PUBLIC SAFETY 2019
THE MIGRATION TO MORE CONNECTED COMMUNICATIONS

2014 PUBLIC SAFETY INDUSTRY STUDY

MOTOROLA

PUBLIC SAFETY 2019
WHAT TO EXPECT IN THE NEXT 5 YEARS

The way that public safety agencies communicate is changing dramatically. While police, fire, EMS and other government agencies have traditionally focused on voice and push-to-talk (PTT) communications, they are now increasingly relying on an array of new data communications such as video and text.

According to Motorola's 2014 public safety survey, agencies around the country are depending more on high-speed communications and collective intelligence to improve the safety and outcomes for both field officers and the communities they serve.

These agencies are planning many changes in the next five years. This includes implementing technology that enables them to:

- More effectively use the growing volume of data available to combat crime, fight fires and expedite medical care
- Access the intelligence they need in the optimal format for the situation and device, whether it is voice, text or video
- Easily communicate with nearby, regional and state agencies, and federal organizations
- Cost-effectively manage and secure their increasingly complex communications technology networks
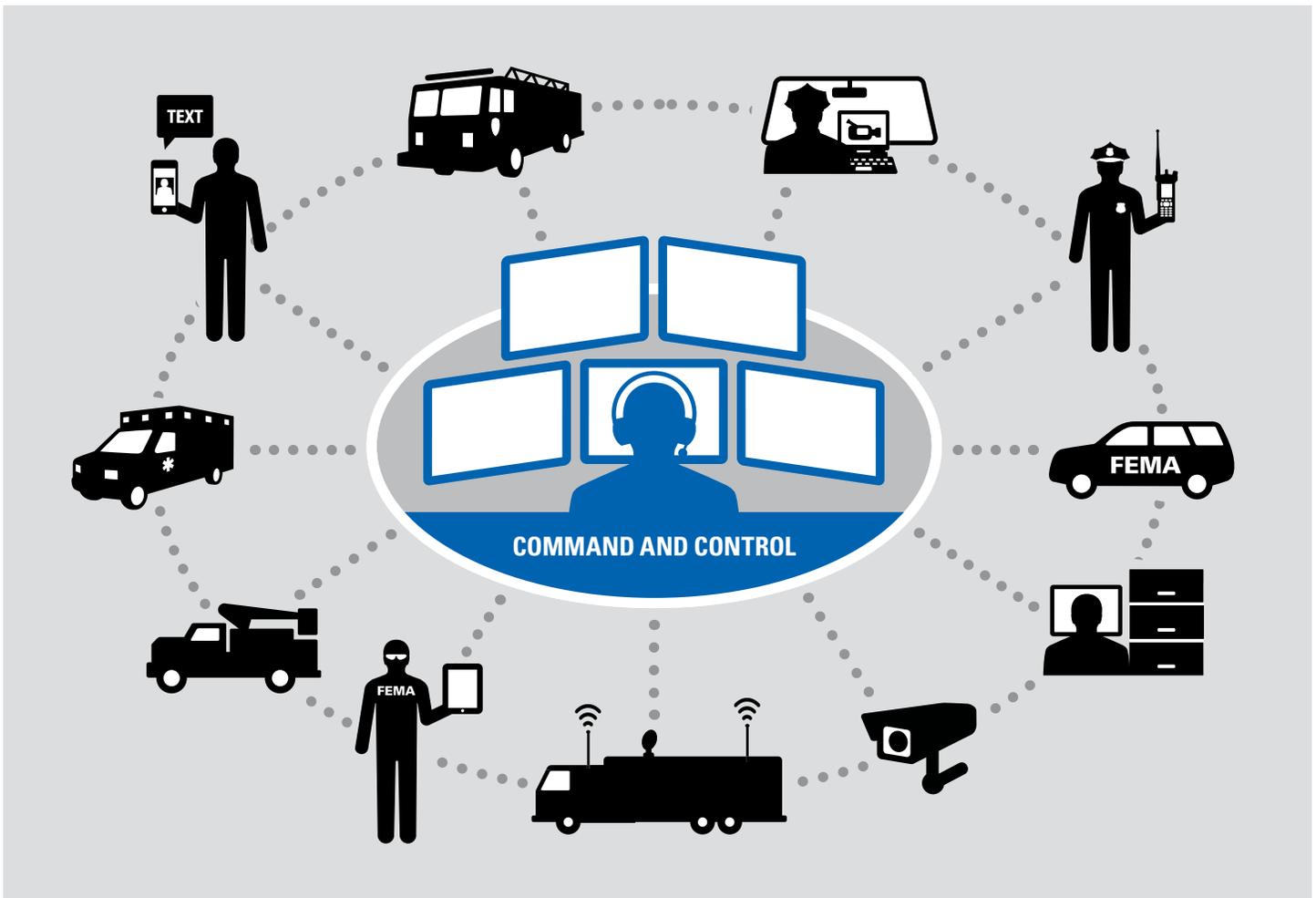
TRENDS OVERVIEW: IMPROVING COMMUNICATIONS PLAYS CRITICAL ROLE IN INTELLIGENCE-LED PUBLIC SAFETY

Public safety agencies everywhere are embracing the trend toward smart public safety, which requires capturing, analyzing and sharing information intelligently. For intelligence-led public safety to be effective, it's critical to get the right information to the right person at the right time – so he or she can make the right decision. To accomplish this, agencies must increasingly leverage analytics to sift through and interpret the exploding amount of data from video surveillance, sensors and social media.

Over the course of the next five years, agencies must also establish seamless, back-and-forth communications not only between field officers and the command center but also between the public and private sector. Data such as video surveillance from private enterprises and communications from citizens must be combined with intelligence from public safety systems to enable the creation of a real-time common operating picture – and better outcomes.
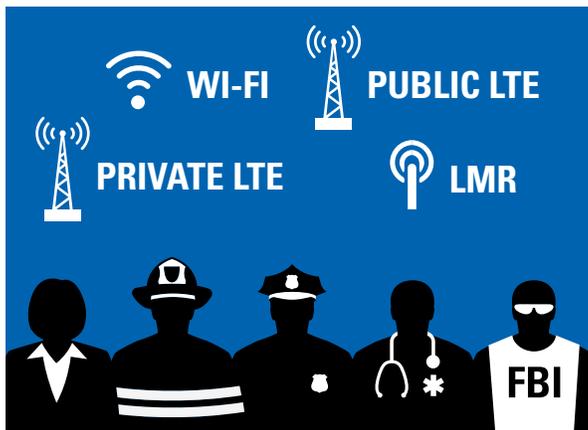
TREND 1

INCREASING INTEREST IN INTEROPERABLE, MULTI-NET COMMUNICATIONS

The need to support interoperable communications has never been more important. Public safety agencies are clamoring for the ability to seamlessly communicate between a wide variety of networks, including private and public LTE networks, Wi-Fi™ networks and existing public safety Land Mobile Radio (LMR) networks. They also want to communicate with neighboring, regional and federal public safety agencies, as well as with the public. Over the next five years, we anticipate that many agencies will migrate from an analog to digital P25 system to prepare for this multi-net environment.
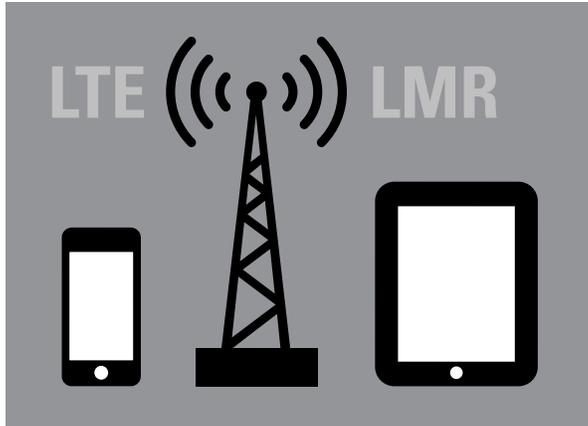
TREND 2

A GROWING NEED FOR CONVERGED, DURABLE NETWORKS AND DEVICES

For converged, seamless public safety communications to be most effective, all the devices and networks used by personnel must operate together as one mission critical system. PTT talkgroups must include both LMR and LTE devices. GPS locations from both LMR and LTE devices must be accessible using one Computer Aided Dispatch (CAD) application. Devices must be easily managed across both LMR and LTE networks. As the demand grows in the next five years for network-agnostic devices, we believe that more hardened, mission critical devices will become available to meet public safety's unique needs.

TREND 3

A MOVE TO THE CLOUD LEADS TO IMPROVED CYBERSECURITY AND EASIER MANAGEMENT

As networks and devices become more complex to support and secure – and as data becomes more challenging to interpret – some government agencies are taking steps to outsource the management of their technology systems to the cloud. Since cloud-based applications lessen the management burden on public safety agencies, reduce vulnerability to increasing cybersecurity threats and allow for more effective analysis of database information, we expect to see many public safety agencies moving their operations to the cloud by the year 2019.

ACCESS TO MISSION CRITICAL COMMUNICATIONS IS PARAMOUNT
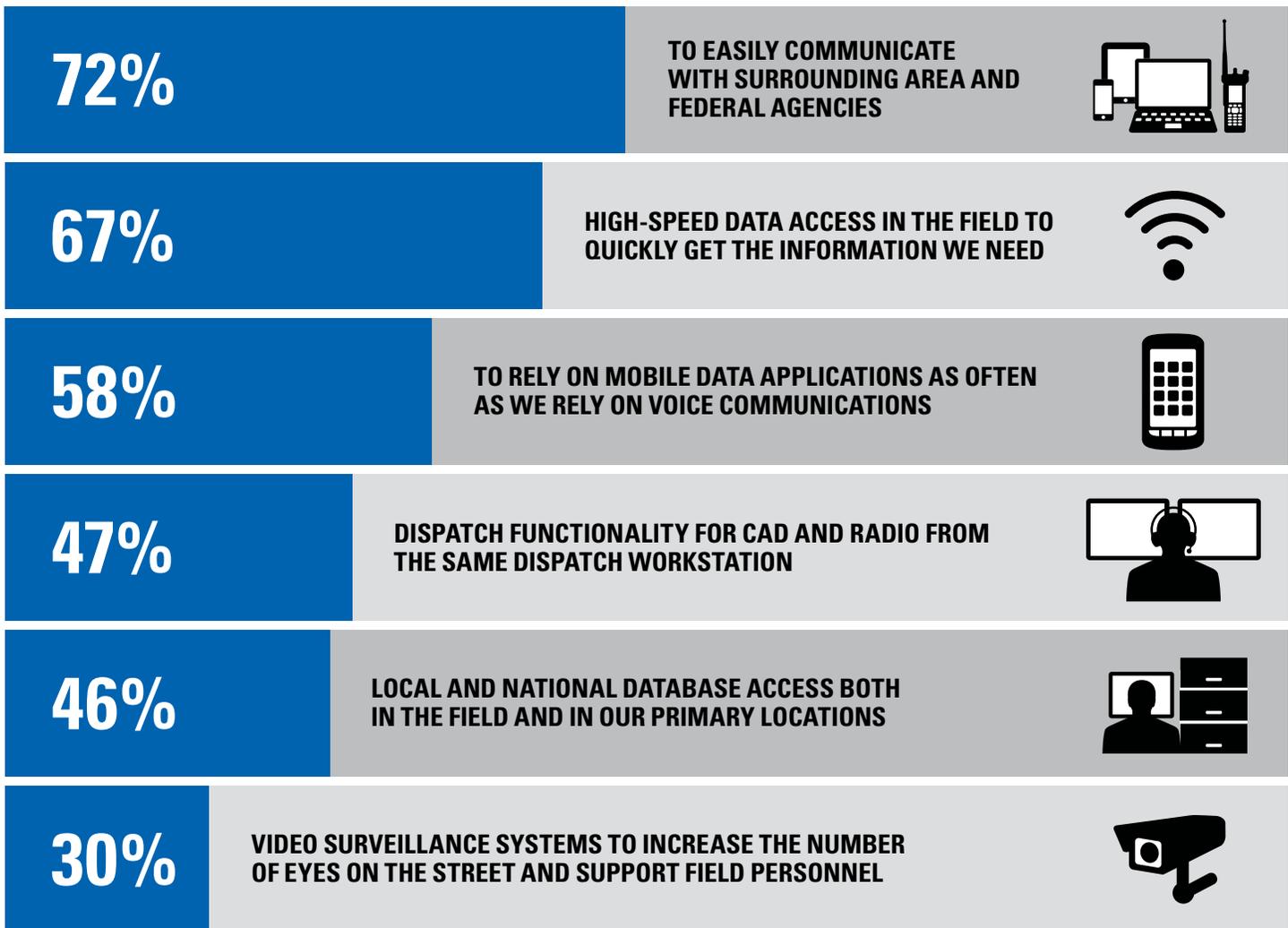## DESIRE FOR HIGH-SPEED DATA IN THE FIELD CONTINUES TO EXPLODE

Interoperability, access to high-speed data in the field and the adoption of more data applications top the list of agency priorities in 2014. Public safety agencies recognize that using technology to collect and analyze the right information in real time is critical in delivering the collective intelligence needed to help them serve the public more effectively.

That's why it's no surprise that 70 percent of those surveyed also said that getting data messages through is equal in importance to voice communications.

Using this collective intelligence approach, each individual can contribute information that is combined into one single operational view. The result? More intelligent response and better outcomes.

70%

SAY GETTING DATA MESSAGES THROUGH IS EQUAL TO VOICE COMMUNICATIONS

IN THE FUTURE, MY AGENCY NEEDS…

72% TO EASILY COMMUNICATE WITH SURROUNDING AREA AND FEDERAL AGENCIES

67% HIGH-SPEED DATA ACCESS IN THE FIELD TO QUICKLY GET THE INFORMATION WE NEED

58% TO RELY ON MOBILE DATA APPLICATIONS AS OFTEN AS WE RELY ON VOICE COMMUNICATIONS

47% DISPATCH FUNCTIONALITY FOR CAD AND RADIO FROM THE SAME DISPATCH WORKSTATION

46% LOCAL AND NATIONAL DATABASE ACCESS BOTH IN THE FIELD AND IN OUR PRIMARY LOCATIONS

30% VIDEO SURVEILLANCE SYSTEMS TO INCREASE THE NUMBER OF EYES ON THE STREET AND SUPPORT FIELD PERSONNEL
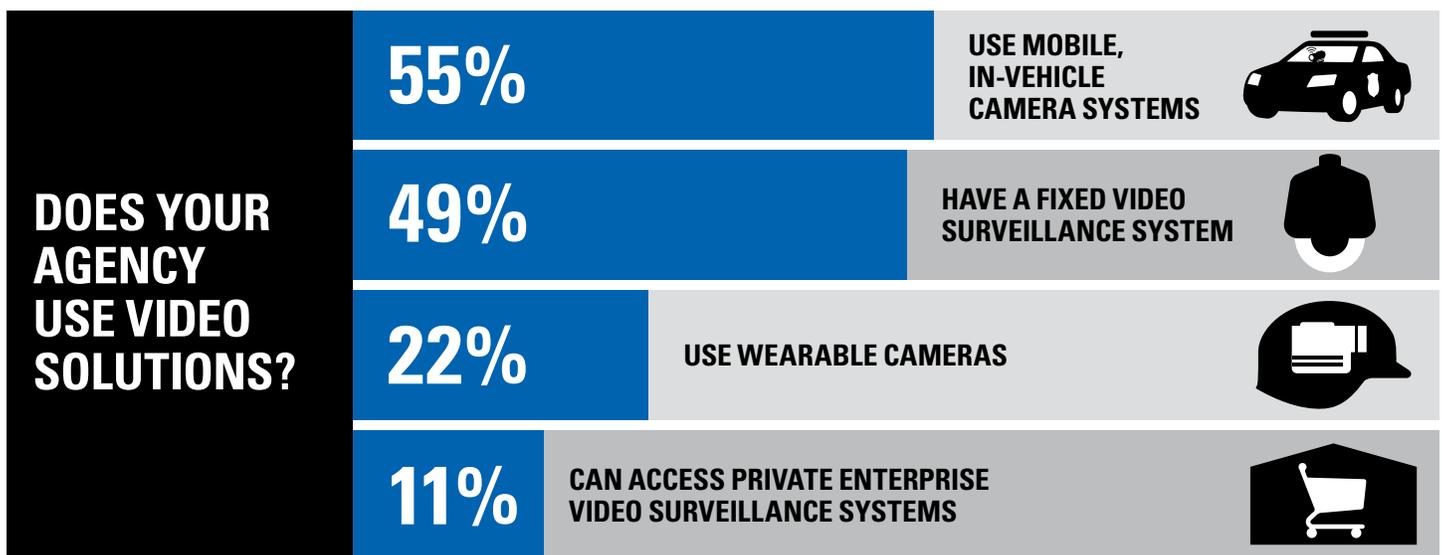
VIDEO SOLUTIONS ARE MORE PREVALENT
BETTER ANALYTICS WILL RESULT IN MORE REAL-TIME USE OF DATA COLLECTED FROM VIDEO

Public safety agencies are increasingly using video to support a whole host of crime-fighting applications, from video surveillance to in-vehicle and wearable cameras. In fact, the number of agencies using in-vehicle camera systems grew significantly in 2014, rising to 55 percent from 32 percent the previous year. The number of agencies using fixed video surveillance rose significantly as well, increasing to 49 percent in 2014 from 30 percent in 2013. And perhaps most notably, the number of agencies using wearable cameras nearly quadrupled, increasing to 22 percent in 2014 from a mere 6 percent in 2013. We anticipate this trend in the availability and use of video technology will continue to grow significantly in the next five years, and beyond.

REAL-TIME INTELLIGENCE STILL LAGGING

While the use of video is growing, the vast majority of that data is still collected for later review, not for real-time intelligence. By 2019, Motorola expects to see more agencies seeking new ways to capture, analyze and share the data they collect in real time. Public safety agencies will increasingly put solutions in place that allow them to bring together information from all different sources – including CAD, video, sensors, alarms and social media – to process and analyze information and deliver one, real-time operational view.

While only 23 percent of agencies say they plan to implement streaming video from their in-vehicle cameras in the next three to five years, that number is expected to grow as agencies migrate to digital systems that can support more high-speed communications.

DOES YOUR AGENCY USE VIDEO SOLUTIONS?

55%	USE MOBILE, IN-VEHICLE CAMERA SYSTEMS
49%	HAVE A FIXED VIDEO SURVEILLANCE SYSTEM
22%	USE WEARABLE CAMERAS
11%	CAN ACCESS PRIVATE ENTERPRISE VIDEO SURVEILLANCE SYSTEMS

9-1-1 CENTERS CATCH UP WITH DATA REVOLUTION
MORE EDUCATION IS NEEDED AS PSAPS BEGIN TO IMPLEMENT NG9-1-1

Local public safety answering point (PSAP) 9-1-1 centers are continually enhancing the services they provide to the public, and one of the most talked-about enhancements has been the transition from E9-1-1 to NG9-1-1. For command center operations, Next Generation 9-1-1 (NG9-1-1) promises tremendous access to valuable citizen-provided information such as real-time text, images and video – information that public safety personnel can use to make better decisions and improve responsiveness.

MANY DIFFERENT TECHNOLOGY PATHS LEAD TO SMS TEXT-TO-9-1-1

In mid-2014, the four largest national wireless carriers complied with a federal mandate by supporting interim short message service (SMS) Text-to-9-1-1. It's a big step forward, and PSAPs are now following their lead. PSAPs can turn to a wide variety of technology options to support SMS Text-to-9-1-1, and many of these solutions do not require significant upfront investments or upgrades. These include Web browsers, conversion of text messages to TTY/TDD, gateway centers and aggregating Text-to-9-1-1 processing regionally.

The need for education in this area is high, as a whopping 30 percent of respondents in the Motorola survey reported that they are "not sure" if their 9-1-1 intake center can receive text messages from the public, and more than 33 percent say they are not sure whether their 9-1-1 intake centers can receive photos or videos from the public. Meanwhile, the FCC reports that as of May 2014, fewer than 60 PSAPS have deployed Text-to-9-1-1.[1] In the next few years, more education is needed to help PSAPs find the right technology to support 9-1-1 text and multimedia messaging emergency services.

PUBLIC SAFETY PERSONNEL RELY ON A WIDE VARIETY OF MOBILE DEVICES

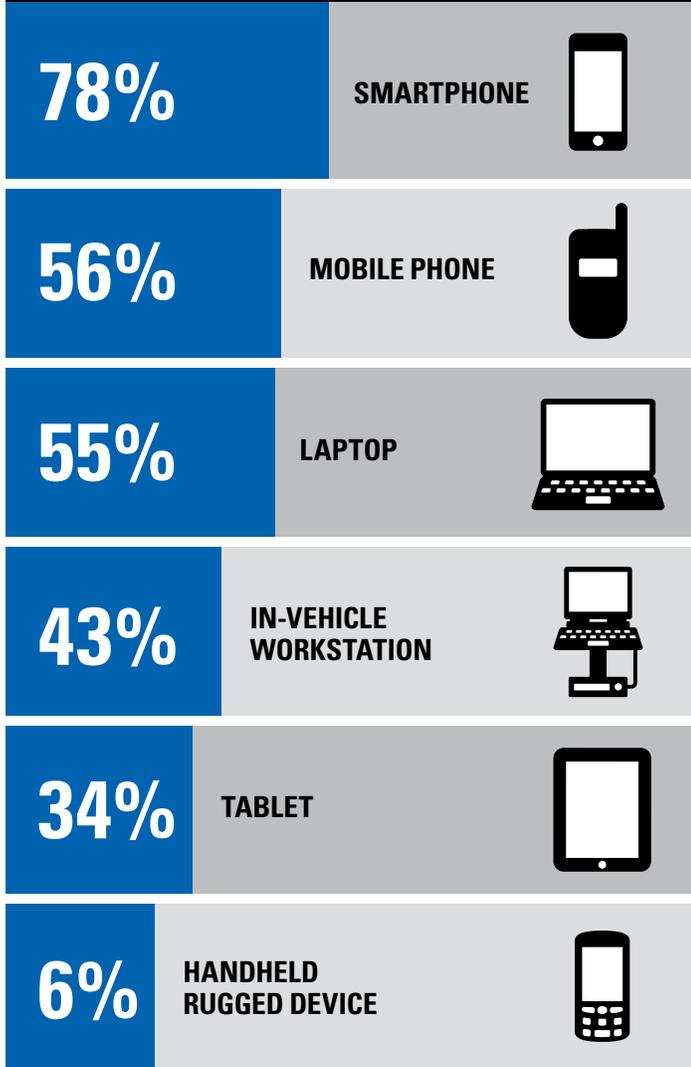## GROWING ADOPTION OF DEVICES SUPPORTING DATA

The list of devices that agency personnel use today clearly shows that they are expanding beyond just voice and using other more data-oriented communications such as text and video – both in the office and in the field. The percentage of smartphones used on the job has risen from 69 percent in 2013 to 78 percent today. So has tablet usage, rising to 34 percent this year from just 24 percent in 2013. At the same time, the number of responders using mobile phones (versus smartphones) dropped slightly, from 59 percent to 56 percent.

More than half (53 percent) of the responders have embraced the Bring Your Own Device (BYOD) trend and use a personal smartphone on the job. However, not much progress has been made in BYOD governance. More than 62 percent of agencies say they have no formal BYOD policy – virtually the same percentage as last year's survey. And less than four percent said they plan to implement a policy this year.
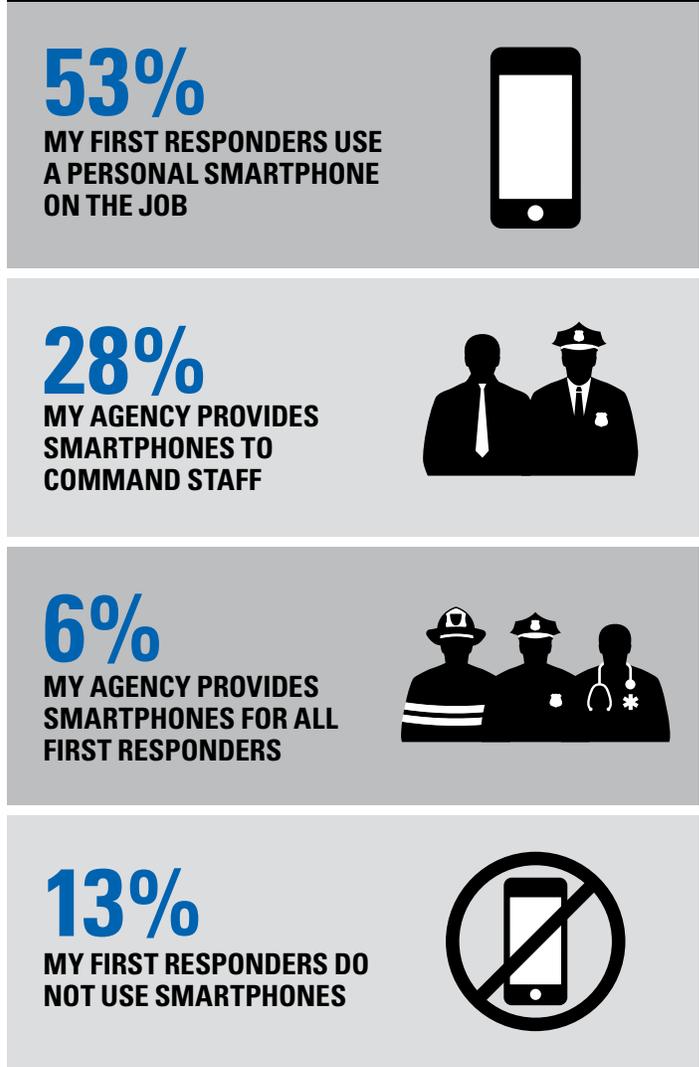
In the next five years, Motorola expects the emergence of more applications and rugged devices designed specifically for public safety, including those that enable new levels of collaboration in the field.

62%
NO FORMAL BYOD POLICY
BYOD

WHAT TYPES OF DATA DEVICES DO YOU, OR YOUR FIRST RESPONDERS, USE ON THE JOB?

78% SMARTPHONE

56% MOBILE PHONE

55% LAPTOP

43% IN-VEHICLE WORKSTATION

34% TABLET

6% HANDHELD RUGGED DEVICE

WHO PROVIDES YOUR FIRST RESPONDERS WITH A SMARTPHONE?

53% MY FIRST RESPONDERS USE A PERSONAL SMARTPHONE ON THE JOB

28% MY AGENCY PROVIDES SMARTPHONES TO COMMAND STAFF

6% MY AGENCY PROVIDES SMARTPHONES FOR ALL FIRST RESPONDERS
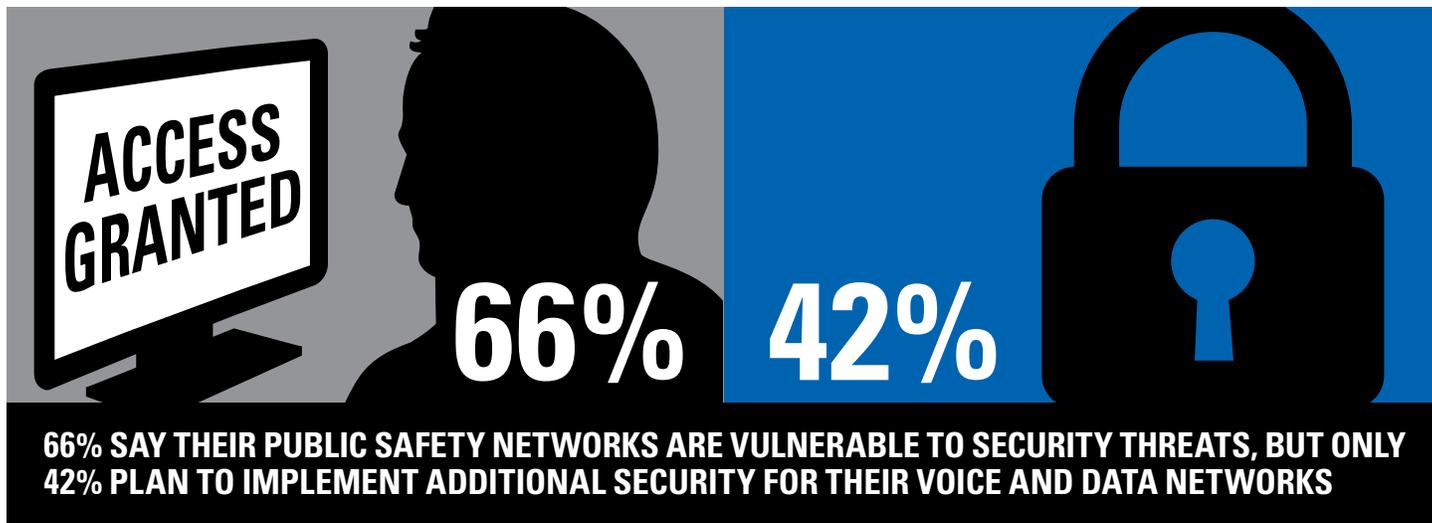
13% MY FIRST RESPONDERS DO NOT USE SMARTPHONES

NETWORK SECURITY IS A MAJOR THREAT FOR PUBLIC SAFETY
AGENCIES RECOGNIZE THAT THE THREAT FROM CYBERCRIME IS INCREASING

State CIOs rank security as their top priority, according to the most recent National Association of State Chief Information Officers (NASCIO) survey.[2] That's not surprising, given that a study conducted by the Ponemon Institute revealed that the cost of cybercrime rose an estimated 78 percent from 2009 to 2013, with the average cost of resolving a single incident estimated at more than $1 million.[3] The threats are many, ranging from malware and information leaks to network attacks.

The majority of Motorola survey respondents say that cybersecurity poses a real threat — with only 12 percent saying they are not vulnerable at all. As agencies collaborate more and share data, the risk of attack only grows.

That's why it's surprising that only around 42 percent of those surveyed say they are likely to shore up their security in the next year.

66% SAY THEIR PUBLIC SAFETY NETWORKS ARE VULNERABLE TO SECURITY THREATS, BUT ONLY 42% PLAN TO IMPLEMENT ADDITIONAL SECURITY FOR THEIR VOICE AND DATA NETWORKS

PUBLIC SAFETY AGENCIES INCREASINGLY MOVE TO THE CLOUD
CLOUD COMPUTING WILL HELP AGENCIES ENHANCE SECURITY, CUT COSTS AND IMPROVE DATA ANALYSIS

Many agencies have turned to cloud computing to help meet their security needs with about 34 percent of respondents already using a cloud solution to support data applications, computing and storage, or considering using one in the next three years.

THE CLOUD DELIVERS MUCH MORE THAN SECURITY

The good news is that security is not the only benefit that cloud-based mobile applications provide to public safety agencies. Cloud computing can also help them cut costs and more easily integrate data from disparate public safety systems and third-party applications.

In fact, cloud systems can provide public safety agencies with an easy way to aggregate information from existing databases, organize it and map it using layers to show the location of people, resources, events, alerts and developing situations; this provides responders in the field with the critical information necessary to improve decision making and to better collaborate between agencies.

34% ARE ALREADY USING OR PLAN TO USE A CLOUD SOLUTION FOR DATA APPLICATIONS, COMPUTING OR STORAGE IN THE NEXT 3 YEARS

CONVERGED NETWORKS BEGIN TO APPEAR
AGENCIES ARE MIGRATING TOWARD A MORE MULTI-NET ENVIRONMENT

While many of the agencies surveyed are continuing to invest in their LMR networks, they have also begun planning for LTE as well.

More than half of the agencies surveyed either have already migrated from an analog to a digital P25 system or are planning to within the next five years. Meanwhile, agencies are beginning to integrate carrier LTE broadband into their existing mission critical systems to work toward a multi-network environment. These solutions will allow public safety radios, ruggedized LTE devices, consumer-grade smartphones and tablets, and future converged devices to operate together as one system.

WELCOME TO THE MULTI-NET WORLD

In the next five years, Motorola believes more and more agencies will migrate to a multi-network environment, particularly as agencies strive to get the most out of their current networks while embracing new networks that support the growing desire for high-speed communications.

We also expect to see widespread implementation of mission critical systems that deliver common interfaces for services such as unified location, provisioning, fleet management and unified PTT across all types of networks and devices.

CHALLENGES REMAIN FOR PUBLIC SAFETY AGENCIES MOVING TOWARD MORE DATA COLLABORATION

Agencies surveyed across the country are clamoring for real-time information in the field. They're also asking for the ability to interoperate with surrounding and federal agencies. Unfortunately, public safety agencies need more support – both technical support and community support from local politicians and citizens – to achieve these goals. Survey respondents also noted that achieving consensus among agencies is challenging, making it difficult to achieve interoperability between agencies.

WHAT IS YOUR AGENCY'S PRIMARY CHALLENGE TO ACHIEVING ITS NEXT GENERATION COMMUNICATIONS OPERATIONS VISION?

31% LACK OF RESOURCES AND/OR TECHNICAL SUPPORT

28% A PLAN THAT IS SUPPORTED BY LOCAL OFFICIALS

27% CONSENSUS WITH SURROUNDING AGENCIES

8% SUPPORT FROM THE COMMUNITY

2019

IN THE NEXT 5 YEARS AGENCIES WILL WORK THROUGH THESE CHALLENGES

TAKING FULL ADVANTAGE OF TECHNOLOGY TO CAPTURE, ANALYZE AND SHARE THE INCREASING AMOUNT OF DATA AVAILABLE

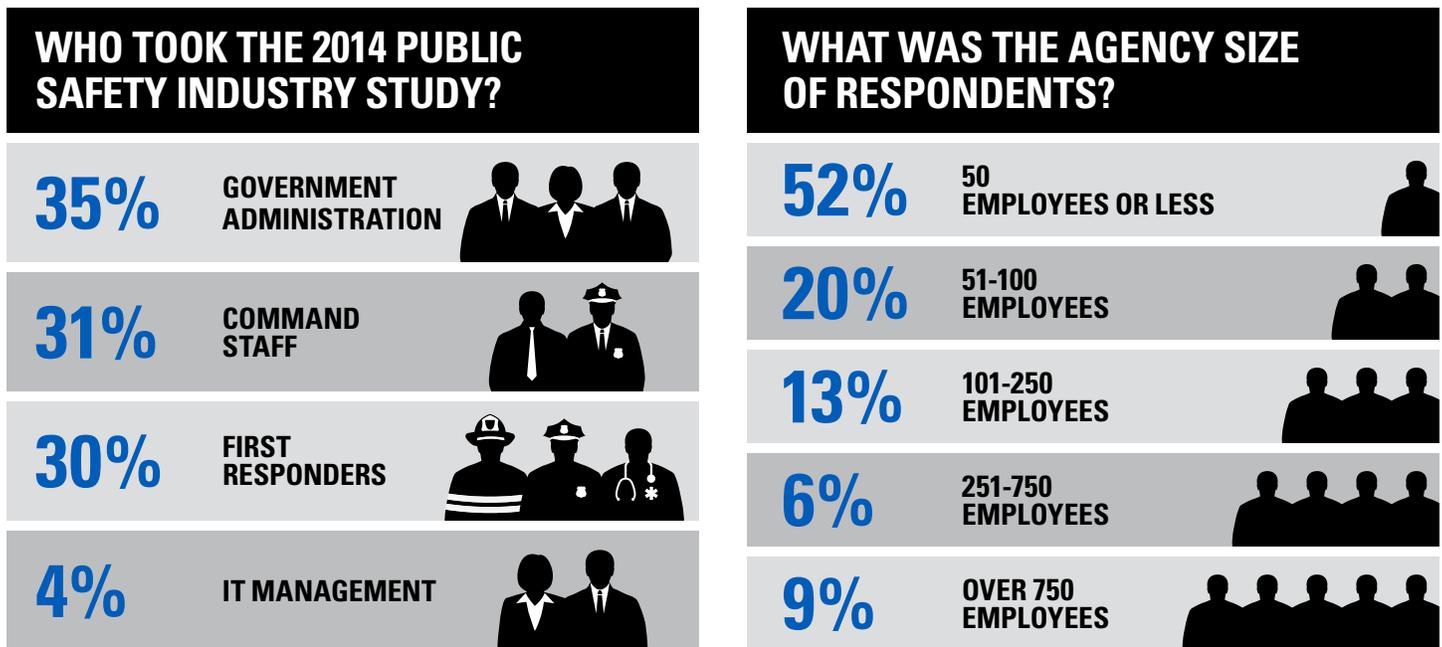QUICKLY TURNING IT INTO ACTIONABLE INTELLIGENCE FOR BETTER OUTCOMES

SURVEY HIGHLIGHTS AND METHODOLOGY

Study results illustrate the migration in public safety technology currently underway to help manage the new sources of data, like text and video, and to help share that information with new devices and other agencies. The availability of new sources of data, whether it is the explosion of video surveillance or SMS text messages from citizens, is driving change to a multi-net environment capable of operating with existing LMR and new public safety LTE networks.

New networks will need to provide high-speed data to multiple devices with the increased use of smartphones, laptops and tablets in the field. In addition, both field officers and command centers need to easily communicate with surrounding local and federal agencies.

Lastly, the use of cloud computing is increasing to support data applications, computing and storage, with the added benefit of greatly enhanced security, a major concern for respondents. Moreover, cloud systems can help to cut costs while improving analysis of multiple sources of data to improve decision making and collaboration between agencies.

WHO TOOK THE 2014 PUBLIC SAFETY INDUSTRY STUDY?

35%	**GOVERNMENT ADMINISTRATION**
31%	**COMMAND STAFF**
30%	**FIRST RESPONDERS**
4%	**IT MANAGEMENT**

WHAT WAS THE AGENCY SIZE OF RESPONDENTS?

52%	**50 EMPLOYEES OR LESS**
20%	**51-100 EMPLOYEES**
13%	**101-250 EMPLOYEES**
6%	**251-750 EMPLOYEES**
9%	**OVER 750 EMPLOYEES**

With responses from more than 1,300 public safety professionals, Motorola's 2014 study provides invaluable insight into how technology is being used by the public safety community, from administrative staff to first responders. This annual survey is conducted as part of Motorola's ongoing commitment to understanding and serving the communications technology needs of the public safety community.

The study was conducted in early 2014, following up on similar research fielded last year. Responses were collected from a wide variety of professionals, with nearly equal proportions coming from command staff, first responders and government administration. Others surveyed included IT directors and other public safety users and decision makers.

SOURCES

Motorola Solutions "2014 Public Safety Industry Study"

1. Federal Communications Commission, Text-to-911 Deployments as of May 16, 2014, http://transition.fcc.gov/cgb/text-to-911-deployments.pdf

2. NASCIO - NASCIO 2014 State CIO Top10, http://www.nascio.org/publications/documents/NASCIO_StateCIOTop10For2014.pdf

3. Ponemon Institute, 2010-2013 "Cost of Cyber Crime Study: United States", http://www8.hp.com/us/en/hp-news/press-release.html?id=1501128#.U9Qsh_ldXWZ

For more information on how Motorola is helping public safety agencies work better, smarter and faster through next generation technology, visit **motorolasolutions.com/safercities**.

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