



5G Alliance for Connected Industries and Automation

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5G Alliance for Connected Industries and Automation Motivation

Industry 4.0

- Increase the flexibility, versatility, productivity, resource efficiency and usability of industrial production
- Connectivity as a key enabler for cyber-physical production systems

Future Industrial Connectivity Infrastructures

5G

- Strong focus on machine-type communication and the IoT¹
- URLLC² + mMTC³ enable completely new applications, also in industry
- 5G is more than wireless

¹Internet of Things, ²Ultra-Reliable and Low-Latency Communication
³Massive Machine-Type Communication

**Enabler for new applications
and use cases and for lifting
Industrie 4.0 to
the next level**



(Mobile) Robots



Factory Automation

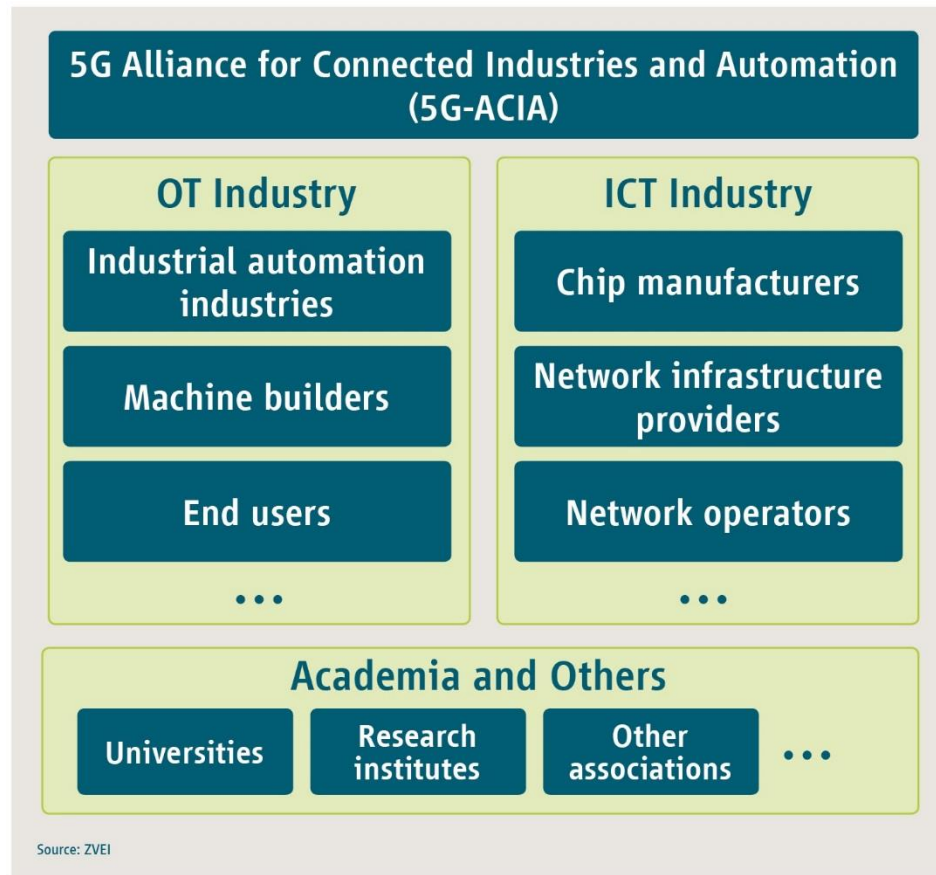


Augmented Reality



Logistics

5G Alliance for Connected Industries and Automation A Joint Initiative of OT and ICT Industry



OT: Operational Technology | ICT: Information and Communication Technology

Key Goals

- Representation of all relevant stakeholder groups on a global level
- Openness and fairness
- Being a supplement for existing standardization bodies and associations with a clear focus on 5G for the industrial domain

5G Alliance for Connected Industries and Automation Member Status Sep 2019 (55)



5G Alliance for Connected Industries and Automation

Mission & Setup

Mission

Ensure the best possible applicability of 5G technology and 5G networks for the manufacturing and process industry by addressing, discussing and evaluating relevant technical, regulatory and business aspects.

Chairman

Vice-Chairman

5G-ACIA Board

Regular Plenary Meetings

Working Group 1

Working Group 2

Working Group 3

Working Group 4

Working Group 5

Use Cases and
Requirements

Spectrum and
Operator Models

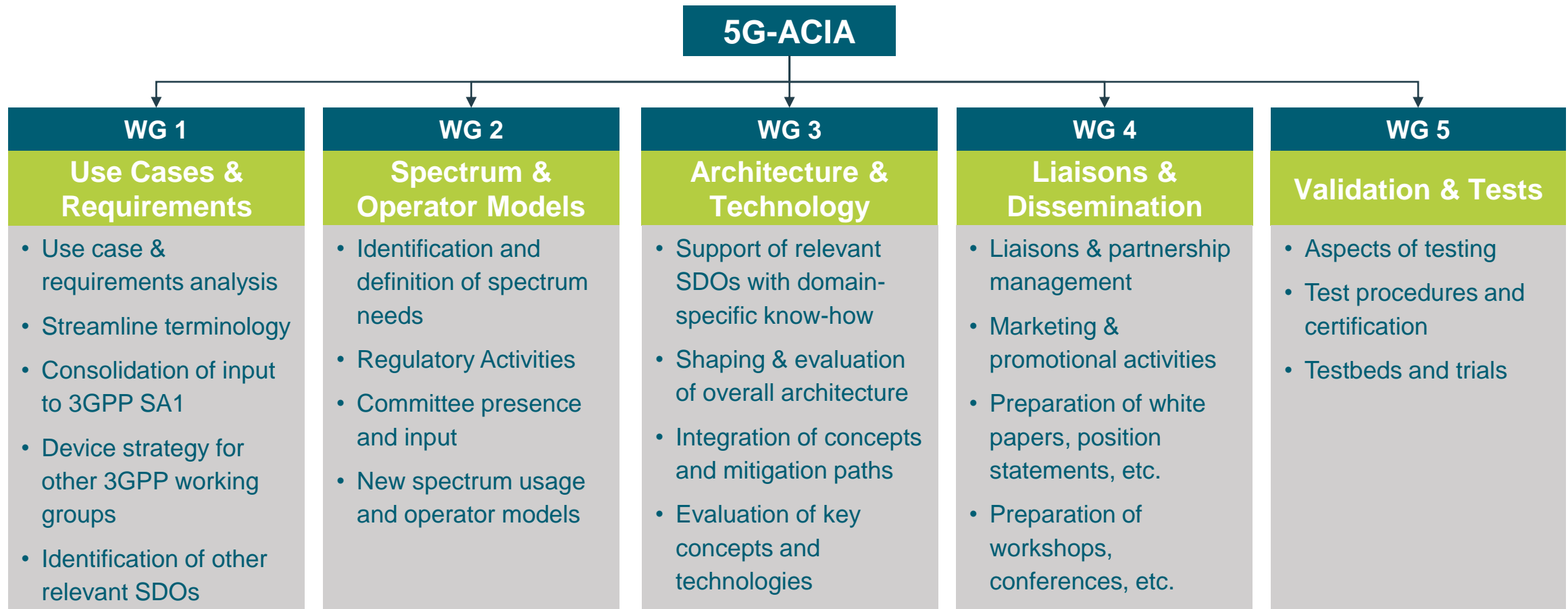
Architecture and
Technology

Liaisons and
Dissemination

Validation
and Tests

(Annual) General Assembly

5G Alliance for Connected Industries and Automation Working Group Structure



Topics to be addressed across different WGs: security, safety, standardization etc.

5G Alliance for Connected Industries and Automation Motivation



Image: Bosch

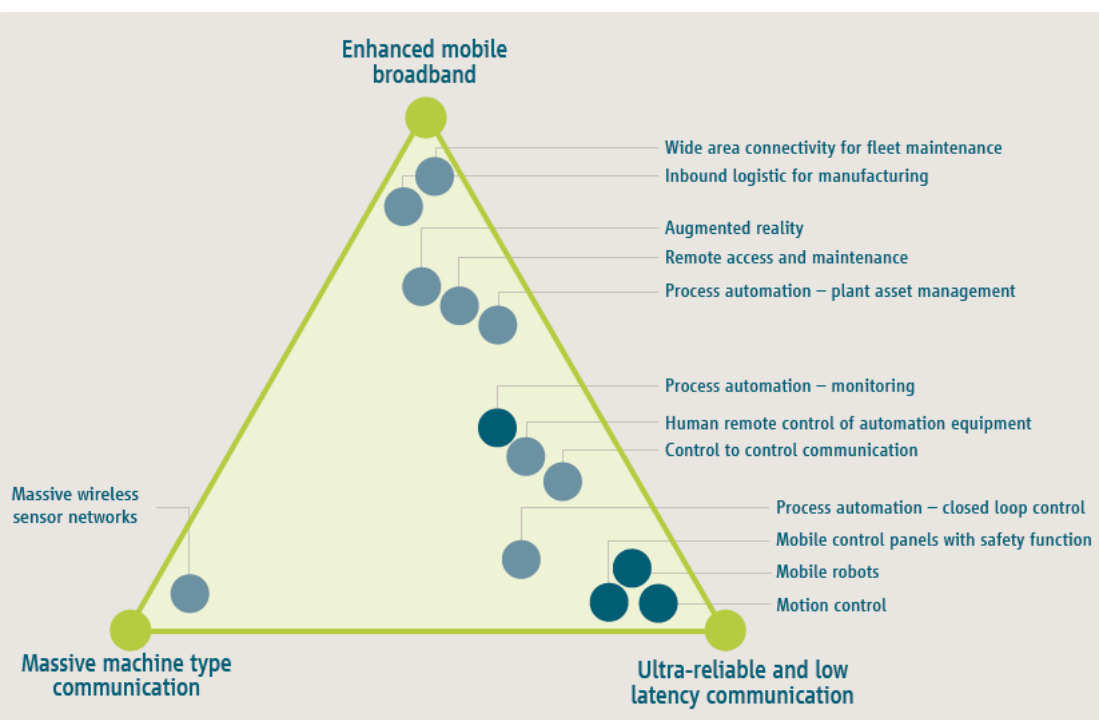
Establish a common language and a better mutual understanding between OT and ICT

Make sure the requirements of the industrial domain are considered in standardization

Analyze and address spectrum needs for 5G

Discussion of a suitable evaluation framework

5G Alliance for Connected Industries and Automation Use Case & Requirements

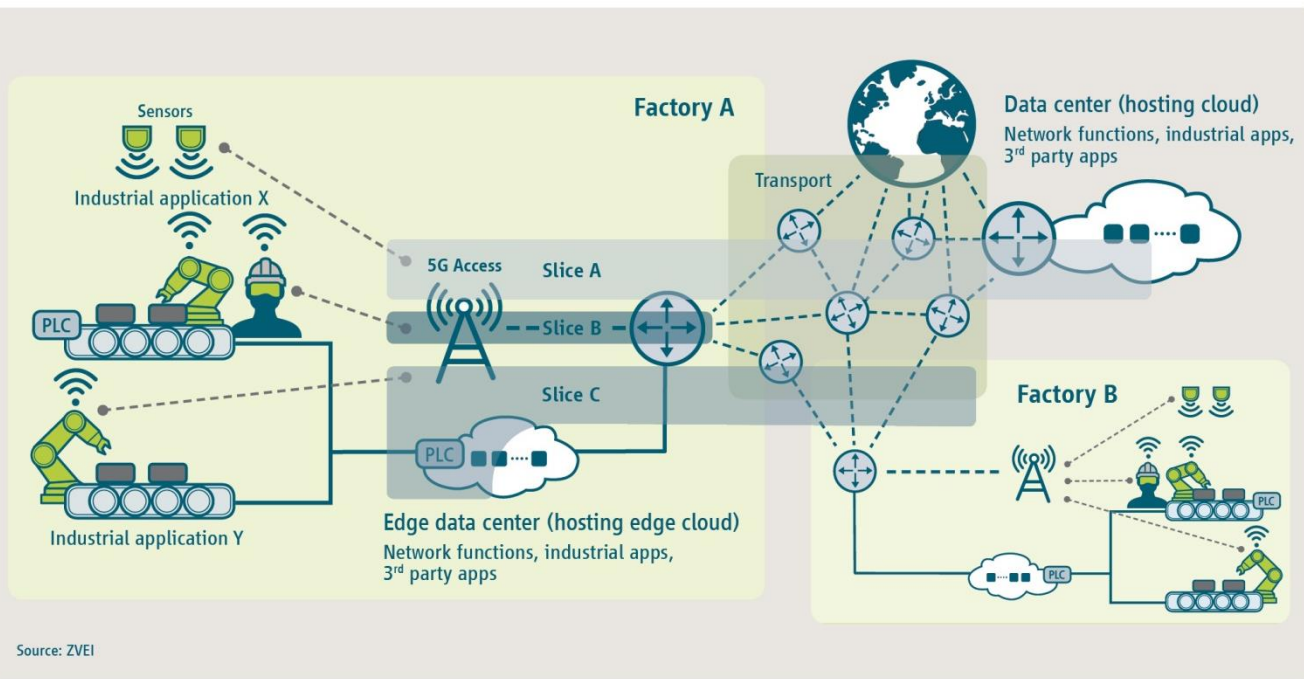


Use case (high level)		Availability	Cycle time	Typical payload size	# of devices	Typical service area
Motion control	Printing machine	>99.9999%	< 2 ms	20 bytes	>100	100 m x 100 m x 30 m
	Machine tool	>99.9999%	< 0.5 ms	50 bytes	~20	15 m x 15 m x 3 m
	Packaging machine	>99.9999%	< 1 ms	40 bytes	~50	10 m x 5 m x 3 m
Mobile robots	Cooperative motion control	>99.9999%	1 ms	40-250 bytes	100	< 1 km ²
	Video-operated remote control	>99.9999%	10 – 100 ms	15 – 150 kbytes	100	< 1 km ²
Mobile control panels with safety functions	Assembly robots or milling machines	>99.9999%	4-8 ms	40-250 bytes	4	10 m x 10 m
	Mobile cranes	>99.9999%	12 ms	40-250 bytes	2	40 m x 60 m
Process automation (process monitoring)		>99.99%	> 50 ms	Varies	10000 devices per km ²	

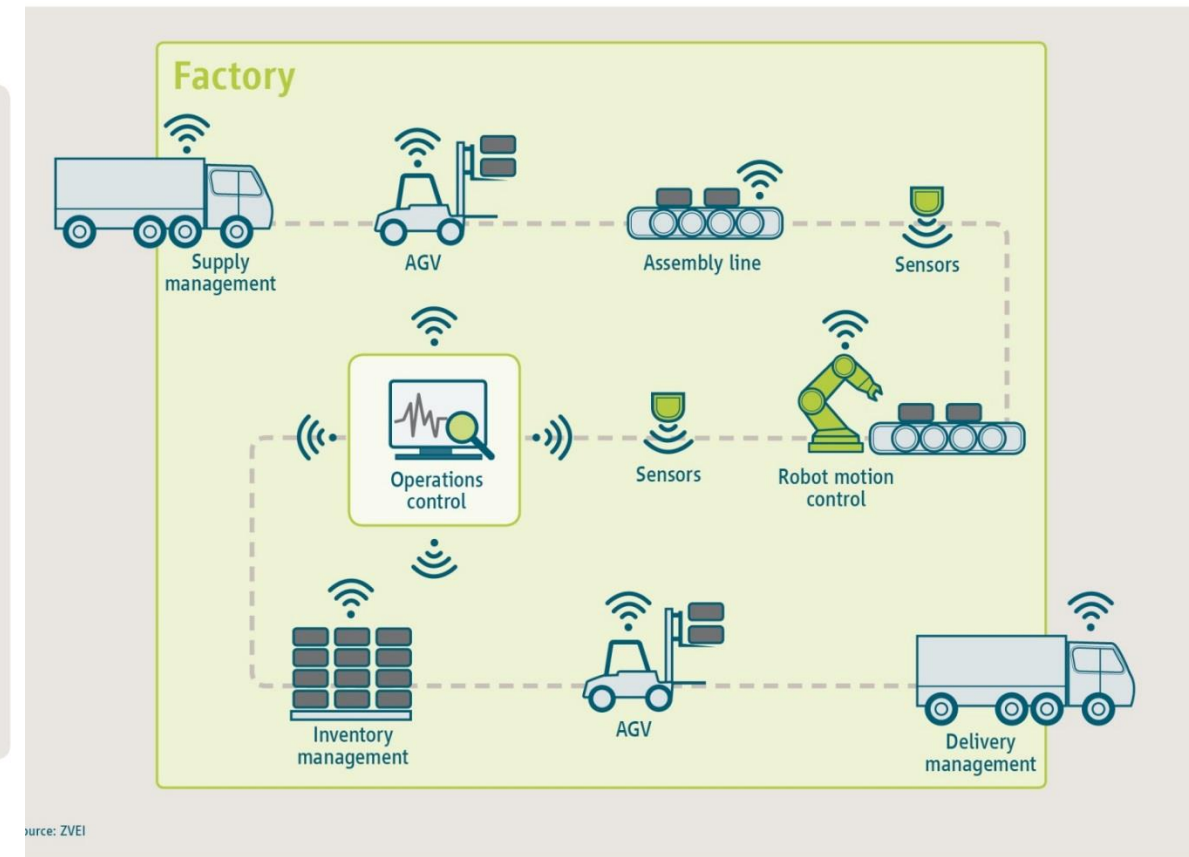
Source: ZVEI

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Example Enablers of Smart Manufacturing



Example 5G-ACIA work items: Non-public Network deployment, Integration of Industrial Ethernet Technologies with 5G Networks, 5G Interface exposure for Enterprises, etc.

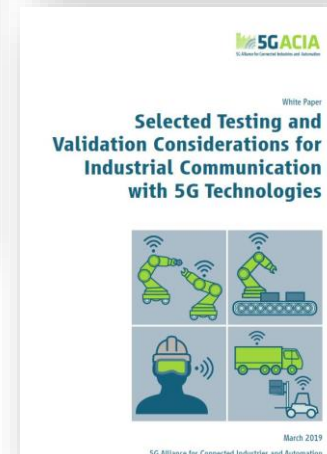
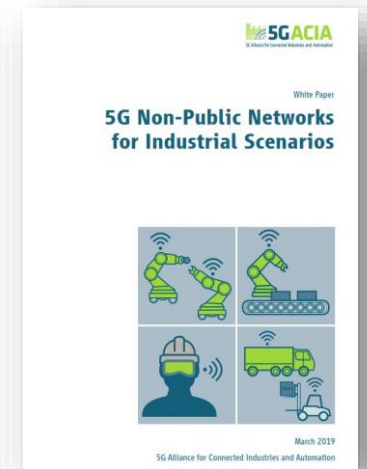
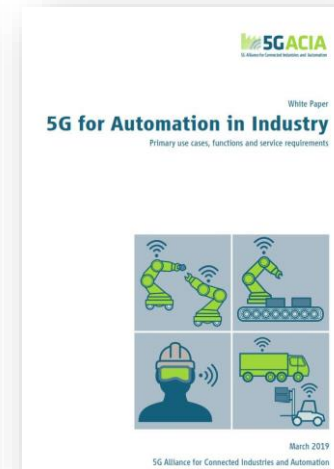
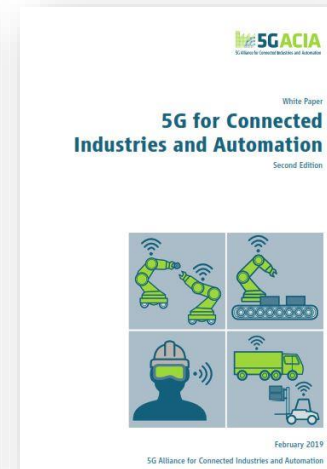


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– Thank You –