



CONSENSUS FOR **CHANGE**

TRANSFORMING SAFETY THROUGH TECHNOLOGY

A global study from Motorola Solutions, conducted by Goldsmiths, University of London, about how the pandemic redefined expectations, accelerated innovation and changed attitudes about technology for public safety.





"Technology has kept us connected, entertained and productive throughout the pandemic. We have also observed the important way it has supported our public safety agencies and commercial industries in delivering their services while keeping us safe."

Maresh Saptharishi

Senior Vice President & Chief Technology Officer
Motorola Solutions

Motorola Solutions, in partnership with a world-leading academic team of independent researchers led by Dr. Chris Brauer at Goldsmiths, University of London, has conducted a major global research study that discovers how the pandemic has changed our expectations for safety while fueling technology adoption and innovation.

Based on the voices of 12,000 people and 50 public safety agencies, commercial organizations and experts across 10 markets (Australia, Germany, Italy, Malaysia, Nordics, Singapore, Spain, Taiwan, United Kingdom, United States), the *Consensus for Change* report reveals how the global pandemic has accelerated a new safety movement.

The extraordinary conditions of the global health crisis have made two things very clear — **Safety is now seen as a collective responsibility across public safety agencies, industry and society. Secondly, that technology can play a far greater role in keeping us safe.**

The Consensus for Change citizen survey finds that:

- **75%** say that they are willing to trust organizations that hold their information so long as they use it appropriately.
- **70%** say emergency services should be able to predict risk, a task that can be supported by advanced technologies.

An overwhelming

88%

of citizens globally want to see public safety transformed through the use of advanced technology.

The research also discovers how the pandemic sparked high-velocity innovation for public safety agencies and businesses, especially in the areas of cloud adoption, video usage and interoperability between disparate organizations and systems, while reconfirming the need for reliable and resilient communications.

The global study reveals that trust and transparency between citizens and safety providers has become critical to ensure the success of technology acceptance and adoption. Citizens need to know the technology keeping them safe is being used in ways that are inclusive, fair and transparent.

With the consensus for change now at historic levels, the question is not when, but how to make our world safer through technology.



SAFETY EXPECTATIONS REDEFINED

HOW EVOLVING THREATS INCREASE DEMAND FOR TECHNOLOGY

The global pandemic changed the way that we think and feel about safety.

While we adjusted to the rapid implementation of new rules and policies to protect us, our public safety agencies had to adapt and respond to new threats. Enterprises needed to put the safety of their staff and customers first and increase their digital presence and data-sharing capabilities to counterbalance the effect of lockdowns.

Amidst all of this upheaval, citizens too needed to accept new responsibilities for safety. We quickly learned that our personal behaviors could have far reaching impacts, extending rapidly throughout communities.

Now, we share a mindset that we can only be safe when everyone is safe.

In uncertain times, citizens place higher expectations on their public safety agencies to keep them safe. Prior to the pandemic, many organizations were looking to technology as part of their plans to modernize through digital transformation.

As this research reveals, those plans and the deployment of new technologies have been accelerated by the constantly evolving public health crisis.

Citizen Survey Highlights:

- **74%** agree using technology increases the productivity and efficiency of emergency services.
- **68%** say the pandemic increased the need for safety technology.

71%

of citizens say advanced technologies, such as video cameras, data analytics, cybersecurity and the cloud, are needed to address challenges of the modern world.

"We decided that body-worn video could have a positive impact in keeping our staff and passengers safe and making all journeys more comfortable."

Nicholas Allen

Technology Improvement Lead
Transport for London



ADAPTING TECHNOLOGY TO RESPOND TO NEW THREATS

The pandemic changed our perspectives on how technology can be used to keep us safe.

Citizens have not only seen an extremely dangerous virus sweep the globe, they've seen authorities and enterprises innovate at considerable speed to keep them safe. Further they've seen that it works.

Cloud-based technology, AI and video cameras in communities and in businesses are not new — but the ways they can be used to provide public safety are.

In many cases, research interviews found that organizations had deployed these technologies at far greater speed to counter new risks caused by the global pandemic.

Familiar technologies are being adapted to work in new ways:

Confronted by 1,350 attacks on its essential workers in the first half of 2020, one of the largest retailers in the U.K., **Co-op**, equipped its frontline staff with more than 1,000 body-worn cameras across 250 stores. The cameras stream live video from the supermarket floor to the retailer's Security Operations Center at the touch of a button when a colleague is faced with an incident.

Police Scotland has been relying on technology for some time to improve the way they capture and store evidence and have saved many thousands of hours for their officers. It initially deployed smart mobile applications to enable officers to use their mobile devices instead of paper-based methods of filing reports and incident details.

But it wasn't until the pandemic that they realized that the same technology could enable social distancing in the field.

Mass Rapid Transit Corporation, Malaysia uses video and software technology to detect when someone with an elevated temperature approaches the station entrance gate. The technology allows MRT to stop a passenger before boarding a train, potentially avoiding a serious safety risk and highlighting how crucial technology has become during this pandemic.

San Diego County Sheriff's Department benefited from a vast and interoperable mobile radio network to communicate with other agencies before the pandemic. As the health crisis unfolded, public safety agencies across the county were able to stay informed and work more efficiently together by listening to one another's radio traffic.

CONFRONTED BY 1,350 ATTACKS ON ITS ESSENTIAL WORKERS IN THE FIRST HALF OF 2020, ONE OF THE LARGEST RETAILERS IN THE U.K., CO-OP, EQUIPPED ITS FRONTLINE STAFF WITH MORE THAN 1,000 BODY-WORN CAMERAS ACROSS 250 STORES.



ACCELERATED INNOVATION

HOW THE PANDEMIC IS TRANSFORMING TECHNOLOGY

Research discussions found that many public safety and enterprise organizations were already planning to modernize their operations through digital technologies well before COVID-19.

Among their motivations for technology change were increasing automation, safety and efficiency across their operations, maximizing their use of data, as well as making systems more flexible and integrated.

Yet when the pandemic arrived, it tested their adaptability, requiring them to respond to new demands, safety guidelines and ways of working. In many cases, that meant accelerating their planned technology rollouts against a rapidly evolving landscape.

Technology adoption has been growing exponentially among citizens too. COVID-19 further amplified our dependence on technology and the need for digital skills to access everything from virtual events to telemedicine services. Therefore it's natural to expect our public safety agencies to have access to similar (or better) tools to deliver their services. The reality is that those agencies cannot adopt technology as quickly or as flexibly as citizens can.

Emergency services and government agencies need to think more fundamentally about how to acquire, adopt and implement technology and the consequences of change. For them, the transition needs to be weighed against sizable risks, including the need to maintain the integrity of the criminal justice system and protect citizens' personal data.

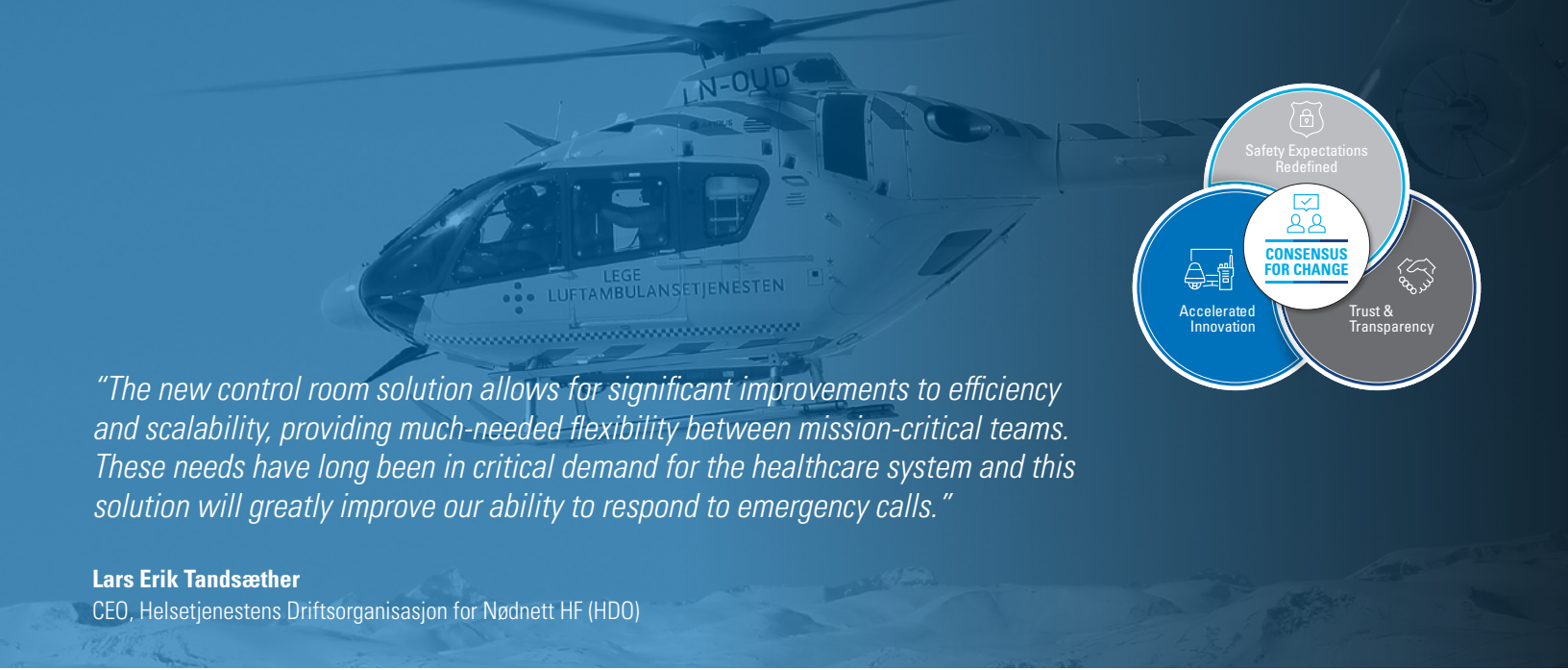
Despite this, the research found many examples where the global pandemic actually spurred long planned technology deployments into action.

Citizen Survey Highlights:

- **66%** are open to new technologies that benefit public safety - even higher approval rates of **70%** or more were seen in five of the 10 markets.
- **71%** say commercial organizations need access to technology to ensure the continuity of their services.

71%

of citizens say our public safety agencies need to be able to integrate fast and flexible systems to improve public safety outcomes.



“The new control room solution allows for significant improvements to efficiency and scalability, providing much-needed flexibility between mission-critical teams. These needs have long been in critical demand for the healthcare system and this solution will greatly improve our ability to respond to emergency calls.”

Lars Erik Tandsæther

CEO, Helsetjenestens Driftsorganisasjon for Nødnett HF (HDO)

BROADER ADOPTION OF CLOUD TECHNOLOGY

Cloud technology had matured considerably before the pandemic, but even then, not all public safety agencies were convinced of the benefits. Some public safety providers initially believed that the cloud exposed them to greater security risks and vulnerabilities to cyber attack than on-premise solutions.

Over time, organizations have discovered that cloud-based technology provides much more than computing and storage power. Today, the cloud provides a variety of highly scalable capabilities, including access to networking, databases and sophisticated analytics. Being software based, cloud technology also has the advantage of being more economical and easier to keep up-to-date than on-premise solutions.

When the pandemic stimulated a greater need for decentralized and remote operations, more organizations reconsidered their positions on cloud technology.

The organizations interviewed discussed how their increasing investment in and deployment of cloud services is helping them to meet a growing number of operational needs while boosting their responsiveness, resilience and flexibility.

How organizations are adopting cloud:

Norway’s emergency health service’s operating organization for Nødnett HF, **Helsetjenestens Driftsorganisasjon for Nødnett HF (HDO)**, provides control room management and emergency communications between citizens and health services. When the pandemic hit and emergency calls spiked, it decided to upgrade its control room with a cloud-based software in its own data centers to support virtual control rooms. HDO’s new solution will unify data, streamline incident management workflows and enable better communication and emergency response across the nation. By centralizing its control room operations onto one technology platform, HDO will increase collaboration between medical centers, regional health authorities and emergency communication centers, making vital information easily accessible for broader emergency and healthcare organizations.

WHEN THE PANDEMIC STIMULATED A GREATER NEED FOR DECENTRALIZED AND REMOTE OPERATIONS, MORE ORGANIZATIONS RECONSIDERED THEIR POSITIONS ON CLOUD TECHNOLOGY.

"The use of video has been accepted extremely well, and we have not had any pushback. What we found through all of this, especially with COVID, is that people want to be safe."

Chris Sampson
Associate Superintendent
Perry Township Schools



INCREASING USE OF VIDEO SECURITY SOLUTIONS

Organizations around the world are using video technology in a variety of ways to increase safety, security and drive productivity across their operations - a trend further accelerated by the global pandemic.

Police agencies, transportation providers and retailers are among those deploying body-worn video technology to increase transparency in all interactions between their workers and the public. France's national and military police agencies are rolling out one of the largest deployments of body-worn video to date, and the technology is used extensively throughout markets including the U.S., U.K. and mainland Europe.

Automatic license plate recognition technology has been used by authorities in Australia to identify unauthorized vehicles. Vehicle license plate data has become an important tool for public safety investigations and is also helping to detect and prevent potential breaches of COVID-19 lockdown and border control orders.

Continuing advances in video systems powered by AI software are also removing the burden of workers needing to sift through hours of video footage to look for critical incidents or clues. Instead, AI is being used to quickly identify people and objects within large volumes of video content, presenting a filtered set of results which technology users can then verify. This development has proven particularly useful for enterprises that have augmented their video security solutions to identify people with elevated temperatures in high-risk areas such as airports and public transport networks.

The capabilities of access control systems which authorize workers' entry to buildings have also been expanded through sophisticated video analytics. Those systems can identify authorized workers instantly and enable them to unlock access to facilities without compromising enterprise security - even through gestures as simple as waving a hand in front of an access reader. These systems can also be augmented to provide clear and easily searchable evidence trails to support contact tracing efforts and keep workforces safe.

THE CAPABILITIES OF ACCESS CONTROL SYSTEMS WHICH AUTHORIZE WORKERS' ENTRY TO BUILDINGS HAVE ALSO BEEN EXPANDED THROUGH SOPHISTICATED VIDEO ANALYTICS.



How organizations are using video security in new ways:

Perry Township Schools in the U.S. use purpose-designed video analytics technology to maintain COVID-19 compliance in schools, enabling contact tracing and crowd monitoring to keep students safe.

With more than two million daily passengers, 250 trains and 108 stations, **Singapore Mass Rapid Transit (MRT)** depends on video security to keep its services running smoothly. It also uses video systems for proactive maintenance inspections, for example, scanning walls in underground tunnels for cracks or other defects that could lead to larger problems. Track inspections were once a labor-intensive activity - now they are done faster and more accurately with video analytics.

Transport For London (TfL) uses video security technology in a variety of ways to make journeys safer and easier for its workers and passengers. It uses video and 4G systems on underground systems and recently deployed body-worn video cameras to manage unruly behavior while making journeys more comfortable for passengers.

Around the world, video security and analytics technologies are being used to identify and diffuse safety risks, increase operational efficiency and reduce the burden on workers through the application of video analytics powered by AI. With so many new use cases emerging globally, including COVID-19 safety and compliance measures, it appears that the full potential for video security and analytics technology is yet to be realized.

Citizen Survey Highlights:

Video Security

- **62%** say they feel safer in a society where advanced video and communications technologies are used, with 8 out of 10 markets surveyed reporting approval rates for usage of these technologies at 60% or higher.
- **66%** say video cameras for security are equally useful at home, at work and in public places, reflecting greater awareness and familiarity with the use of video across society.

Upholding Safety with Technology

- **66%** are open to new technologies that benefit public safety - even higher approval rates of 70% or more were seen in five of the 10 markets.
- **74%** agree using technology increases the productivity and efficiency of emergency services - while 75% agree it does the same for businesses.



“Our technology speeds up the way we provide safety and has improved our operation on a daily basis. New technologies have made it possible for staff to call an ambulance right away if a major incident occurs.”

Mohammad Shazleigh Omar
Head of Section, Telecommunication Systems (Asset Operations and Management Department)
Mass Rapid Transit Corporation, Malaysia

GREATER NEED FOR INTEROPERABILITY AND DATA SHARING

A common challenge described by many public safety agencies interviewed is having a lack of interoperable technology - in other words, technology that does not allow them to communicate with other agencies, as well as disparate and incompatible systems within their organizations which don't communicate with each other.

Agencies want more interoperable solutions and greater integration across their technology systems to streamline their workflows and data, increase their situational awareness as emergencies unfold and to deliver better safety outcomes overall.

Although solutions are available to increase interoperability for both mission-critical communication and software systems, a number of agencies say they continue to face hurdles. Authorities cite technical, economic and governance challenges that need to be resolved before more interoperable solutions can be extended across the wider public safety community. Public safety agencies also need to act judiciously on interoperability, weighing the benefits and risks of sharing more communications and data with others.

Once again, the global pandemic created unique conditions that caused many emergency services to re-evaluate their interoperability strategies. Norway's health services operating organization **HDO** said having interoperable technology enabled it to cope better with the major spike in emergency calls caused by the pandemic. Its integrated communications system enables paramedics, doctors on duty and hospitals to exchange essential updates and maintain high levels of communication and situational awareness as crises unfold.

Notwithstanding current challenges, public safety agencies can improve their service delivery by sharing and correlating more of their data with each other. For example, the value of a small data point, such as a vehicle's license plate, increases exponentially if agencies can determine if that vehicle has been associated with a crime. Knowing this could potentially bring an offender to justice or even help to prevent a crime.

CONTINUING RELIANCE ON RESILIENT COMMUNICATIONS

In interviews, the researchers discovered how emergency services and enterprises globally are continuing to depend on mission-critical voice communication as the foundation for their operation-wide collaboration and resilience. Unlike cellular networks, these networks feature hardened infrastructure for increased reliability. Organizations have control of their networks and can scale them to provide additional capacity for secure, uninterrupted team-based communication.

At the same time, communication systems are evolving through integration with other technologies including mobile broadband.

Boston Police Department extended the reach of its land mobile radio system within 72 hours of the first COVID-19 lockdown by integrating broadband push-to-talk services. This enabled secure voice and data communication for its distributed and remote workforce, connecting radio users on the frontline with employees using smartphones and other devices within their homes.

To comply with government COVID-19 work safety regulations, **New Zealand City Forests** adapted its new digital radio communications to replace the need for drivers to exchange paper job dockets with a digital docketing system.

Radio communication technology has been adapted to meet pandemic conditions in other ways too. For example, radio accessories have enabled touch-free operation and social distancing in high risk settings such as hospitals.

AGENCIES WANT MORE INTEROPERABLE SOLUTIONS AND GREATER INTEGRATION ACROSS THEIR TECHNOLOGY SYSTEMS TO STREAMLINE WORKFLOWS AND DATA.



TRUST AND TRANSPARENCY

WHY TECHNOLOGY MUST BE INCLUSIVE, FAIR AND UNDERSTOOD

This research identifies a significant opportunity for public safety agencies to act on a global consensus for the wider use of technology to transform safety - but not at the expense of public engagement.

Citizens want authorities to use safety technology in ways that are transparent, fair and inclusive. They want the benefits of using those technologies to be easily understood.

As innovation moves faster, it becomes more difficult for governments to ensure their regulatory and legislative policies are fit for the digital age. That's when a greater onus is placed on public safety and enterprise organizations to fill the gap by increasing trust, transparency and accountability with the community.

Organizations must ensure they have sufficient protections in place for data security and that their employees receive adequate training on the use of safety technology. Extra efforts are required to build advocacy and trust in how new and evolving technologies, such as artificial intelligence, are being used and what the benefits are.

Only then can they earn the trust and understanding needed to create a social contract with the community for the wider use and deployment of technology to protect their safety.

Ambulance Victoria said the growing need to protect patient privacy was driving the opportunity for easily integrated solutions and systems that uphold the highest security standards.

Citizen Survey Highlights:

- **75%** of people say that they are willing to trust the organizations that hold their information so long as they use it appropriately.
- **66%** of citizens surveyed globally say that it should be possible to both analyze data to protect the public while ensuring data privacy.

68%

want to use technology to help emergency services, such as sharing images or video of incidents in their communities with public safety agencies.

"Transparency is key in public messaging, as is making sure all our community partners have had an opportunity to understand the proposed path forward before the technological solution is purchased and implemented."

Gary Bell

Director of Emergency Preparedness
Waukesha County, Wisconsin



TRAINING & EDUCATION BUILD ADVOCACY

At the same time as building public engagement for the use of new technology, organizations need to invest time in training their teams on how new technology works, including how it impacts privacy. During any interaction with the public, employees need to be able to clearly explain how safety technology is being used and what the privacy implications are.

Citizen Survey Highlights:

- **66%** of citizens say they will trust safety technology if they understand and agree with its goals and values.
- **65%** globally trust their emergency services - including police, fire and ambulance services - to use safety technologies responsibly.

How organizations are building engagement and trust:

Boston Police Department says a critical success factor in its broadband push-to-talk technology deployment was clear internal communication about how it would be used and its benefits. The department works to provide training and communicate policies before deploying new technology, so its workforce forms a complete understanding of how the tools can be used to their full potential.

When **Los Angeles Airport Police** introduced GPS capabilities on radios, it promoted transparent and open discussions with employees, providing additional information about how it would impact their privacy rights.

Police Scotland say the successful deployment of video technologies across its operations can be attributed to clear communication of the benefits with officers to build understanding and trust. The agency explained to its officers how having the right information at their fingertips would enable them to challenge misleading statements provided during interviews.

With strong internal engagement with its teams over time, Police Scotland has earned support for a variety of new deployments. Today, the agency says the ability for its frontline officers to access mobile data communications on the streets translates into an estimated time saving of 500,000+ work hours per year.

BUILDING TRUST IN EMERGING TECHNOLOGIES

The research also highlights some degree of public concern over the use of rapidly evolving technologies such as artificial intelligence (AI).

Citizen Survey Highlight:

- **52%** of respondents would trust artificial intelligence to analyze situations of threat.

More public education is needed to explain the benefits of technologies such as AI and how, when used responsibly, it can have profound and positive impacts on safety.

According to Mahesh Saptharishi, Motorola Solutions' senior vice president and chief technology officer, AI should never replace the role of people in critical industries such as public safety.

"One of the most powerful uses of AI technology is to support and enhance human decision making by eliminating some of the manual and repetitive tasks that we simply don't have the time or attention span for," Saptharishi said.

"For example, AI could quickly sift through many hours of video footage to find a potential criminal suspect, the results of which can be verified by a human who can decide what to do next. Using AI in this way not only produces fast and accurate results, it can support and empower people by giving them more time back to focus on other important tasks."

AI SHOULD NEVER REPLACE THE ROLE OF PEOPLE IN CRITICAL INDUSTRIES SUCH AS PUBLIC SAFETY.



CONCLUSION

The major finding of this international research is that there is a global consensus for change to transform safety through the transparent use of advanced technology.

A formidable 88% of the 12,000 people surveyed across 10 markets agree with this sentiment. The remaining 12% who do not subscribe to the idea are not necessarily against it, but they may have some doubts or objections to the use of technology to improve safety. Extra efforts are needed to address their concerns about how the use of technology impacts their privacy and data.

Deeper analysis revealed that citizens will only support the wider use of safety technology if it is used in fair, inclusive and transparent ways.

The global pandemic is a shared experience that has caused seismic changes to public health and new expectations and

responsibilities for safety. It has accelerated changes in our personal perspectives and catalyzed the adoption of new technologies.

A major global movement is now underway that supports making safety a shared responsibility among service providers, industry and society. Its success depends on citizens, public safety agencies and commercial organizations all being able to trust each other and to share more information to further improve the way public safety services are delivered.

The gap between safety objectives and technology is closing, but the only way to build a safe and sustainable future beyond the pandemic is to build it together.

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