

Private 5G Industrial Networks

Key Learnings in an Emerging Market

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verizon
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Verizon 5G and Industry



Verizon brings unparalleled assets to 5G-driven industrial transformation

Quality

Most Reliable
5G Network in
America



Ecosystem



Investments

Verizon
Innovation
Labs in Boston
Los Angeles
San Francisco



MEC



Standards



Services



The value of managed Private 5G Networks



1 Cover



2 Connect



3 Process



4 Deliver



Key Private 5G Use Cases

Smart Factory

✓ QoS prioritization

✓ Computer vision

✓ Embedded asset tracking

Operational Efficiency

✓ AGVs and robots

✓ Predictive maintenance

✓ Proactive safety alerts

Intelligent Supply Chain

✓ Autonomous transporters

✓ Precise location & tracking

✓ Ubiquitous connectivity

Data Security

✓ Data residency

✓ Zero-trust security

✓ SIM-based access

Five Key Learnings from the Industrial 5G Front Lines



**Transformation
must Consider
both Process
and People**



**Today's
Industrial
Worker is Often
a Digital Native**



**Avoid Pursuing
a "Field of
Dreams"
Approach**



**5G Starts a
Conversation
but doesn't
(Always) End it**



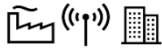
**Not all
Government
Spectrum is
Created Equal**

5G Spectrum Considerations in the United States



High Band

mmWave
24+ GHz



Ultra-High capacity
High density venues
Stadiums, MDUs

Mid Band

1-6 GHz



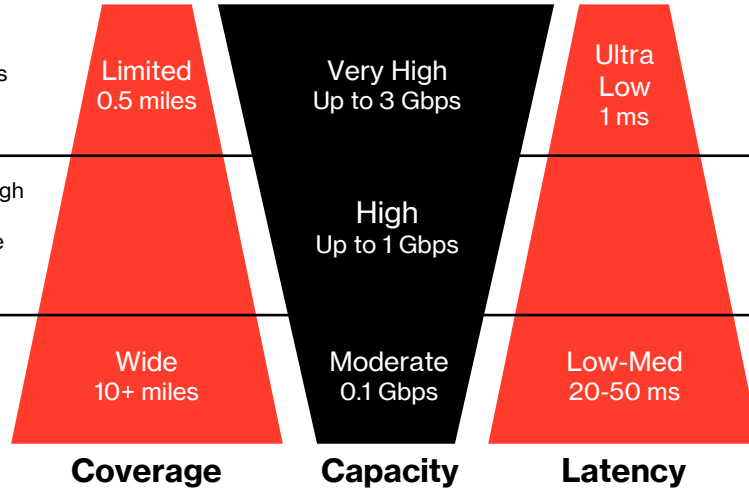
Good balance of High Capacity and Wide Coverage
Mobile video, FWA

Low Band

< 1 GHz



Ubiquitous coverage and mobility



Cummins Inc. Jamestown NY Engine Plant

Multinational company that designs, manufactures, and distributes engines, filtration and power generation products. Has 93k m² plant (+ outdoor yard) producing 500 engines per day, with planned expansion of two production lines for fuel-agnostic engines



Challenges

- Cabling expense to support planned business expansion
- Inadequate Wi-Fi connectivity for AMRs, Scanners, etc.
- Existing PTT & LMR reaching End-of-Life
- Employee satisfaction & retention
- Destination Zero sustainability

Solution

- Private 4G/5G network for production applications
- Integrated multi-carrier NHN for public cellular coverage
- Verizon PTT+ for instant communications

Key Use Cases



Conclusions



- **Verizon understands industrial 5G requirements**
 - Through Standards and industry groups
 - Customer experiences, Trials and lab Proof of Concepts, ecosystem
 - Active participation in Industry demos and talks/panels
- **Verizon Private 5G supports licensed and shared spectrum**
 - Flexible spectrum usage
 - Standalone on-premise and Public-network integrated Private Networks
 - Managed services, 5G and Wifi interoperability, indoor and outdoor
- **Private 5G is now the right choice for industrial networks**
 - Support for 5G in device ecosystem is maturing
 - Partner and SI skills needed for scale are growing
 - Recognition from industrial OEMs

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