

WHITE PAPER | MAXIMIZING YOUR P25 DIGITAL LMR NETWORK

MOBILIZE AND MAXIMIZE THE POTENTIAL OF P25 DIGITAL LMR



MOTOROLA

ARE YOU LEVERAGING THE POTENTIAL OF YOUR P25 LMR NETWORK?

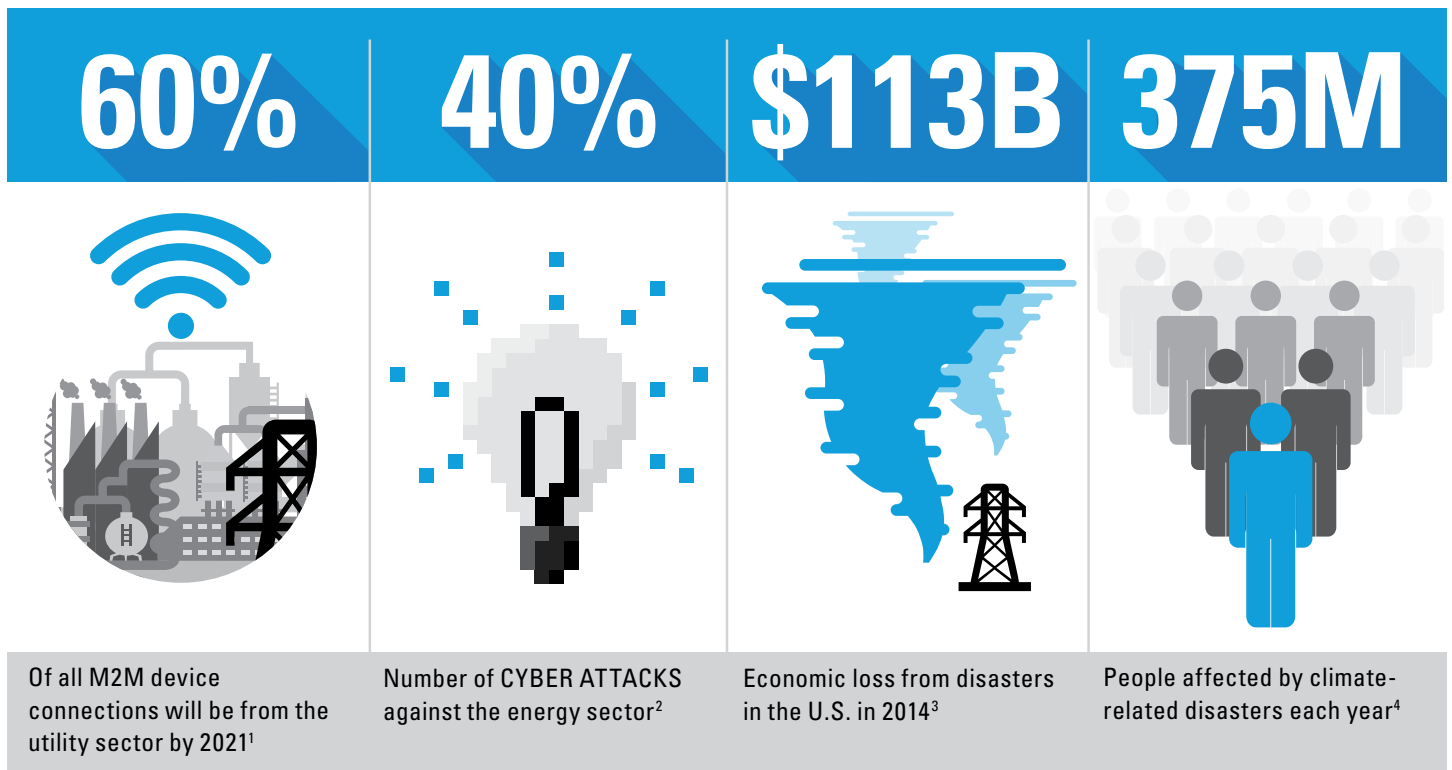
Your customers expect you to be ready, capable and equipped for power outages, natural disasters, tornadoes, ice storms and animal damage to the electric grid. Shrinking budgets may force you to do more with less. All while climate-based disasters are increasing and cyber crime is becoming more advanced.

If you still rely on an analog land mobile radio (LMR) network, you are missing out on the advantages of P25 digital LMR. This key mission critical communications technology and its integrated data and security capabilities can make the difference between a positive outcome and an unnecessary disaster.

If you have already migrated to digital, you know what this versatile platform can deliver.

EVEN STILL, ARE YOU REALLY USING YOUR LMR DIGITAL NETWORK TO ITS FULL CAPACITY?

A highly reliable, available and scalable P25 digital LMR system not only equips you for everyday work, but prepares you for the unthinkable. It empowers your company – helping your operations run more efficiently and safely, and assuring the continuity of service customers expect.

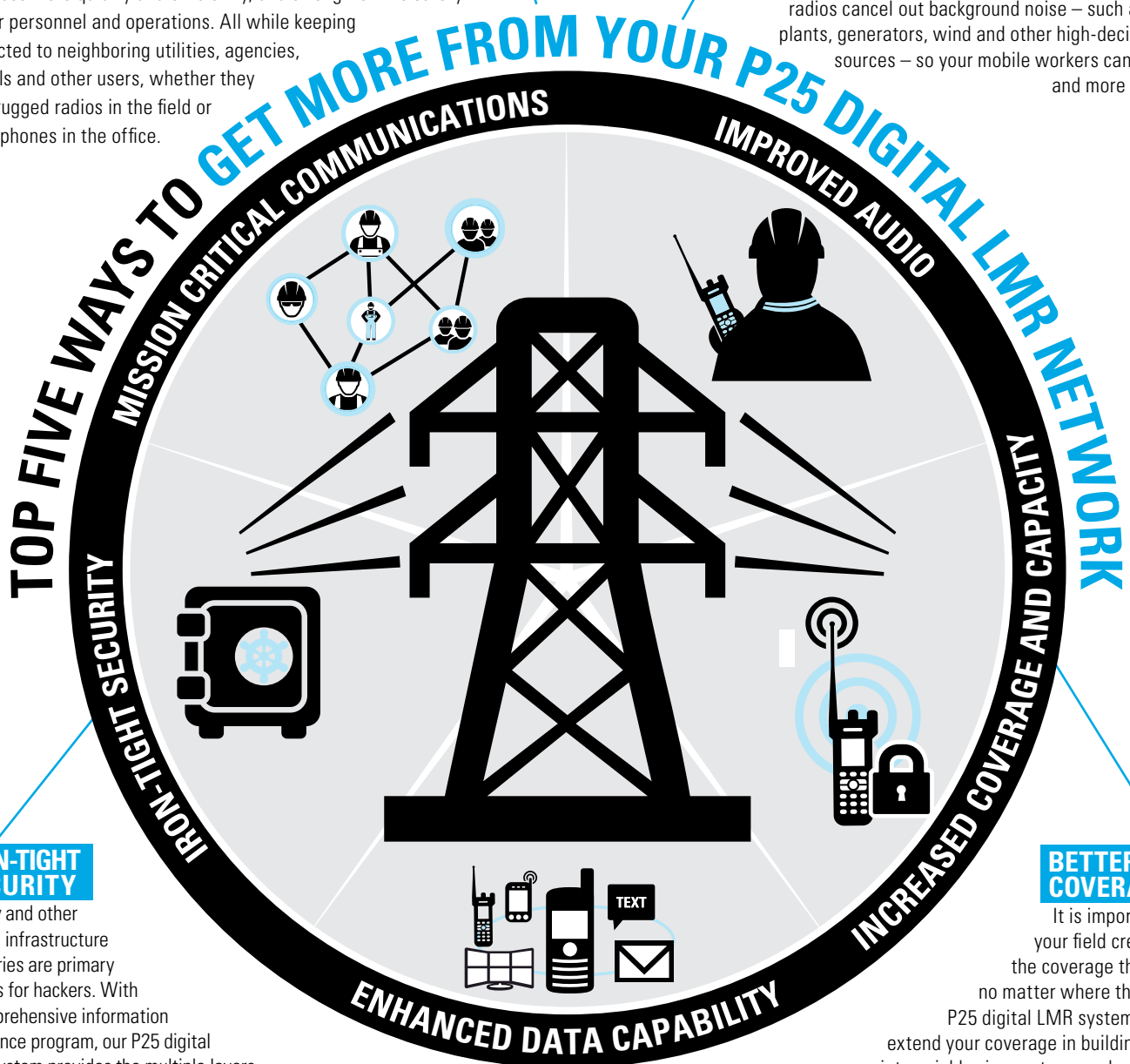


MISSION CRITICAL COMMUNICATIONS

A P25 digital LMR system delivers the redundancy, reliability and “always on” availability you need. With better lines of communication, you can access and share information with valuable resources more quickly and efficiently, and strengthen the safety of your personnel and operations. All while keeping connected to neighboring utilities, agencies, officials and other users, whether they carry rugged radios in the field or smart phones in the office.

IMPROVED AUDIO

The advanced technology integrated into a P25 digital LMR system significantly improves audio quality, no matter the environment. With dual facing microphones, and up to 50 percent louder audio, digital radios cancel out background noise – such as power plants, generators, wind and other high-decibel noise sources – so your mobile workers can be safer and more efficient.



IRON-TIGHT SECURITY

Energy and other critical infrastructure industries are primary targets for hackers. With a comprehensive information assurance program, our P25 digital LMR system provides the multiple layers of security you need to protect your system. Digital radios provide secure end-to-end encrypted communications, so your conversations and data can't be accessed by unauthorized users.

ENHANCED DATA CAPABILITY

If your LMR system is limited to voice only, you're missing out on the potential advantages of data applications on your P25 digital LMR system. Critical applications and access to real-time information such as Machine-to-Machine (M2M), SCADA, GPS, worker safety alerts and text messaging will get you necessary information faster, improve efficiency and productivity, and strengthen worker safety.

BETTER COVERAGE

It is important that your field crews have the coverage they need, no matter where they are. A P25 digital LMR system lets you extend your coverage in buildings, roam into neighboring systems and recoup the coverage lost during narrowbanding. Capacity isn't only critical for emergencies, it's essential for daily operations. Because digital systems are so bandwidth efficient, the very same spectrum for one analog channel provides the equivalent of two digital channels (talk paths). You double capacity so many more people can communicate – using both voice and data – without interruptions or intrusions on privacy.

KEEP SERVICE & SAFETY LEVELS HIGH WITH P25 DIGITAL LMR APPS



DISTRIBUTION AUTOMATION

Leverage the digital network to monitor and manage all your data

MACHINE-TO-MACHINE (M2M)

Adding M2M devices to your P25 digital LMR network gives you better visibility into your critical infrastructure so you can be proactive in managing outages, spikes in demand and supply routing. M2M enables you to connect to key assets across the smart grid, including capacitor banks, reclosers, line switches, voltage regulators, solar panels, wind farms and more. By providing new levels of visibility into your operations, you can control the intelligence and repair without unnecessary steps or costly inefficiencies.

SCADA

Use this highly reliable system to control the vital infrastructure of your operations. Enable real-time command and control across your entire service territory by connecting your SCADA Remote Terminal Units (RTU) to your P25 system. By combining SCADA with P25, you gain the security, flexibility and resilience you'll need to maintain control of your critical infrastructure in the midst of chaos.



SAFETY

Track the location and condition of personnel and alert them to changing conditions

SIREN ALERTING

Count on siren alerting to inform your crews and surrounding community of imminent danger so they can react appropriately and get to safety quickly. Send targeted messages to a specific zone or radius around a plant to protect workers and your community. With siren alerting operating over a mission critical network, you have the confidence that your system will deliver alerts during an emergency.

GPS AND PERSONNEL LOCATION

Access accurate, real-time information on the location and condition of personnel, wherever they work. In an emergency, you want to know where your personnel are located to ensure their safety and preparedness. With the knowledge of their location and skill sets, you can make more informed decisions and use resources most efficiently.



OPERATIONAL EFFICIENCY

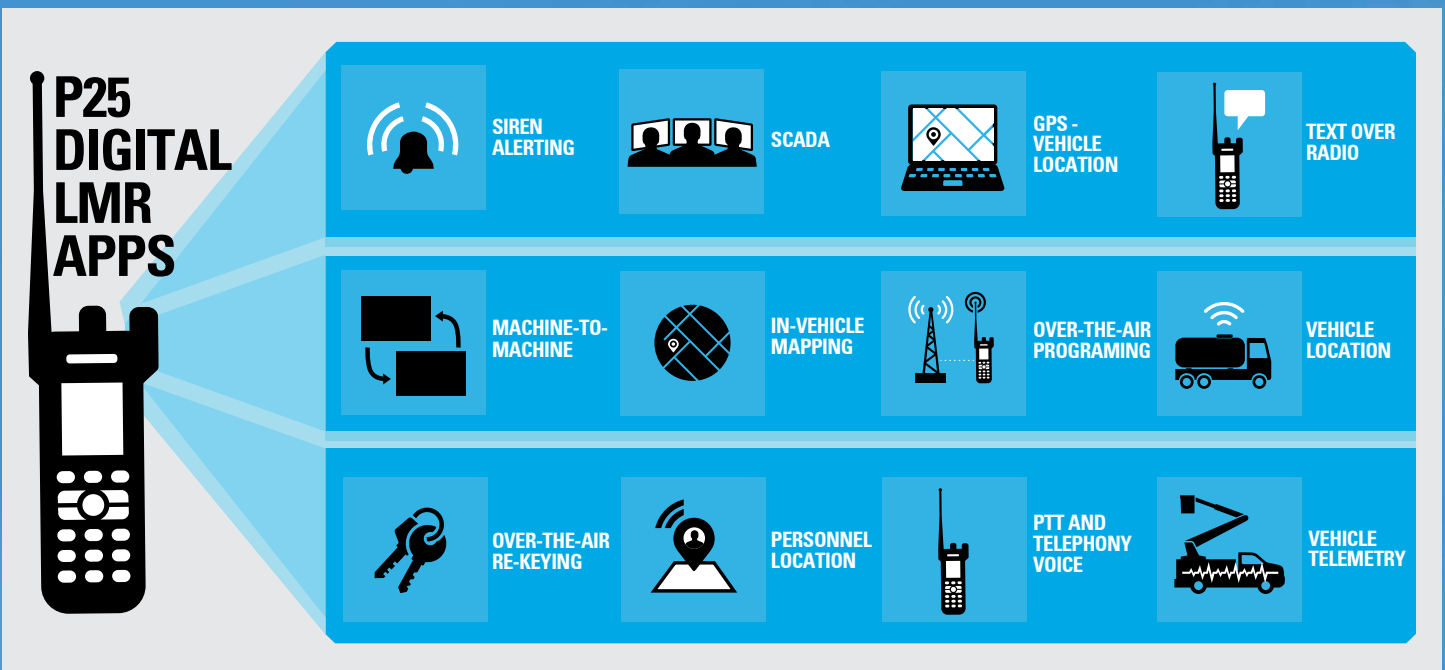
Bring personnel together to communicate wherever and whenever needed

TALKGROUP GEOFENCING

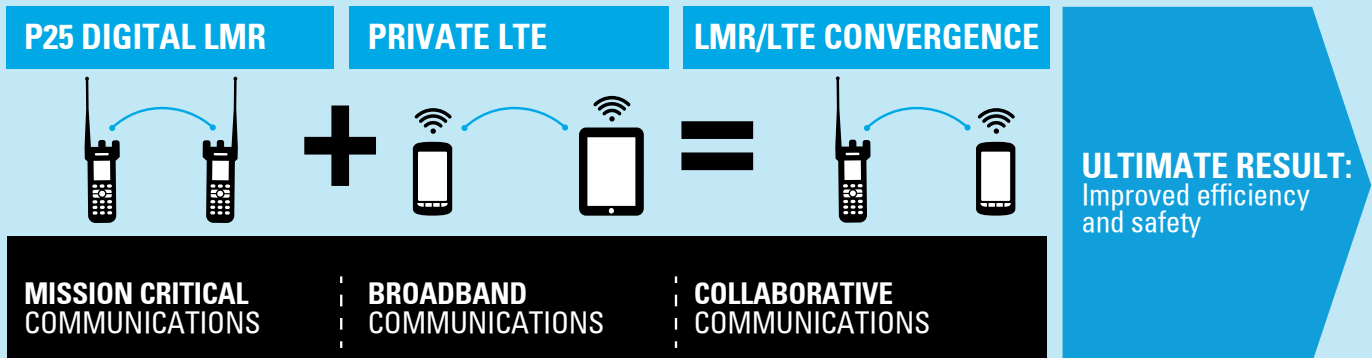
Respond effectively without worrying if other support personnel can communicate and interoperate with your crews. During a major outage, other field crews or neighboring utilities will arrive to assist with restoration activities, but many may be unfamiliar with your radio system or which channels to use. With talkgroup geofencing on your P25 system, dispatch can draw a boundary on the map so anyone in that area will automatically be placed in the correct talkgroup without worrying about switching channels.

OVER-THE-AIR-PROGRAMMING

Update radio software, change features, talkgroups and applications from afar. As your operations change, so will talkgroups. You want to be sure your P25 radios are up to date with the most current programming so your crews can communicate with others during an emergency. With programming over your P25 network, workers stay in the field, not in the radio shop. Communications and operations are uninterrupted as they focus on the work at hand.



DIGITAL LMR & PRIVATE LTE: THE FUTURE OF CONVERGENCE, RIGHT NOW



LTE broadband data is an ideal partner to mission critical P25 digital LMR voice and data systems. With private LTE gaining traction, there's a clear need to make the right decisions today to support the coexisting LMR and LTE environment you'll need tomorrow. The convergence of P25 and LTE provides a common communication platform that reduces complexity and cost to streamline operations and improve safety conditions.

FUTURE TECHNOLOGY

Improved safety and augmented reality for remote workers

WEARABLE DISPLAY (FUTURE):

- Keeps his hands free so he can work with fewer distractions and devices
- Delivers real-time information so he doesn't have to return to the truck
- Enables real-time voice and video with remote knowledge workers

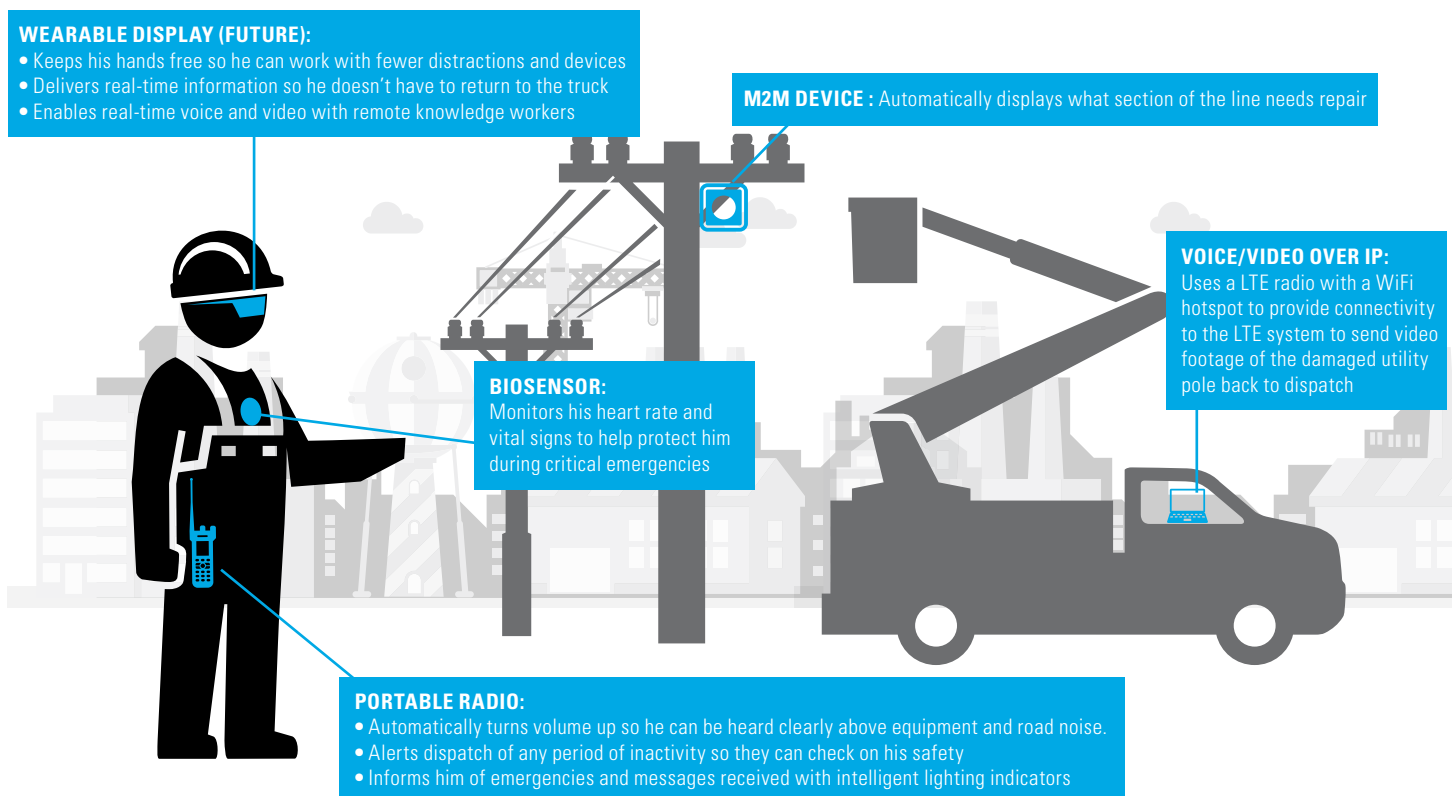
M2M DEVICE : Automatically displays what section of the line needs repair

VOICE/VIDEO OVER IP: Uses a LTE radio with a WiFi hotspot to provide connectivity to the LTE system to send video footage of the damaged utility pole back to dispatch

BIOSENSOR: Monitors his heart rate and vital signs to help protect him during critical emergencies

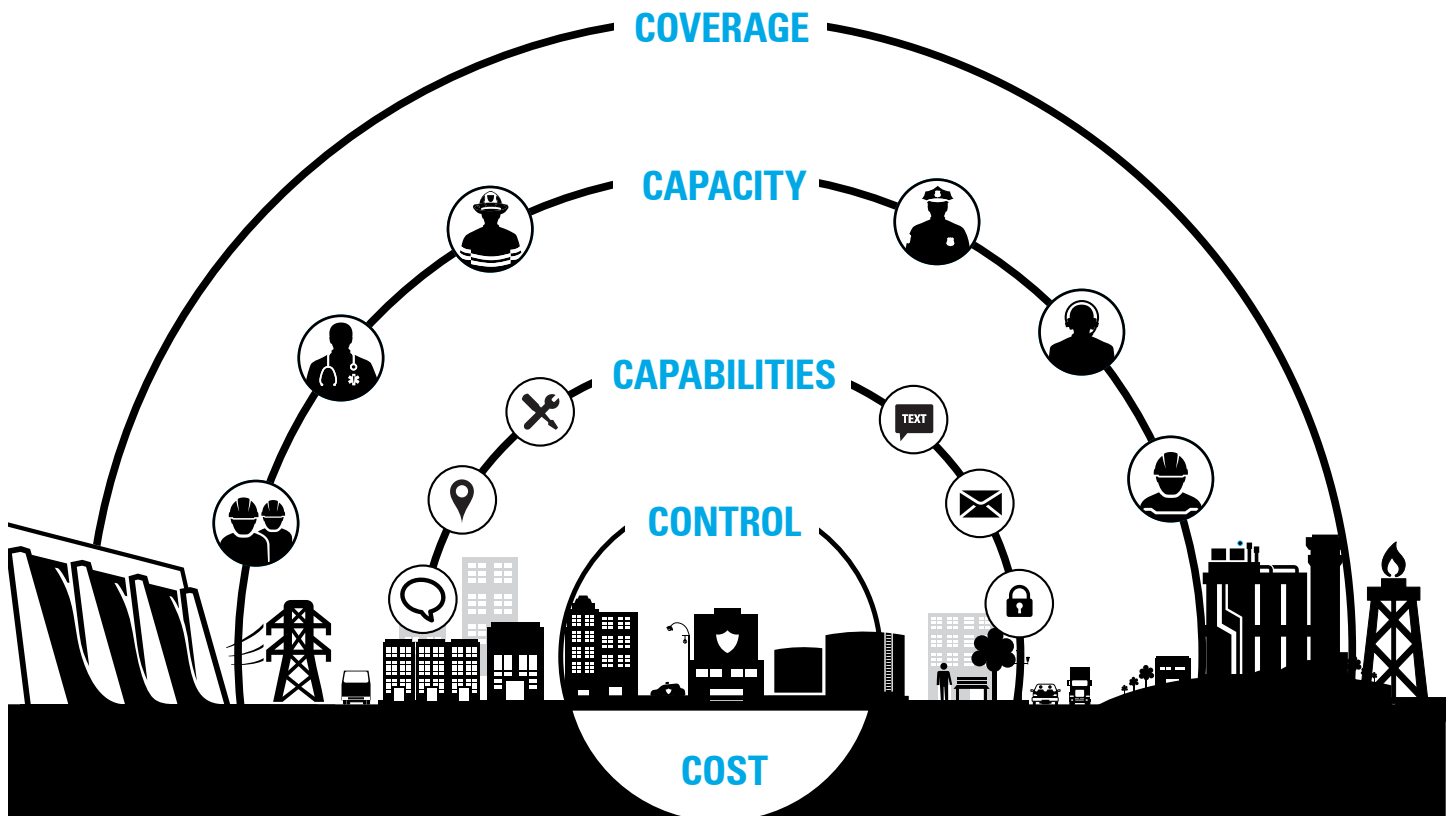
PORTABLE RADIO:

- Automatically turns volume up so he can be heard clearly above equipment and road noise.
- Alerts dispatch of any period of inactivity so they can check on his safety
- Informs him of emergencies and messages received with intelligent lighting indicators



EVALUATE YOUR CRITICAL COMMUNICATIONS WITH THE FIVE C'S

As you evaluate the five Cs, consider not only your day-to-day activities, but what your system would need to sustain a large-scale event, such as a power outage from a man-made or natural disaster. You want a system that can recover quickly and handle numerous users at once. The security and reliability of a P25 digital LMR system – paired with its enhanced data capabilities – gives you a network and devices with all five Cs.



COVERAGE	CAPACITY	CAPABILITIES	CONTROL	COST
<ul style="list-style-type: none">• Do you roam outside of your network to assist neighboring crews?• Coverage over long distances?• Did you lose coverage with narrowbanding?• Do you need coverage in buildings?	<ul style="list-style-type: none">• What grid devices would you connect to if you had extra capacity?• How many different crews do you have?• If everyone talked at once, would your system have the capacity needed?• If there was a disaster, would your system be able to handle it?	<ul style="list-style-type: none">• Voice is critical, but do you also need data capability?• How secure is your data?• Are your field crews spread out across a large region?• Are you able to send targeted notifications to your field crews in an emergency?	<ul style="list-style-type: none">• How effective is your ability to manage your network and devices?• Would you like to be able to monitor and control all your assets remotely?• Do you have a large service territory with a lot of equipment to monitor?• Is your infrastructure protected from outside threats?	<ul style="list-style-type: none">• How would your ROI improve if your system supported both voice and data?• Would convergence improve communications and reduce operational costs?• Are there ways to increase your budget?• Are there areas where you compromise mission critical features because of budget?



CONNECT YOUR UTILITY TO THE NEW REALITY OF REAL-TIME VOICE AND DATA

**TO MAXIMIZE THE POTENTIAL OF P25 DIGITAL LMR,
WWW.MOTOROLASOLUTIONS.COM/UTILITIES**

¹M2M device connections, revenue and ARPU: Worldwide forecast 2011-2021, Analysis Mason, May 2012
²Willis, 2014 Energy Market Review

³2014 Global disaster losses cost insurers \$34B, December 20, 2014
⁴Oxfam International Report, 2015



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