

5G – Bedeutung für die Industrial Connectivity

Einsatz, Vorteile und Möglichkeiten des neuen Mobilfunk-Standards 5G in der Maschinenkommunikation und im Industrial IoT

08.09.2021 | Dimitri Block | Technologieentwicklung Elektronik

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Low Impact of Wireless Communication for Connectivity and Automation



Wired communication

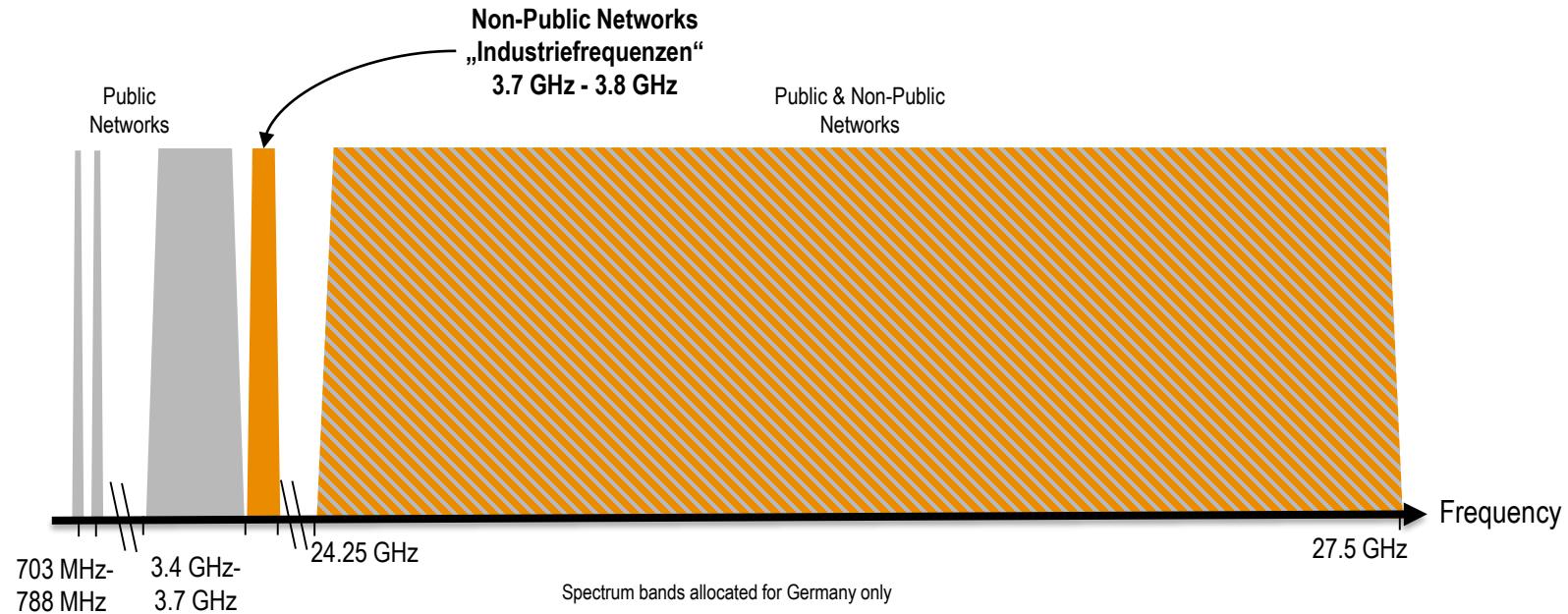
- High reliability
- Dedicated communication channel
- Simultaneous power supply possible
- Various proprietary and standardized technologies



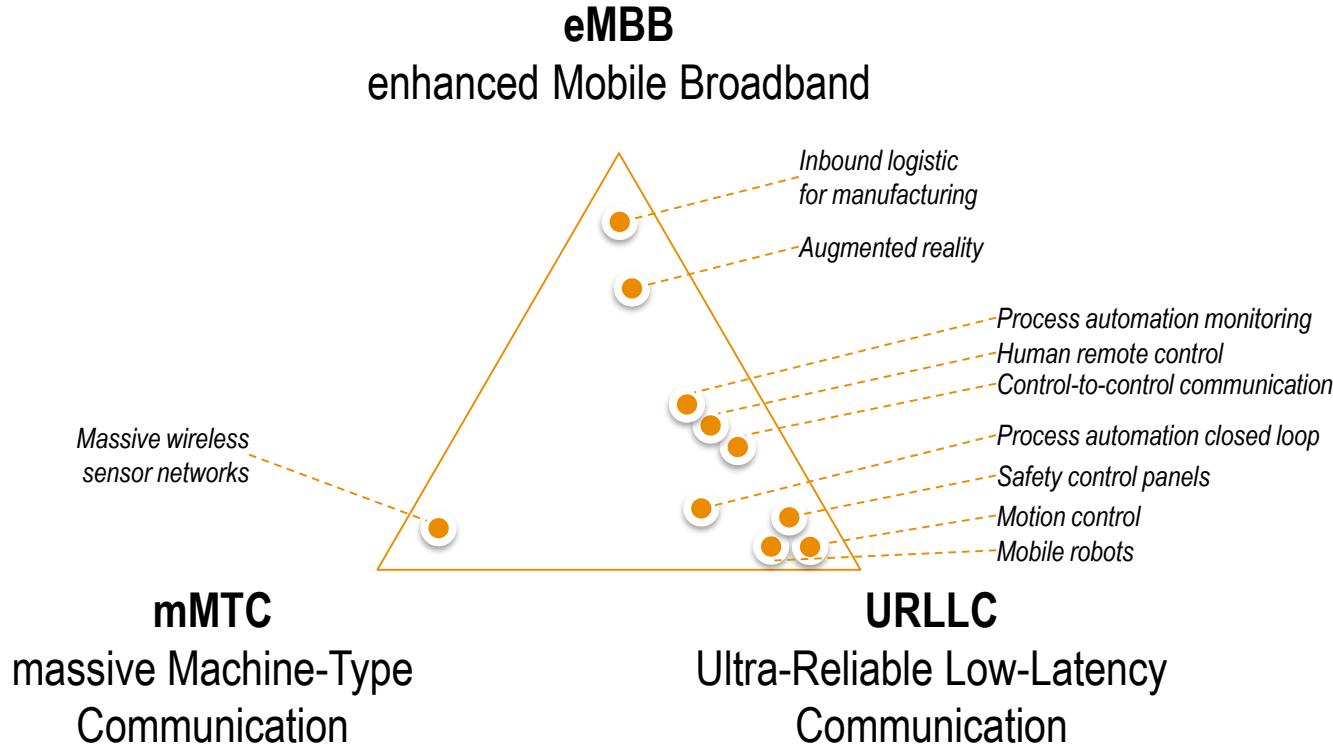
Wireless communication

- High flexibility and mobility
- Shadowing/motion/reflections
- Interference from coexisting wireless systems
- Various proprietary and standardized technologies

5G Enabler: Deterministic Wireless Communication with Licensed Spectrum



5G Enabler: One Technology for Diverse Use Cases



Potential from the Manufacturing Perspective

Weidmüller as 5G User

Weidmüller 

Weidmüller: Supplier and User of Digitalization

Supplier of Digitalization

Products:



Solutions (e.g., Analytics):



User of Digitalization

Weidmüller's Factories:



5G research and experiments

- Weidmüller is actively taking part in 5G research
- In our Innovation Area in Detmold, we close the gap between research and production



Ministerium für Wirtschaft, Innovation,
Digitalisierung und Energie
des Landes Nordrhein-Westfalen



5G.NRW project 5Guarantee

- Evaluate the usage of private campus networks and public networks
- Demonstrate 5G capabilities in use cases like
 - Remote Assist
 - Digital twin

5G4Automation

- Evaluate 5G UE potentials for automation use cases
- Demonstrate 5G-based big data analytics for retrofit applications
- Evaluate 5G infrastructure deployment opportunities

Remote Assist using Augmented Reality



Efficiency ↑

Get a solution within 15 minutes instead of travelling 1-4 days

Rentability ↑

Reduce travel times and costs

Availability ↑

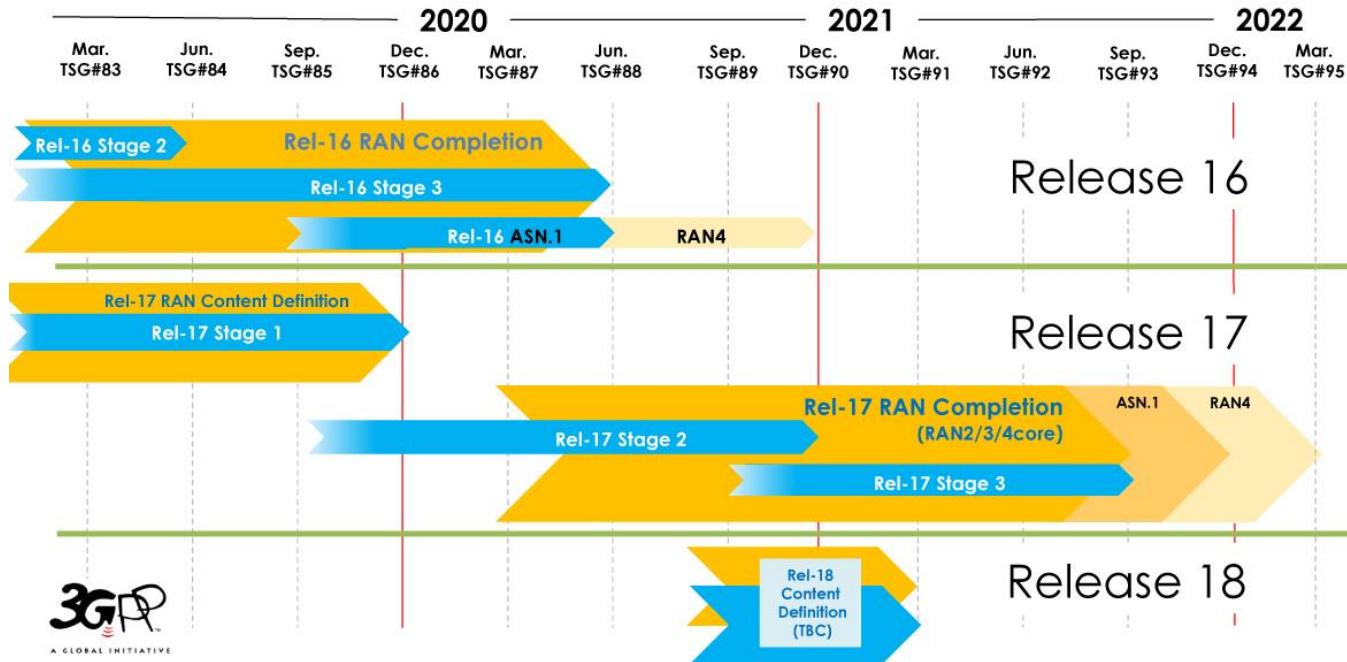
Access to fast support no matter where

Potentials from Components to Services

Weidmüller as 5G Supplier

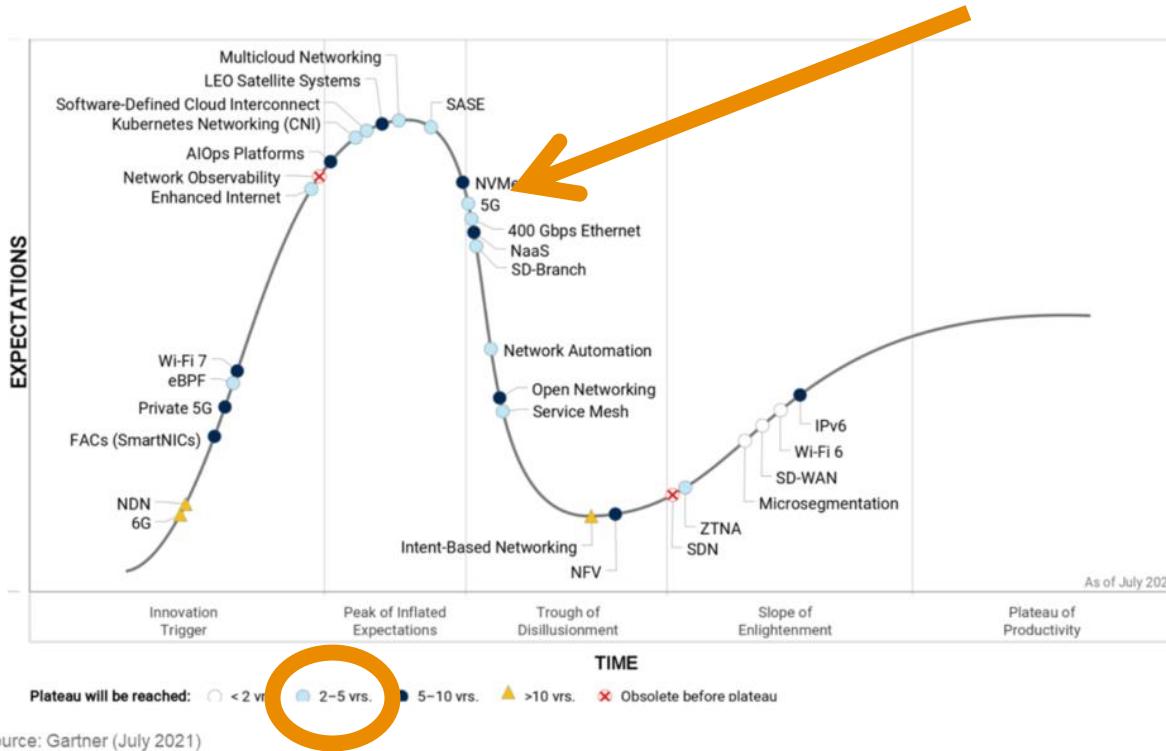
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5G Roadmap: Industrial Maturity Not Yet Reached



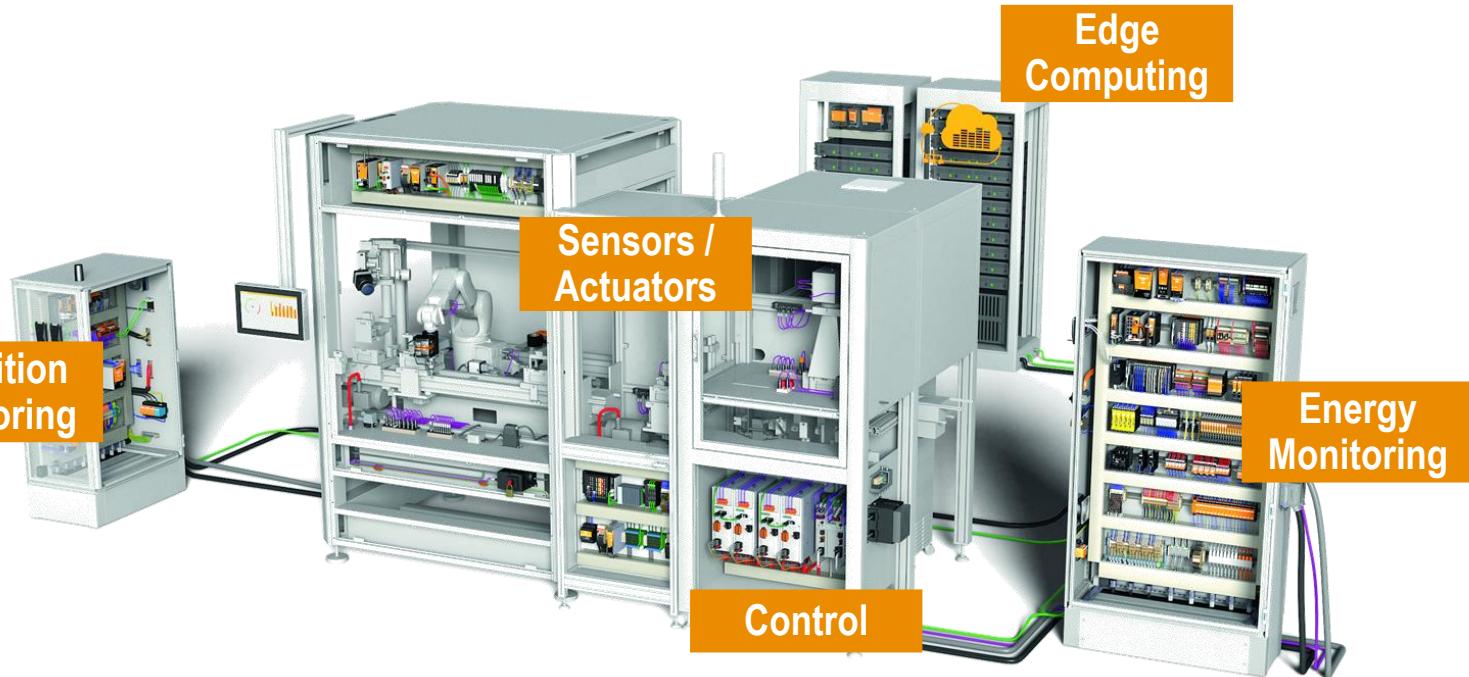
5G Roadmap: Industrial Maturity Not Yet Reached

Hype Cycle for Enterprise Networking, 2021



Source: Gartner (July 2021)

Outlook: Use Cases for Components



Remote I/O via 5G: Real-Time Capability under Field Conditions

- Data collection and event signaling via 5G
 - Bidirectional real-time communication with sensor/actuator
 - Combination of real-time and non-real-time communication



Fazit

5G Enabler für die Verbindungs- und Automatisierungstechnik:

- Funkkommunikation im lizenziertem Spektrum
- Unterstützt diverse Kommunikationsarten (eMBB, mMTC, URLLC)

5G Potenziale

- eMBB: Remote Assist mit Augment Reality
- mMTC: Condition Monitoring/Energy Monitoring
- URLLC: Sensor/Actuator/Control
- Edge Computing

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