

White Paper

Building seamless connectivity for a new competitive edge

Solving the top four manufacturing communication challenges



A safe manufacturing site is a productive one. But these plants often span a wide area and are filled with loud, heavy machinery. Without the right technology, this can make communication difficult and when workers are disconnected from each other, their safety is at risk. With continual evolution in the manufacturing industry, workers need greater connectivity between machines, people, facilities, and data. They need devices they can rely on.

Unified communications technology will be a key enabler of this connected workplace, with the ability to advance three connected goals:



Safety



Efficiency



Productivity

Adopting systems that enable seamless communications and that are durable, reliable, and integrated will allow forward-looking manufacturers to grow and meet productivity needs now and well into the future.

While every manufacturing operation is unique, most share similar communication challenges. According to a recent comprehensive survey from Motorola Solutions, the manufacturing industry faces four key hurdles to increasing connectivity and unifying communications: device reliability and durability; audio clarity; the integration of data applications across devices; and keeping all devices updated and secure.

Those manufacturers that are able to overcome these challenges will see immediate benefits for both their people and productivity, while gaining a clear competitive advantage. Here's how.



Challenge 1:

Device durability and reliability



Manufacturing encompasses a wide range of environments, from sprawling industrial sites to compact cleanrooms. Yet, the need for rugged, durable, and reliable communication devices is universal. When workers are wearing required protective gear such as gloves, eye and ear protection, helmets and specialised clothing, handling devices can be a challenge.

Delicate electronics simply won't last long. Workers at manufacturing facilities need devices that can handle being dropped or getting wet and tolerate exposure to dust, dirt, sand, and extreme temperatures. They need durable devices that can withstand the knocks, drops and spills that happen in facilities every day, so workers can keep communicating no matter what the day brings.

But the need for durability and reliability goes far beyond the cost factor of replacing electronics when they break, it's also key to maintaining a safe, productive environment. Knowing that a teammate is always a reliable button press away and that a radio will be fine if it's accidentally dropped means workers can perform their jobs safely, without interruption and with total confidence.

That's why we built our **MOTOTRBO™** R7, R2, MOTOTRBO Ion two-way radios, and our Evolve LTE device to be ultra-durable.


The **MOTOTRBO R7** is designed and tested to MIL-STD-810 military standards, so you can rely on it wherever and however you work. Tested to IP66 and IP68 standards, the MOTOTRBO R7 radios are dust-tight and protected from water immersion of up to two metres for two hours and can even withstand high-pressure water jets. Plus, the enlarged screen is ruggedised so it can stand up to repeated drops, even on concrete. The casing on MOTOTRBO R7 was even designed to medical-grade specifications so it can resist damage from disinfectants and decontamination substances.

Carrying an IP55 rating, the **MOTOTRBO R2** has ingress protection from both dust and water and also meets MIL-STD-810 requirements, making it reliable in even the most challenging environments. The R2's slim, high-density battery – able to operate down to -20 degrees celcius – won't wear down before shift change. The device has built-in noise suppression that uses advanced algorithms to single out and eliminate disruptive background noise. All this is housed within a slim, lightweight design that is easy to use and doesn't weigh you down.

MOTOTRBO Ion is our first business-ready communication device with always-on voice and broadband data capabilities. It brings together renowned PTT performance, an open app ecosystem on the Android platform, and access to our unified technology ecosystem - without compromising on durability. MOTOTRBO Ion uses ultra-strong materials both inside and out for outstanding impact resilience. It has an ultrarugged, liquid-resistant touchscreen and is easy to operate with or without gloves. Because temperature extremes can wreak havoc on battery life, MOTOTRBO Ion has a long battery life through extreme temperatures – hot or cold.

Evolve is a powerful LTE handheld device, purpose built as the ideal companion for Motorola Solutions broadband push-to-talk systems including WAVE PTX. Together, these solutions enable your teams to connect with greater speed and efficiency across different devices, networks and locations. It's also built to withstand tough working conditions. It's dustproof and submersible in up to two metres of water for up to two hours. Its rugged, 5" glove-operable, liquid-resistant display features a Gorilla Glass 3 screen, so it can withstand repeated drops onto concrete. Built for multi-shift use, Evolve also enables a long run time with high-capacity swappable batteries that ensure the device can be handed over from shift-to-shift without charging.





Challenge 2: Audio volume and quality

It's not surprising that respondents to our manufacturing industry survey said that audio is a top communication challenge for manufacturing workers. Manufacturing facilities are frequently loud operational environments. The presence of heavy, often dangerous machinery and equipment on a factory floor with multiple workers conversing, makes seamless communication and the ability to hear absolutely critical to safety.

Manufacturers need communications devices that ensure they can hear correctly the first time, every time. That's why superior loud, clear audio is a key feature of every MOTOTRBO R2, R7, Evolve, and MOTOTRBO Ion we offer.

The MOTOTRBO R7 excels in the most challenging audio conditions. Adaptive dual microphone noise suppression cancels deafening sounds from machinery, engines and road noise, whilst automatic feedback suppression intelligently cancels out the feedback from other nearby radios when individuals are working in close proximity. The R7 also offers an extra-loud audio profile option, allowing teams to hear each clearly even in loud environments. Intelligent audio monitors background noise, adjusting speaker volume automatically so that audio is always at the right volume, whether on the noisy shop floor or in a quiet supervisor's office. No missed messages, no requests to repeat what was said, just clear and audible communications that cut through the clamour of facilities and vehicles.

The R2 comes with SINC+ noise cancellation, long range and selectable audio profiles, so you will be reliable from all corners of the workplace. And if your workforce is spread out over a wide area, you can depend on receiver sensitivity, high-efficiency antennas and interference immunity for superior range. The selectable audio profiles allow you to amplify low, middle or high frequencies to satisfy your listening preference and environment needs. With the R2's loud speaker and low distortion, this feature ensures that your message comes across loud and clear.

With industry-leading volume, clarity, and noise suppression features, MOTOTRBO Ion's voice communications outperform the competition. The radio features advanced audio features such as adaptive dual microphone noise and automatic acoustic feedback suppression. With microphone distortion control and even adaptive wind noise mitigation, ION is ready for whatever the day brings.

A truly business and mission-critical device, Evolve allows teams to hear and be heard in any environment. It features three microphones for superior noise suppression and echo cancellation and is compatible with a range of accessories, such as wireless full duplex remote speaker microphones that provide even quicker access to push-to-talk, or compact earpieces that let teams be discreet as they communicate.



Challenge 3: Integration of data applications

Our manufacturing communications survey revealed that device proliferation is a growing pain point across the manufacturing industry. More than ninety percent of workers say they currently use more than one device to communicate while on the job with workers reporting they frequently use up to three and even four devices.

Yet, in manufacturing facilities, safety, efficiency, and uptime depend on fast and clear communication. Manufacturers want a range of features and applications that go beyond voice communications such as rich data, text-to-speech, Bluetooth® connectivity, and enhanced privacy. By adding these capabilities directly on the PTT devices workers already know and love, manufacturers can get the job done using only one communication device. That's why we offer digital radios with the capability to run a range of applications, purpose-built for manufacturing's needs, from streamlining dispatch, to creating work orders, to ticket management systems.

For example, MOTOTRBO Ion's business-ready communications capabilities include always-on broadband capabilities and an open app ecosystem running on the Android platform. With built-in access to Motorola's unified technology ecosystem, teams can stay connected across multiple networks and devices.

Evolve also offers broadband data capability, allowing users to share large files and videos, with internet access and cloud-based applications on an open Android platform available anywhere there's a 3G, 4G, or Wi-Fi connection available.


For environments where app use may not be appropriate, such as on the road, the MOTOTRBO R7 offers the ability to connect and collaborate without distraction. MOTOTRBO R7 keeps teams connected with streamlined critical communications, while offering the ability to collaborate with video security systems, sensors and more.

Workers can prioritise the alerts that keep themselves and customers safe, avoiding excessive notifications, so they can maintain peak productivity and efficiency.

Motorola Solutions' **WAVE PTX** is a network-independent broadband Push-to-Talk (PTT) subscription service that instantly connects your team at the push of a button. With the WAVE PTX Mobile app, your smartphone, tablet or computer can act like a two-way radio for instant PTT communication. With WAVE PTX, managers can stay in touch when they travel off-site, drivers can have temporary access to on-site communications when dropping off or picking up and work teams can communicate instantly. Quickly locate maintenance engineers and direct them to a faulty production line, notify your team that a delivery is en route from the security gatehouse and coordinate marshals during a fire drill – all at the push of a button. Teams and individuals can talk, text or share video and multimedia files to work together more closely, boost efficiency and enhance productivity.

The **TLK 110** radio combines the flexibility of PTT communication via broadband with the reliability of a rugged, purpose-built radio. With its effortless device management capabilities, the TLK 110 can be optimised for seamless operations, leaving your business safer, smarter, and better connected.





Challenge 4: Keeping devices updated

With the broad adoption of data and applications to enhance manufacturing operations, ongoing, proactive software updates are now a critical part of deploying technology. This proactive maintenance is necessary to prevent downtime, stay current on software features, and ensure security.

Yet, constantly maintaining devices can be challenging, requiring additional staffing or expertise. For many manufacturers, the answer is a service that transfers the burden of ongoing maintenance to a third party, for a predictable, low-cost-per-user subscription fee.

To ensure continuous security, performance and optimal functionality, the R7, Evolve and Ion devices include up to a five year warranty that provides software updates, technical support and hardware repair. Plus, for an enhanced level of protection, optional service packages are also available to cover for accidental damage as well as general wear and tear.



Seamless connectivity within a safety ecosystem

Keeping workers safe in challenging environments while maintaining smooth and efficient workflows is paramount for manufacturers in 2024. That's why, today, seamless connectivity is a critical business imperative for manufacturers of all types.

Forward-looking manufacturers are adopting new systems and devices that enable seamless communications for increased safety, efficiency, and productivity. To get there, they're confronting key communication challenges including device reliability and durability; audio clarity; the integration of data applications across devices; and keeping all devices updated and secure.

With the help of the Motorola Solutions ecosystem of devices, accessories, infrastructure and services, manufacturers can easily overcome these challenges.

The result? Immediate benefits in both safety and productivity. And a clear competitive advantage.



To learn more about Motorola Solutions' solutions for Manufacturing, please visit www.motorolasolutions.com/manufacturing



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