

WHITE PAPER | WHY MIGRATE TO P25 DIGITAL LMR

# BUILDING SAFER, MORE RESILIENT COMMUNITIES IN A NEW ERA OF LMR INTELLIGENCE



**MOTOROLA**

# OUTSIDE THREATS ARE CHANGING. ARE YOU LMR DIGITAL READY?

Your citizens expect you to be ready, capable and equipped for natural disasters, terrorist attacks and school shootings. But if you still rely on an analog land mobile radio (LMR) network, you can only use your mission critical network for voice – and you miss out on the advantages P25 digital LMR delivers. This key communications technology and its mission critical data capabilities can make the difference between a positive outcome and an unnecessary disaster.

A secure, reliable and high-performing P25 digital LMR system not only equips you for everyday work, but also prepares you for the

unthinkable. It transforms your agency – helping first responders and citizens stay safer and operations run more efficiently.

Like many agencies, shrinking budgets have forced your agency to do more with less. Yet, criminals are increasingly getting smarter, accessing a wealth of information from millions of sources every day and using technology to gain the advantage. Better information is also available to you, and that's why it is critical to make smart communications investments. If public safety doesn't catch up, criminals will thrive in this new era of available intelligence.

**74**

**SCHOOL SHOOTINGS**  
since Sandy Hook in  
December 2012

**100%**

annual **INCREASE IN DATA**  
since 2010

**\$500**  
**BILLION**

estimated annual cost of  
**CYBER CRIME**

**26,370**

**5K, 10K, or HALF MARATHONS**  
held in 2013

**\$2.5**  
**TRILLION**

lost globally due to  
**NATURAL DISASTERS**  
since 2010



**OUTSIDE THREATS HAVE CHANGED  
AND CONTINUE TO EVOLVE AT AN ACCELERATED PACE.**

**YOU CAN'T KEEP OPERATING THE SAME WAY TO MEET NEW THREATS.**

**YOUR FIRST RESPONDERS NEED NEW CAPABILITIES THAT WILL EMPOWER THEM TO  
WORK AS A COHESIVE TEAM AND SHARE AND ACCESS INFORMATION INSTANTLY.**

## INTEROPERABILITY

Communicating between systems and across agencies is a challenge – but it doesn't have to be. With a P25 digital LMR system, you can be in touch with neighboring agencies or even officials and other users, who carry smart phones instead of radios. With better lines of communication, you can access and share information in collaboration with valuable resources, more quickly and efficiently.

## DATA CAPABILITY

If your LMR system is limited to voice-only capabilities, you're missing out on the potential of a P25 digital LMR system. Mission critical applications and information such as GPS, dispatch information, text messaging, database queries and Be On The Lookout (BOLO) alerts will get you necessary information faster and potentially save minutes that could save lives.

## SECURITY

Mission critical systems are a primary target for hackers, and a P25 digital LMR system provides the multiple layers of security you need to protect your system, your network, your voice communications, and your devices. Digital radios provide secure end-to-end encrypted communications, so your conversations and data can't be accessed by unauthorized users. If a radio is lost or stolen, you can "kill" the device, rendering it useless and ensuring it can't be used against you. You can also remotely change the radio encryption keys on a regular basis to prevent outsiders from breaking into your communications.

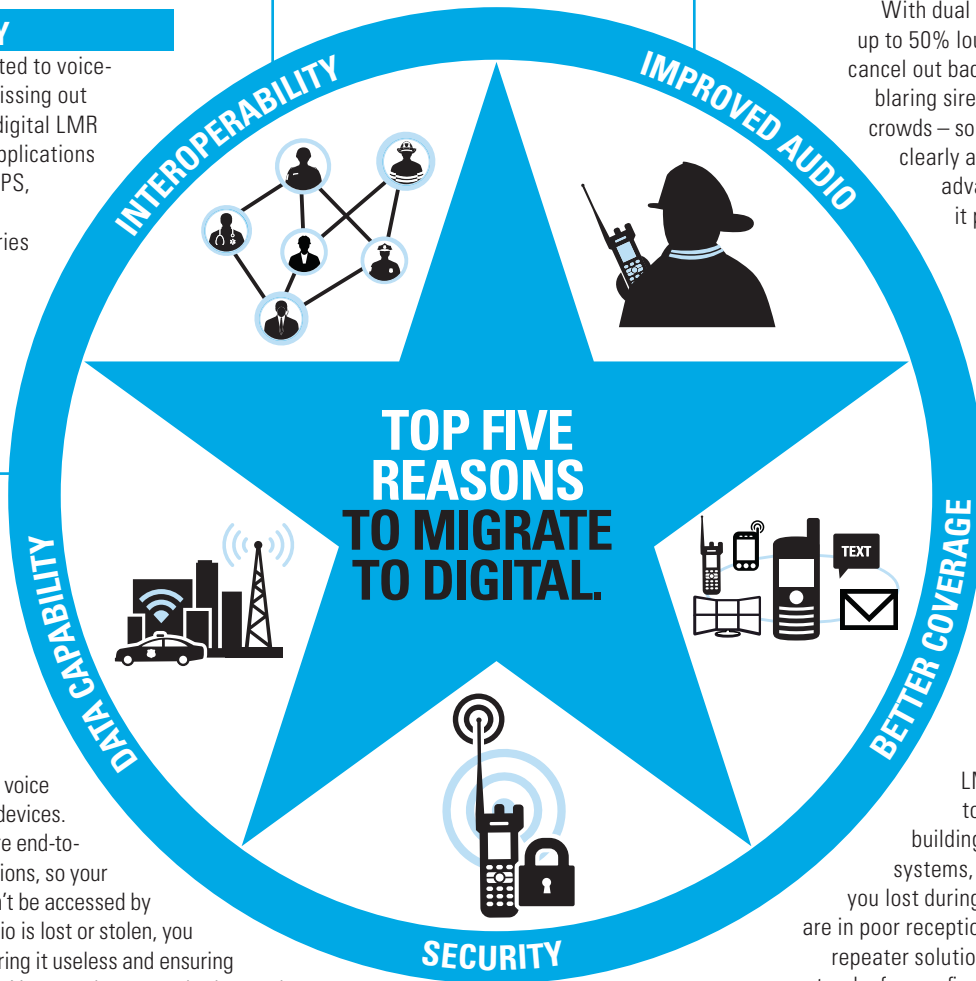
## IMPROVED AUDIO

The advanced devices used on a P25 digital LMR system significantly improve audio quality, no matter the environment.

With dual facing microphones, and up to 50% louder audio, digital radios cancel out background noise – such as blaring sirens and cheering stadium crowds – so first responders can hear clearly and be heard clearly. This advanced technology makes it possible for personnel to communicate wherever they are, potentially saving lives.

## BETTER COVERAGE

Effective communications are an integral part of keeping your community safe. It is important that you have the coverage you need, no matter where you are. A P25 digital LMR system can allow you to extend your coverage in buildings, roam into neighboring systems, and recoup the coverage you lost during narrowbanding. If users are in poor reception areas, digital vehicular repeater solutions can be installed in the trunk of a car, fire truck, or other vehicle to improve ranges for portable users.



## SECURE YOUR COMMUNICATIONS WITH DIGITAL LMR

Imagine right now, a criminal is downloading an app on his smartphone to eavesdrop on your analog communications. He'll know exactly what your patterns are to choose the best time to commit a crime. Even worse, he'll know when you're coming.



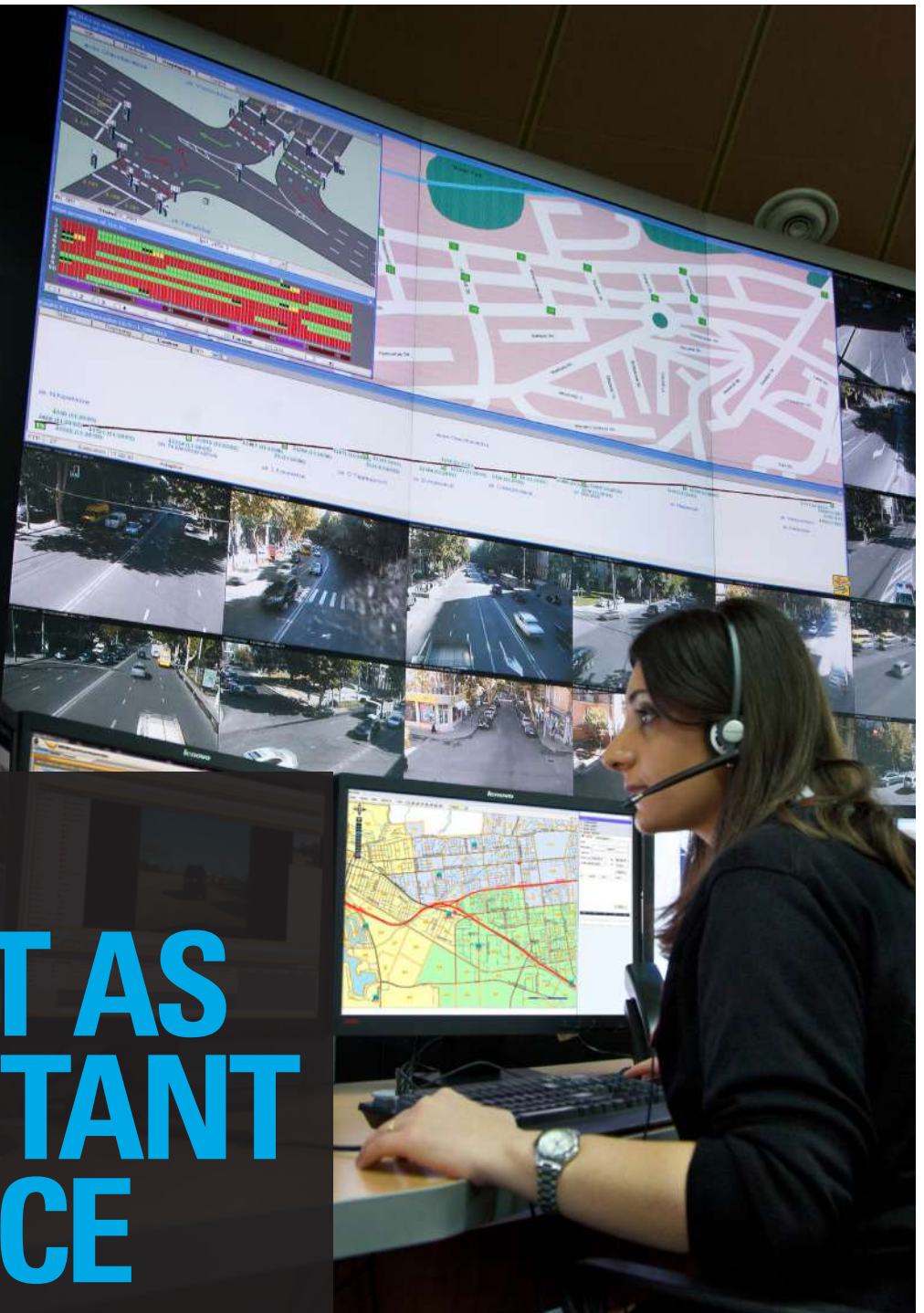


# VOICE ISN'T ENOUGH. P25 DIGITAL LMR ALSO DELIVERS MISSION CRITICAL DATA.

Voice and data communications work in tandem to prepare you for today's challenges and tomorrow's unknowns. Together, they turn critical communication devices into information portals that you hold in the palm of your hand. This convergence of voice and data platforms requires a secure, advanced digital network that you can trust to deliver data and reliable intelligence. With outside threats charging, voice is no longer enough; data is just as important.

**DATA IS  
MISSION  
CRITICAL:  
89%  
OF PUBLIC  
SAFETY  
DECISION  
MAKERS  
SAY THAT**

**DATA  
IS JUST AS  
IMPORTANT  
AS VOICE**



# GAIN THE ADVANTAGE WITH P25 DIGITAL LMR APPS.

See how P25 digital LMR partners with powerful data applications:

## PERSONNEL ACCOUNTABILITY

Transmit the real-time health condition of your first responders and be alerted in the case of developing or dangerous conditions.

**A FIREFIGHTER** is moving through the second story of a building filled with heavy smoke. His bio-monitoring device transmits vital stats to incident command to determine if he is fatigued, dehydrated, injured or healthy. Based on the data and quick reference color of the display, his commander can relieve him, add personnel or maintain his status quo.

**A POLICE OFFICER** responding to a call is wearing a bio-monitor that connects wirelessly to his digital radio, via mission critical Bluetooth®. Dispatch sees abnormal activity, alerts the officer's supervisor and sends another officer to the scene instead. This real-time technology anticipated the possibility of a more serious situation and kept the officer safe.

## TELEMETRY

Track your fleet, personnel and equipment to ensure safety, security and reliability.

**A FIREFIGHTER** is moving up through a burning building to ensure no one is left in the building. As he gets the call that everyone is accounted for, he collapses. His radio transmits a man down signal automatically and the incident commander is able to distinguish his location as being on the floor below due to his indoor location tracking device. This enables a successful rescue of the firefighter from atop the storage unit.

**POLICE OFFICERS** interview a subject in a high-incident area, when he suddenly flees down a narrow alleyway. Officers rush to pursue on foot, while remotely opening the door of their vehicle for rapid K-9 deployment. Their supervisor is alerted of the K-9 deployment via her digital mobile radio. Dispatch is notified and GPS tracking is automatically triggered allowing additional units to respond quickly to intercept the footchase.
















## TALKGROUP GEOFENCING

Bring your personnel together to quickly communicate in defined geographic areas.

**A HURRICANE HITS**, and neighboring communities arrive on scene to assist local utilities workers. Since responding personnel are unfamiliar with the local radio system, it can take time for their communications to be synced. With talkgroup geofencing, dispatch can draw a

boundary on their map, so that anyone in, arriving or departing the defined area will automatically be placed, hands-free, in the correct talkgroup. No matter where they are converging from, response teams can communicate with local workers as soon as they arrive.



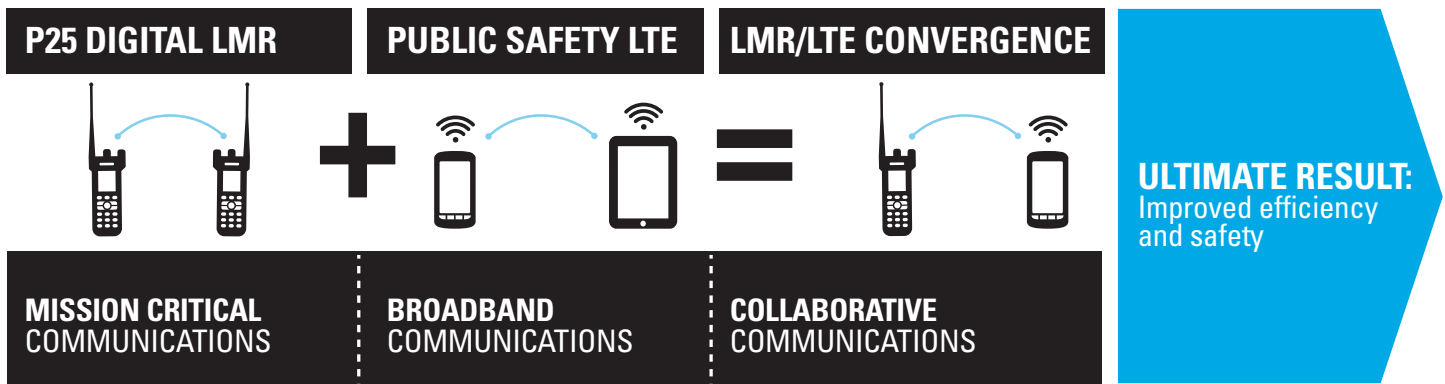
 <b>12/16 LEAD ECG</b>	 <b>BIOMETRICS</b>	 <b>BOLO ALERTS</b>
 <b>EMAIL</b>	 <b>FIRE STATION ALERTING</b>	 <b>IMAGE SHARING</b>
 <b>INTERNET ACCESS</b>	 <b>IN-VEHICLE MAPPING</b>	 <b>OVER-THE-AIR PROGRAMING</b>
 <b>OVER-THE-AIR RE-KEYING</b>	 <b>PERSONAL LOCATION</b>	 <b>PTT AND TELEPHONY VOICE</b>
 <b>REPORT WRITING</b>	 <b>SCADA</b>	 <b>SEARCH LICENSE PLATES</b>
 <b>TEXT OVER RADIO</b>	 <b>VEHICLE LOCATION</b>	 <b>VEHICLE TELEMETRY</b>

# FUTURE TECHNOLOGY: WITHIN REACH TODAY



An officer pushes the emergency button on his P25 digital LMR radio, which automatically notifies dispatch and triggers his wearable camera to take a photo of the suspect and the scene. The push-to-talk ID (PTTID) and the photo are sent to dispatch via the officer's Bluetooth® Personal Area Network (PAN) over the LTE network. Dispatch pushes the officer information, location and photo to nearby units who quickly arrive on the scene to provide assistance.

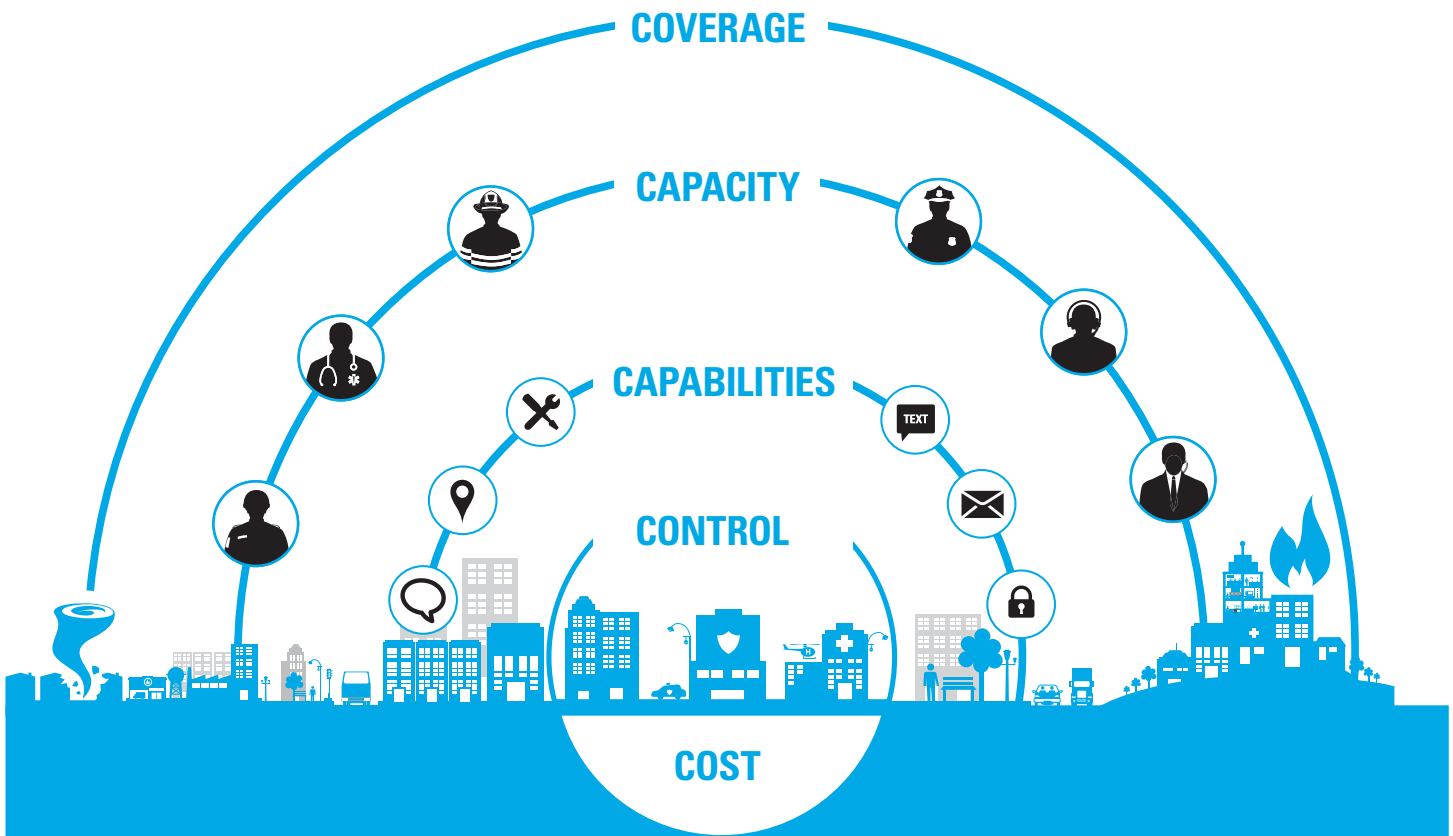
# DIGITAL LMR & LTE: BOTH SERVE A PURPOSE



LTE broadband data is an ideal partner to the mission critical voice and data of P25 digital LMR. With LTE quickly gaining traction in public safety, there's a clear need to make the right decisions today to support the coexisting LMR and LTE environment you'll need for tomorrow. A converged P25 digital LMR and LTE network unlocks access to information and enables better collaboration, which leads to safer, faster and more intelligent operations.

# EVALUATE CRITICAL COMMUNICATIONS WITH THE FIVE Cs.

As you evaluate the five Cs, consider not only your day-to-day activities, but also what your system would need to sustain a large-scale event, such as a mass shooting or natural disaster. You want a system that can recover quickly and handle a large amount of users at once. Today, P25 digital LMR systems are deployed around the world for mission critical communications. The security and reliability of a P25 digital LMR system – paired with its enhanced data capabilities – result in a network and devices that gives you all five Cs.



CAPACITY	CAPABILITIES	CONTROL	COST	COVERAGE
<p>Who talks or uses data on your system?</p> <p>How many different agencies and users are there?</p> <p>If everyone talked at once, would your system have the capacity needed?</p> <p>If there was a natural disaster, would your system be able to handle it?</p>	<p>What are the features of your current network and radios?</p> <p>Voice is critical, but do you also need data capability?</p> <p>Are you using multiple devices to access data?</p> <p>How secure is your data?</p>	<p>How effective is your ability to control your network and devices?</p> <p>Do you need both software and system administration?</p> <p>How do you want to control your system?</p>	<p>What is the budget for your system?</p> <p>What type of system is it?</p> <p>Are there ways to increase your budget?</p> <p>Are there areas where you compromise mission critical features because of budget?</p>	<p>Do you need coverage inside buildings?</p> <p>Coverage over long distances?</p> <p>Did you lose coverage with narrowbanding?</p> <p>Do you need voice-roaming capability?</p> <p>Do you need data roaming capability?</p>

# TURN INFORMATION INTO RELIABLE INTELLIGENCE.



AS INFORMATION  
FLOWS BETWEEN  
CITIZENS, RESPONDERS,  
AND AGENCIES,  
YOU ARE IN A  
COMMUNICATIONS RACE.

YOU RISK BEING OVERWHELMED  
UNLESS YOU HAVE THE TECHNOLOGY  
TO HANDLE IT. HOW CAN YOU  
MANAGE THIS OVERABUNDANCE  
AND TURN IT INTO RELIABLE  
INTELLIGENCE?

P25 DIGITAL LMR IS THE FUTURE-READY COMMUNICATIONS PLATFORM THAT CAN GET THE JOB DONE.

**ENABLE YOUR AGENCY TO STAY AHEAD OF CRIMINALS,  
PROTECT FIRST RESPONDERS AND CITIZENS,  
AND BUILD SAFER, MORE RESILIENT COMMUNITIES.**