

The Connected Factory

Three Manufacturing
Challenges You Can't
Solve Without a
Connected Factory



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Manufacturing Has Digitized Faster Than It Has Connected

It's the connectivity that ties everything together.

Manufacturers are embracing automation, robotics, IoT, and digital technologies, but many factories still rely on disconnected wireless systems. Modern manufacturing requires more than one network—it requires a connectivity strategy where public cellular, private cellular, and IoT work together to support people, machines, and operations.

In this guide, you'll learn how a shared wireless foundation can help:

- **Public Cellular** – Improve workforce communications and in-building coverage
- **Private Cellular** – Enable reliable automation and mobile assets
- **IoT Connectivity** – Deliver real-time operational visibility and smarter decisions

Together, these technologies create a connected factory that is safer, more productive, and ready for future growth.



\$260K

Manufacturers lose an average of \$260,000 per hour of unplanned downtime.



78%

Of manufacturers plan to increase automation investment in the next 2 years



58%

Cite connectivity gaps as a barrier to their connected factory initiatives

***Public cellular connects people.
Private cellular connects machines.
IoT turns operational data into action.***

Bottleneck #1

Communication Breakdowns During Critical Operations

When communication fails, productivity and safety are at risk.

When production issues occur, every minute matters. Yet communication often breaks down in:

- Production floors
- Mechanical rooms
- Loading docks
- Remote facility areas

This affects maintenance teams, contractors, vendors, and safety personnel. Poor communication can increase downtime and delay incident response.

COMMON PAIN POINTS



Dead zones in critical areas

Basement, machine halls, loading docks and warehouses often lack reliable signal.



Delayed vendor / contractor response

Poor connectivity slows coordination with external teams.



Slower incident reporting

Workers can't always call for help or report issues in real time.



Increased safety and compliance risk

Coverage gaps can compromise emergency communications and regulatory compliance.



- ✗ Calls drop or don't connect
- ✗ Response time increase
- ✗ Downtime costs escalate
- ✗ Safety risks go up



- ✓ Reliable calls everywhere
- ✓ Faster response and resolution
- ✓ Lower downtime and disruption
- ✓ Safer, more connected teams

Bottleneck #2

Mobile Automation Has Outgrown Traditional Networks

As factories automate, mobility is becoming mission critical.

Today's factories depend on mobile assets, including AGVs, AMRs, autonomous forklifts, and mobile inspection systems. Unlike fixed equipment, these assets move continuously.



Private cellular doesn't replace Wi-Fi—it complements it. The table below highlights the additional capabilities private cellular brings to modern manufacturing.

Requirement	Traditional Wi-Fi	with Private LTE/5G Network
Mobility – seamless handoff across the factory	Moderate	High Keeps robots and assets connected at all times
Reliability – Consistent connection for mission-critical tasks	Variable	High Ensures consistent performance in busy areas
Latency – Real-time control and decision making	Variable	High Built for low latency industrial applications
Coverage – Large areas and Complex environments	Limited	High Supports operations across the entire facility
Scalability – Performance declines and future growth	Moderate	High Supports thousands of devices with ease

CASE STUDY

AMR Deployment at a High-Volume Manufacturer

A leading manufacturer experienced frequent disruptions with AMRs when relying on Wi-Fi. After deploying Private 5G, connection stability improved dramatically – eliminating interruptions and keeping production moving.

THE RESULT

98%+
Connection Reliability
Consistent performance across the plant

ZERO
AMR Downtime Due to Network
Eliminated connectivity – related interruptions

HIGHER
Throughput
Smoother material flow and faster cycle times

Maintenance Teams Lack Real-Time Visibility

From Reactive to Proactive Operations

Many maintenance teams still rely on scheduled inspections, manual reporting, and reactive repairs. This approach often misses early warning signs.

Connected sensors and IoT networks provide real-time equipment insights, enabling teams to detect potential issues early and schedule maintenance before failures occur.

From Data to Decisions

Connected factories use real-time operational data to:

- Identify emerging issues earlier
- Prioritize maintenance resources
- Improve shift-to-shift communication
- Reduce downtime
- Accelerate decision-making

The Business Impact



30-50%

Reduction in unplanned downtime



20-40%

Lower maintenance costs



15-25%

Increase in equipment uptime



2-5x

Improvement in asset life and reliability

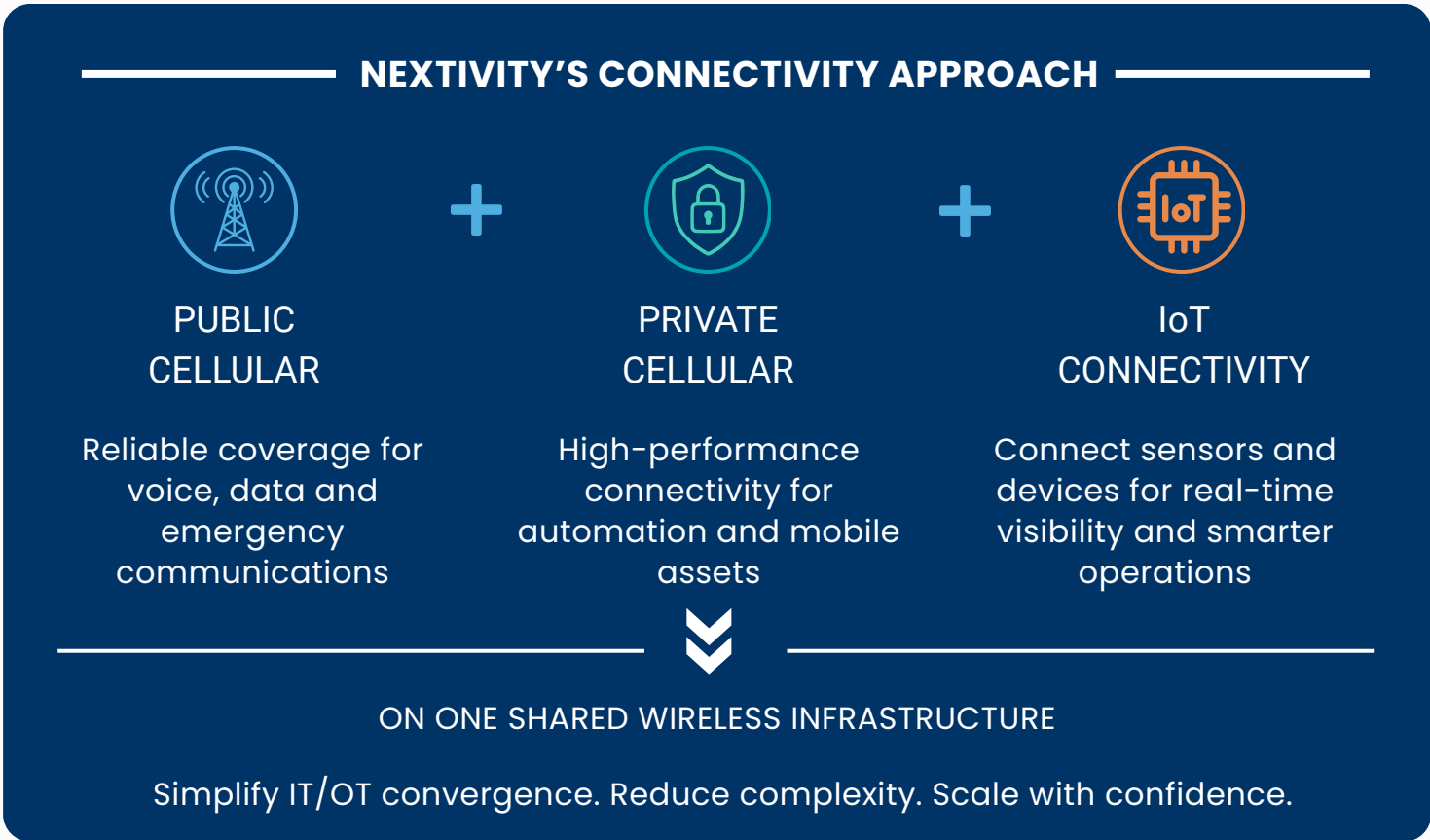
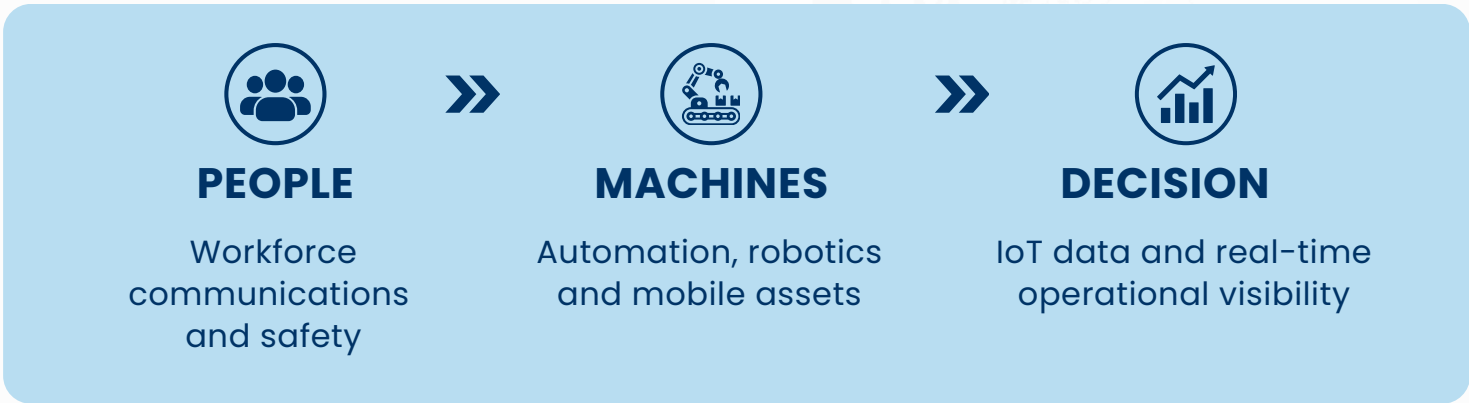


One Connectivity Strategy

Multiple Outcomes

Instead of deploying separate wireless systems for communications, automation, and IoT, leading manufacturers are building a shared connectivity foundation.

That foundation supports today's operations while preparing for tomorrow's connected factory initiatives.



Build the Foundation for a More Connected Factory

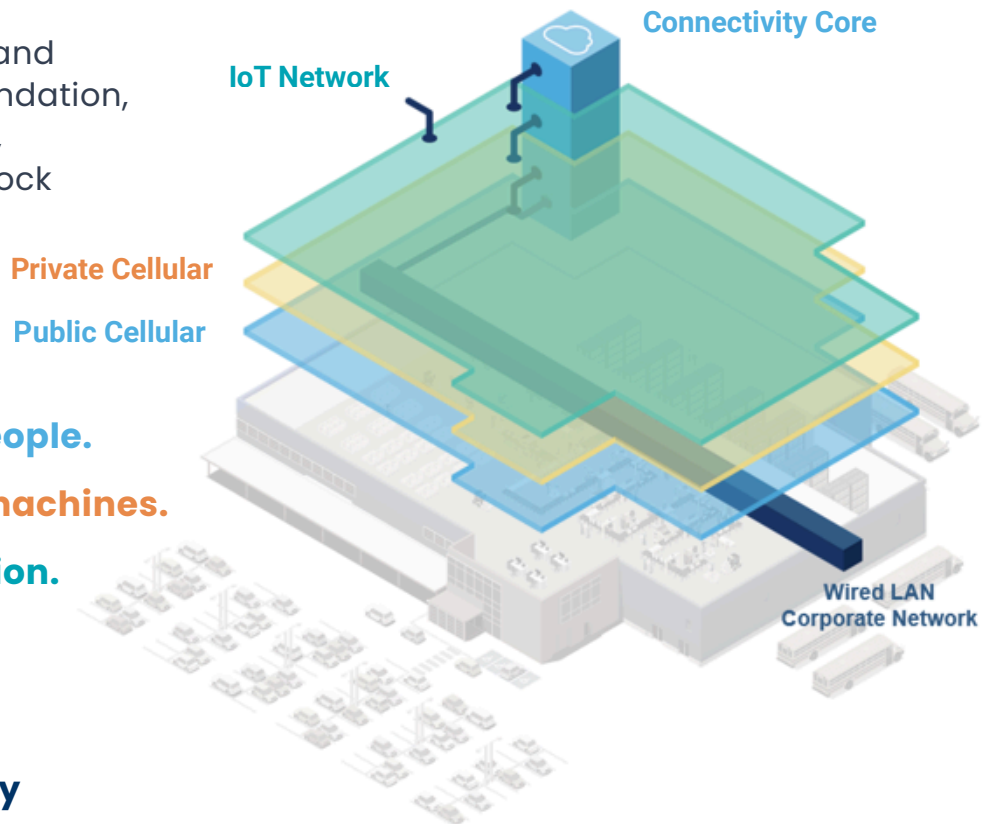
The factories that lead tomorrow are building today—starting with **connectivity**

By unifying people, machines and data on a reliable wireless foundation, you can eliminate bottlenecks, improve performance and unlock sustainable growth.

Public cellular connects people.

Private cellular connects machines.

IoT connects insight to action.



Operational Visibility

Builds a scalable connectivity foundation for today's operations and tomorrow's manufacturing innovations.



Safety and Compliance Monitoring Requirements

Always-on Quality Assurance



Manual Monitoring Is Inefficient and Error-Prone

Increases labor costs and risk



Data-Driven Decision Making

Operational efficiency



Scalability Without Infrastructure Complexity

Nobody wants a network redesign

What Does Nextivity Provide?

Connectivity Solutions for Modern Manufacturing

Nextivity designs intelligent cellular and wireless connectivity solutions that help manufacturers communicate, automate, and operate with confidence. By combining public cellular, private networking, and IoT connectivity on a shared wireless foundation, Nextivity enables reliable workforce communications, mobile automation, and real-time operational visibility.



Nextivity brings the power of the network inside buildings

How Alliance Builds Your Future Connected Factory

As a value-added distributor, Alliance helps manufacturers design and deploy reliable connectivity solutions that support workforce communications, mobile automation, and Connected Factory initiatives. Through technical consulting, engineering expertise, and access to leading wireless technologies, Alliance helps organizations simplify deployment, reduce project risk, and build a stronger connectivity foundation.

What Alliance Offers

- Connectivity consulting and solution design
- Engineering support from planning through deployment
- Expertise in wireless infrastructure, private networking, and in-building connectivity
- Access to leading manufacturing connectivity technologies

Ready to Build a More Connected Factory?

Whether you're improving communications, automation, or operational visibility, Alliance can help you design the right connectivity strategy.



Scan the QR Code
Talk to a Technical Expert

