations, including law enforcement, first responders and utilities, need to know.

1. What is 5G and what can it do?

5G technology combines speed, capacity and low latency (the time required for a packet of data to make the round trip between two points) to enable wireless networks to perform across a range of radio frequencies, allowing for faster data transmission that can meet the increasing demands for information no matter where users are. While 5G will coexist alongside 4G for now, the transformative promise of information delivered in near real time through 5G means frontline public sector workers will be empowered to make better decisions and act more quickly in situations where every second counts.



1 MILLION/km^2

5G mobile broadband supports 10 times more devices than 4G, potentially enabling the connection of up to 1 million devices per square kilometer (or almost 2.6 million connections per square mile). Current 4G technology enables over 100,000 devices in the same area (or 260,000 in a square mile).[1]

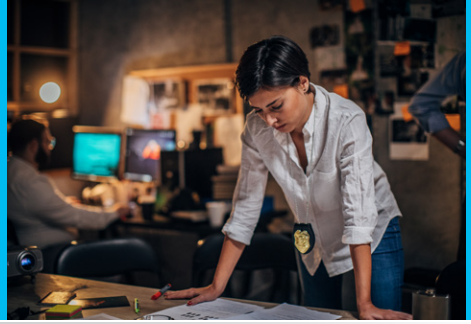
5G networks will provide the speed, scalable bandwidth, ultralow latency and capacity that public sector organizations can use to unleash new experiences, provide new services and reduce costs through greater efficiencies.

FIRSTNET TO SUPPORT 5G CONNECTIVITY

"Many EMS teams are starting to explore the potential of 5G and it's likely that the rollout among EMS providers in the US will grow now that the First Responder Network authority (FirstNet®) has announced it will support 5G connectivity."

—Mary Beth Hall, Panasonic Connect's Director of Wireless Strategy & Marketing[2]

THE IMPACT OF 5G
How public sector organizations benefit



2. How does 5G benefit public sector organizations?

5G promises the public sector the ability to harness massive amounts of data for actionable insights and timely decision-making. Frontline mobile workers can boost efficiency and productivity through faster data transfers, smoother online content streaming, and higher-quality audio and video calls, and they can leverage near-real-time analytics to make decisions.

What will significantly empower public sector organizations is the integration of 5G with emerging technologies such as artificial intelligence (AI), Internet of Things (IoT) and edge computing. As more sensors and 5G-enabled devices collect public sector data, information processing and compute power move to the edge of the network, where events and work happen.

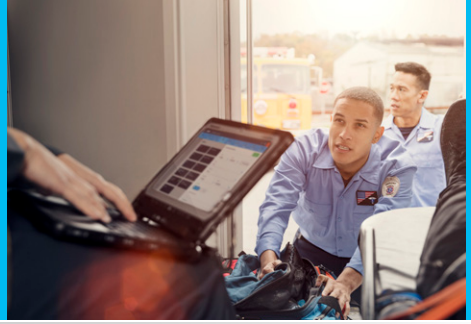
Specifically, 5G offers the potential to enhance productivity and efficiency of frontline public sector workers with:

- **Faster access to information**
- **The ability to access and transfer larger files and more data**
- **Complex modeling on the go**
- **Enhanced use of unmanned aerial vehicles (UAVs)**
- **Better AR/VR for emergency training and simulations**
- **And more**

Law Enforcement

The ability of an officer to instantly assess their surroundings can mean the difference between an officer down and citizens' safety in law enforcement. 5G brings critical situational awareness to officers' fingertips through:

- **Technically advanced squad cars**—5G-connected squad car command centers offer tremendous potential by bringing real-time access to data in the field. 5G-connected devices can help make officers' jobs less dangerous, less difficult and more efficient.
- **Drones**—Unmanned Aerial Systems (UASs) offer the ability to report to incident commanders faster than piloted aircraft such as helicopters.
- **Artificial intelligence (AI) and smart cities**—Law enforcement agencies can sift through large amounts of data on criminal activity to perform threat assessments and allocate resources more effectively.
- **Data- and bandwidth-intensive AI tools**—5G can support applications that aid criminal investigations, enhance situational awareness and enable preventative policing, or for crowd and traffic control.
- **Remote collaboration**—Officers at the scene of an incident or remote consultants can share large volumes of data (such as videos) in near real time with other agencies, including fire departments, rescue squads and other public sector organizations as situations evolve.
- **Vehicle identification**—Officers can quickly and efficiently access up-to-date Department of Transportation metadata on vehicles to determine where a vehicle has been, and when.
- **Video analytics**—Law enforcement decision makers can gain real-time insights into emergency situations.



3. Why should public sector agencies embrace 5G?

While public sector organizations already rely heavily on 4G and mobile solutions to help increase productivity and safety and deliver efficiencies, game-changing applications such as smart cities are emerging as 5G converges with edge computing, IoT, automation, AI and other powerful technologies. Public sector frontline workers stand to benefit in critical ways, extending into new capabilities for operating in dangerous environments that people can't typically access and enhancing how organizations collaborate and coordinate with each other.

93% of people believe coordination between agencies is critical when responding to a crisis.[3]

Firefighting/EMS

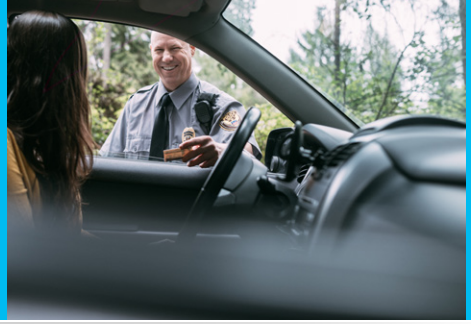
When it comes to fire or emergency medical situations, seconds matter. With 5G-enabled devices operating on secure 5G networks, EMS and fire safety workers can experience:

- **Real-time collaboration**—First responders can collaborate faster and more effectively with other agencies including law enforcement, fire departments, rescue squads and other public sector organizations as situations evolve.
- **Faster, more data-intensive mobile applications**—5G supports faster use of mobile capabilities including CAD, routing and built-in GPS used with GIS to provide critical information such as physical location, the best route of travel and more.
- **Video communications**—Low-latency and high-bandwidth video calling can provide real-time insights for decision makers, or the opportunity to perform remote procedures as needed, when faced with emergency situations.
- **Drones**—Unmanned aerial vehicles can provide real-time intelligence about situations in locations that are difficult for humans to reach.

Citizens are now advocating with public sector organizations for the kinds of service and response that advanced technology and digital transformation can provide. According to a survey from Motorola, 88% of citizens globally want to see public safety transformed using advanced technology, and 71% say advanced technology such as video cameras, data analytics, cybersecurity and cloud computing is needed to address the challenges of the modern world.[4]

How unmanned aerial vehicles aid first responders

The dangerous conditions following a chemical factory explosion in Thailand put firefighters and residents at risk. When teams sent up UAVs, they were able to provide crucial situational awareness intelligence that allowed responders on the ground to coordinate evacuations and safely put out the fires.[5]



4. What about security?

The considerable expansion of wireless services that will come with 5G also presents new security challenges. As the number of sensors and devices increases with new 5G applications, so will the attack surface for cyberthreats.

Security was built into 5G from the ground up. New internet security protocols have been integrated with 5G architecture, adding new mutual authentication capabilities, enhanced subscriber identity protection and additional security mechanisms, all of which enable greater interoperability among devices and organizations.[6]

5G enables several significant security enhancements compared to its predecessors:[7]

- **More identity protection capabilities**
- **More robust encryption**
- **Enhanced authentication support between networks and devices on modernized, virtualized systems**

One of 5G's critical security differences lies in its ability to create network slicing. This allows organizations to share different networks and services across one infrastructure by dividing their traffic into different types. Specific traffic will be allocated along network slices according to its use, securing services that are relevant only to that traffic. For example, emergency officials can use dedicated frequencies for emergency communications that will not compete with public internet traffic, helping to make any conversations more secure and private. Network slicing also leverages advanced cloud and virtualization resources while offering performance and application benefits.

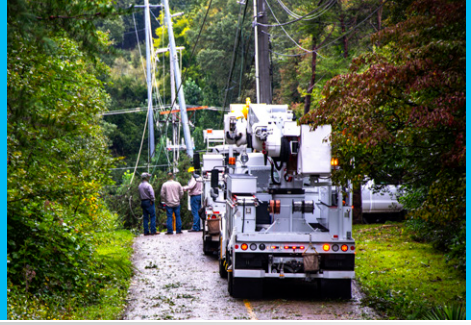
Organizations can begin now to protect their networks and devices by adopting zero-trust security policies and developing a security-first IT culture. And as more 5G-enabled devices are integrated, agencies can develop virtual security policies and use AI to automate threat mitigation, helping to prevent attacks before they happen.[8]

Energy and Utilities

As energy and utilities undergo significant evolution in the quest for more sustainable processes and resources, they need solutions that can deliver near-real-time data transmission and access. 5G can help them achieve the speed and efficiency they need, through:

- **An enhanced remote workforce**—Field workers can stay in close touch with HQ and each other using AR/VR headsets and high-definition video, which allow them to troubleshoot in real time, consult experts on the fly and remotely train new personnel.
- **Support for smart cities applications**—5G will give utilities the opportunity to develop new revenue streams in the form of solutions for smart lighting, smart traffic, video surveillance and more.
- **Improved smart meters**—With the ultralow latency and high speed of 5G, utilities can track and report on the stats of every device in the home that consumes energy, giving consumers granular awareness and insight into their behaviors.
- **Real-time, unmanned asset monitoring**—Drones equipped with lidar and high-definition image capture can keep close watch on power or water pipelines across massive unpopulated or wilderness areas that are difficult for human workers to navigate.
- **More effective demand management and load balancing**—When managing distributed energy resources, utilities can collect data from billions of devices to monitor usage and peak demand periods and adjust capacity as needed by the second.

THE IMPACT OF 5G
How to get started



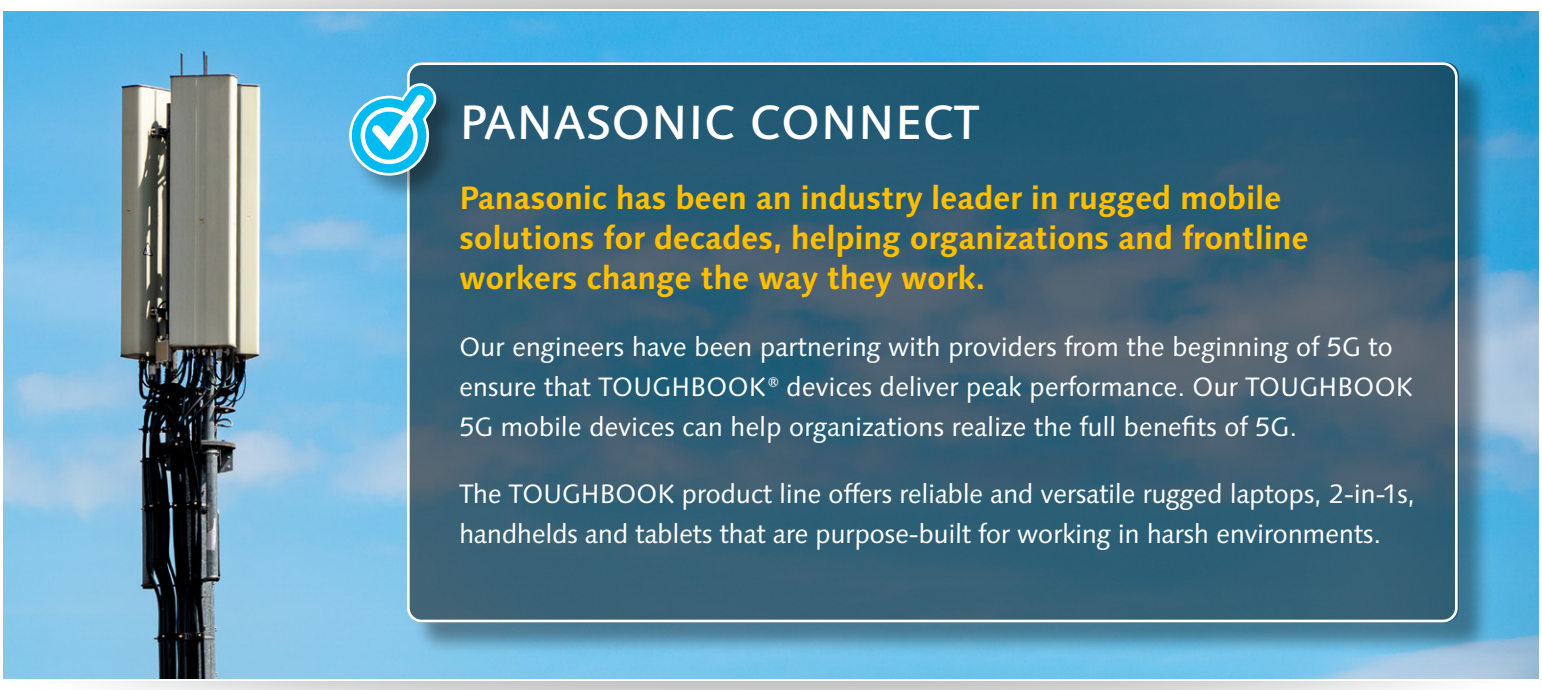
5. What can your organization do now to prepare for 5G?

5G networks will not replace 4G LTE networks but will complement them for years to come.[9] But public sector organizations can prepare now for 5G by incorporating 5G into their strategy for digital transformation, including expanded mobile and an approach to additional cybersecurity.

According to Mary Beth Hall, there are several questions you can ask as you consider how 5G might help your organization:

- **What am I trying to solve with 5G?**
- **What would my organization be able to do that we can't do now?**
- **What if we wait to utilize 5G?**
- **Are we prepared to implement 5G?**
- **What mobile devices do we need to utilize 5G?**

Having a supportive and virtualized infrastructure that includes cloud, network automation and multi-access edge computing will be key.



PANASONIC CONNECT

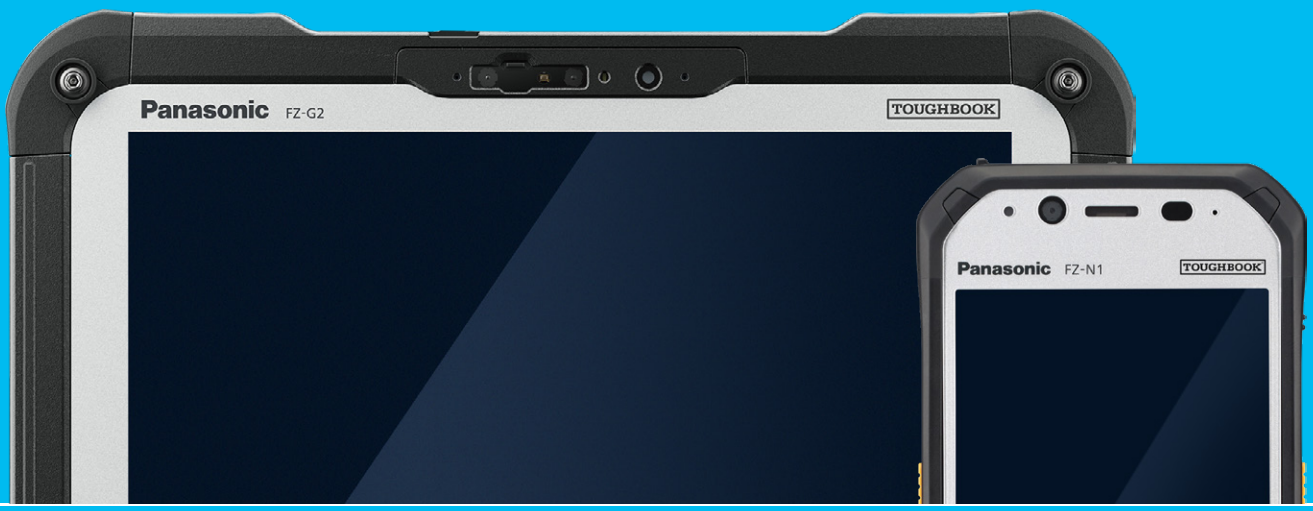
Panasonic has been an industry leader in rugged mobile solutions for decades, helping organizations and frontline workers change the way they work.

Our engineers have been partnering with providers from the beginning of 5G to ensure that TOUGHBOOK® devices deliver peak performance. Our TOUGHBOOK 5G mobile devices can help organizations realize the full benefits of 5G.

The TOUGHBOOK product line offers reliable and versatile rugged laptops, 2-in-1s, handhelds and tablets that are purpose-built for working in harsh environments.

1. Connection density of 4G, 5G, and 6G mobile broadband technologies. Statista (November 19, 2020)
2. Mary Beth Hall. Transforming emergency medical services using 5G. 5Gradar (August 31, 2021)
3. Verizon Frontline Public Safety Communications Survey: Executive Summary. (November 2021)
4. Consensus for Change: Transforming Safety Through Technology, 2021, Motorola Solutions (2021)
5. Thermal Mapping Drones Support Firefighting Response to Chemical Factory Fire in Thailand. DJI Enterprise (February 14, 2022)
6. "Securing the 5G Era." GSMA (2022)
7. "What is 5G Security." AT&T (September 14, 2021)
8. "6 Ways to Ready Your Customers for 5G Security Challenges." Channel Futures (April 2021)
9. "Public Sector Digital Trends 2022." Socitm

THE IMPACT OF 5G
Find out more



Find out more about how Panasonic Connect is already helping public sector organizations transform with TOUGHBOOK ▸

TOUGHBOOK.com | toughbook@us.panasonic.com | 1.888.245.6344

Panasonic CONNECT