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22 November 2016
English only

ITU Workshop on
Spectrum Management for
Internet of Things Deployment
(Geneva, 22 November 2016)

REALIZING THE NETWORKED SOCIETY BY IMT

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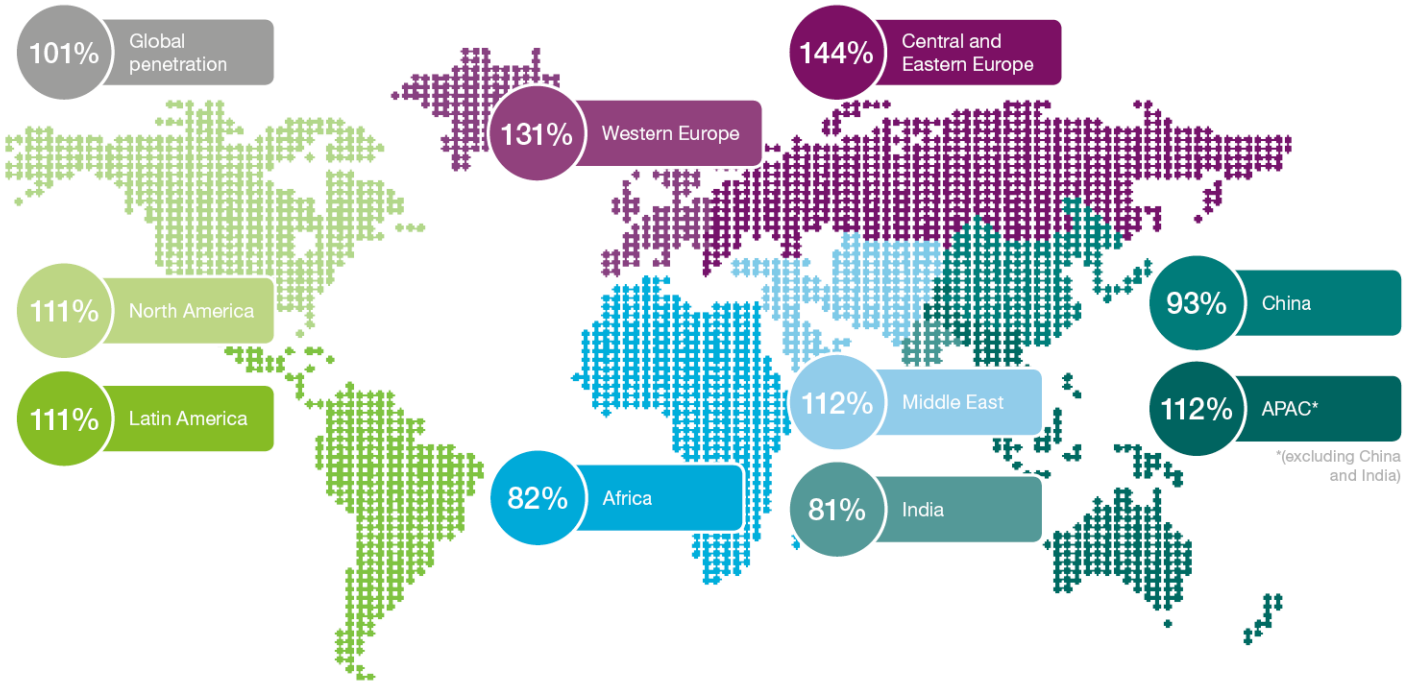
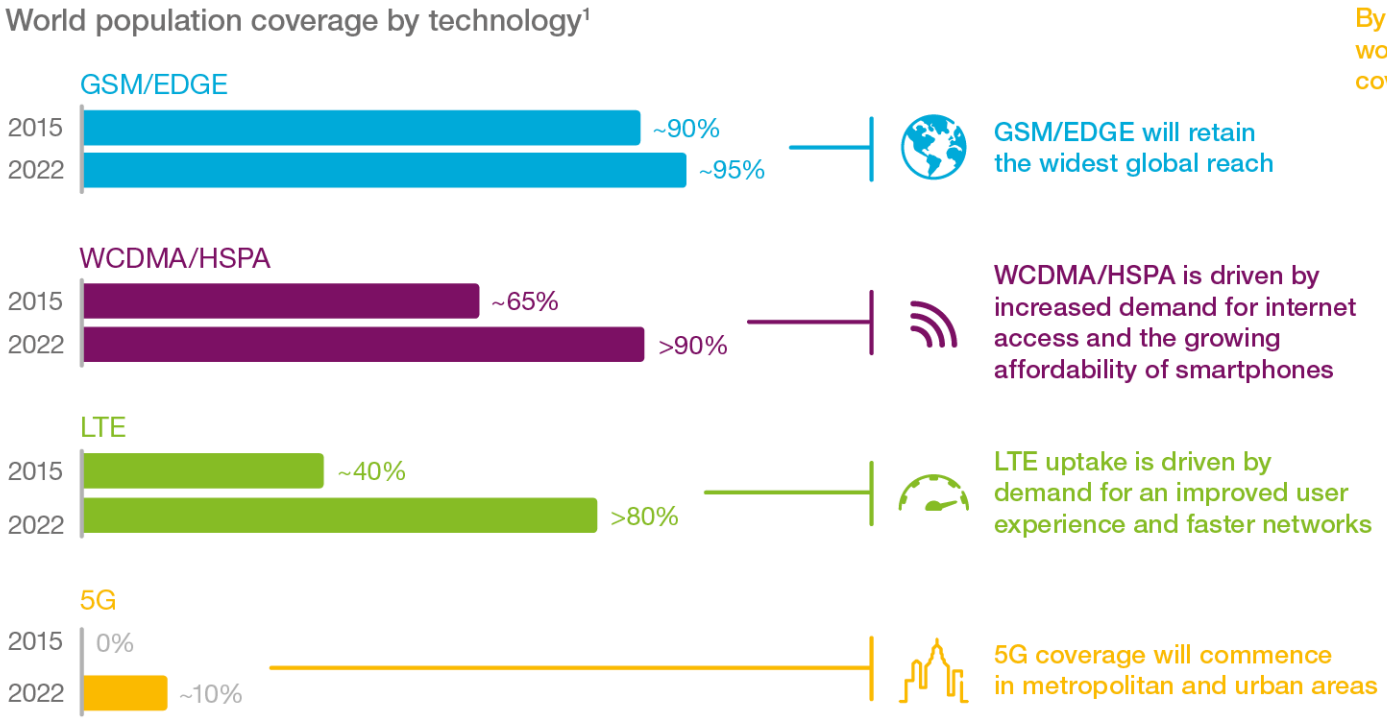
MORE MOBILE SUBSCRIPTIONS THAN PEOPLE ON EARTH

Subscription penetration (percent of population)



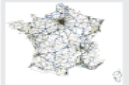
5G ESTIMATED TO REACH 10% POPULATION COVERAGE IN 2022



By 2022, around 10% of the world´s population will be covered by 5G networks

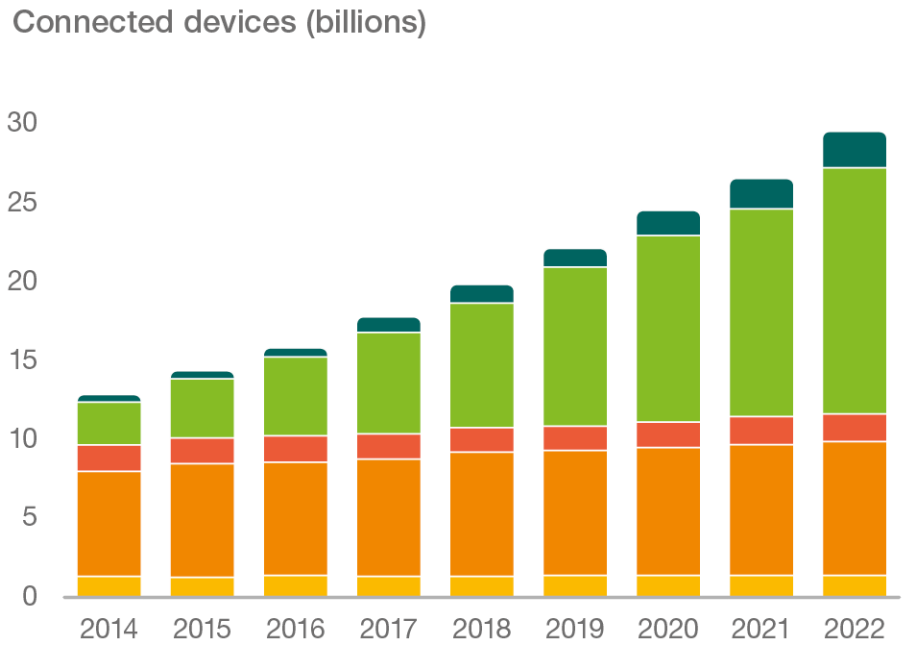
[1] The figures refer to population coverage of each technology. The ability to utilize the technology is subject to factors such as access to devices and subscriptions

COVERAGE NOW BEYOND POPULATION COVERAGE

Obligation		17 January 2022	17 January 2027	T_1 + 15 years (late 2030)
	Metropolitan population		98%	99,6%
	Main roads			100%
	Population in each metropolitan department		90%	95%
	Population in the « priority rollout zone » (18% of population, 63% of territory)	50%	92%	97,7%
	Main location of each of the 3300 villages included in the mobile coverage extension national program		100%	
	Regional rail roads : nationwide coverage	60%	80%	90%
	Regional rail roads : coverage in each region		60%	80%

- With the 700 MHz licensing, France introduces **coverage obligations also along roads and railways**
- It is a natural development in order to meet the increased demands for **broadband access everywhere** and also for the new massive and critical **machine type communication needs**

70% OF WIDE-AREAS IOT DEVICES WILL USE CELLULAR TECHNOLOGY IN 2022



	2016	2022	CAGR
Wide-area IoT	0.4	2.1	30%
Short-range IoT	5.2	16	20%
PC/laptop/tablet	1.6	1.7	0%
Mobile phones	7.3	8.6	3%
Fixed phones	1.4	1.3	0%
	16 billion	29 billion	10%

ON THE CUSP OF SOMETHING BIG

30%
IoT DEVICE GROWTH

$1.9T
IoT VALUE-ADD

$11T
IoT ECONOMIC IMPACT

2016 2019 2020 2022 2025

$1.3T
IoT INVESTMENT

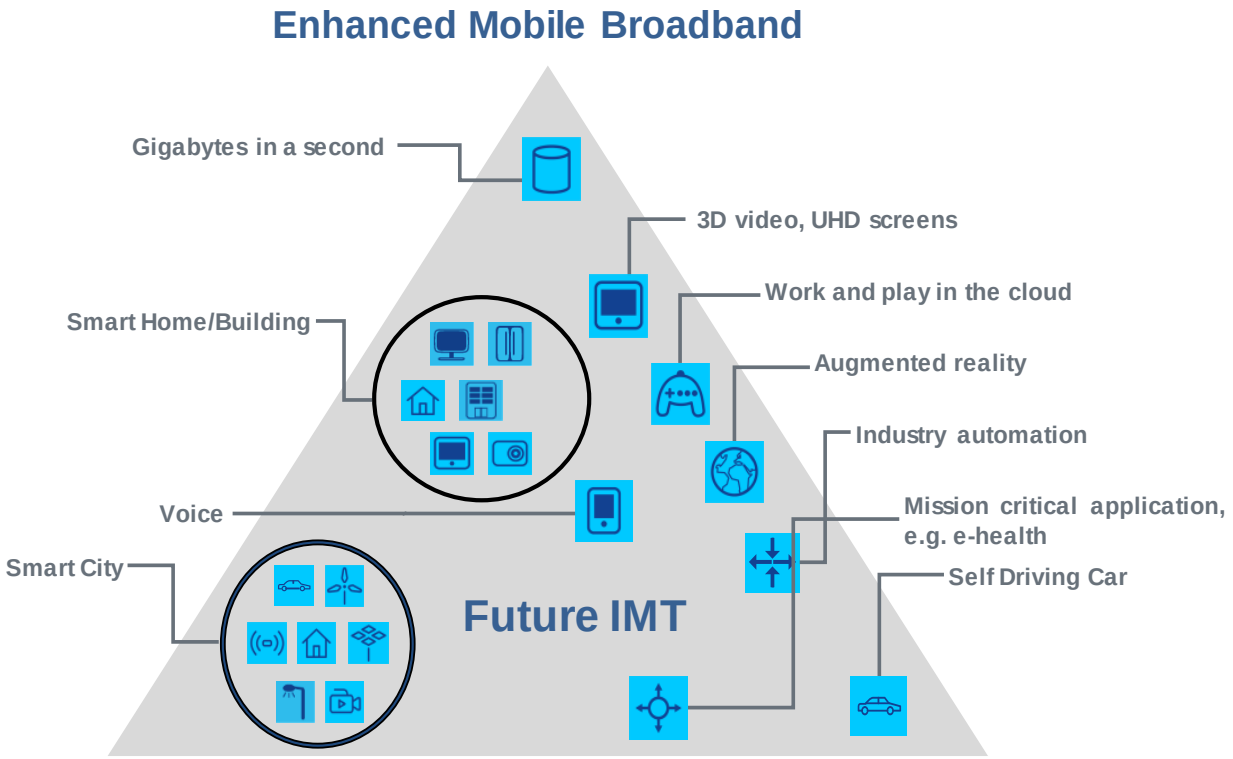
18B
IoT CONNECTIONS

€1T
EU28 IoT ECONOMIC VALUE

Source: Gartner, IDC, Ericsson, McKinsey, AT Kearney

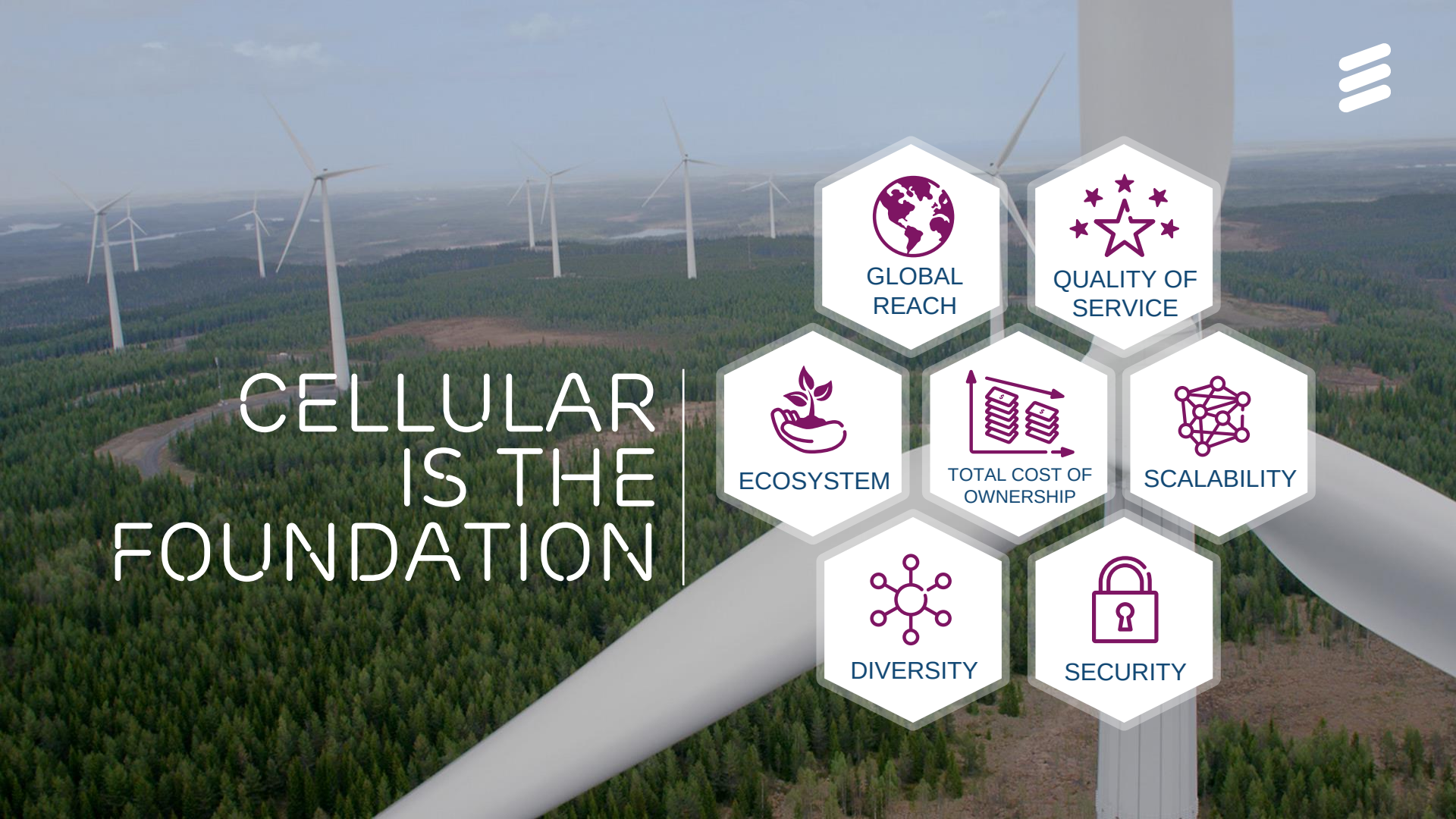
5G Usage Scenarios from the ITU-R “IMT-2020 Vision” Recommendation

Spectrum; Coverage & Capacity



Spectrum; Coverage

Spectrum; Coverage, Capacity, & Additional Schemes


CELLULAR IS THE FOUNDATION
GLOBAL REACH
QUALITY OF SERVICE
ECOSYSTEM
TOTAL COST OF OWNERSHIP
SCALABILITY
DIVERSITY
SECURITY

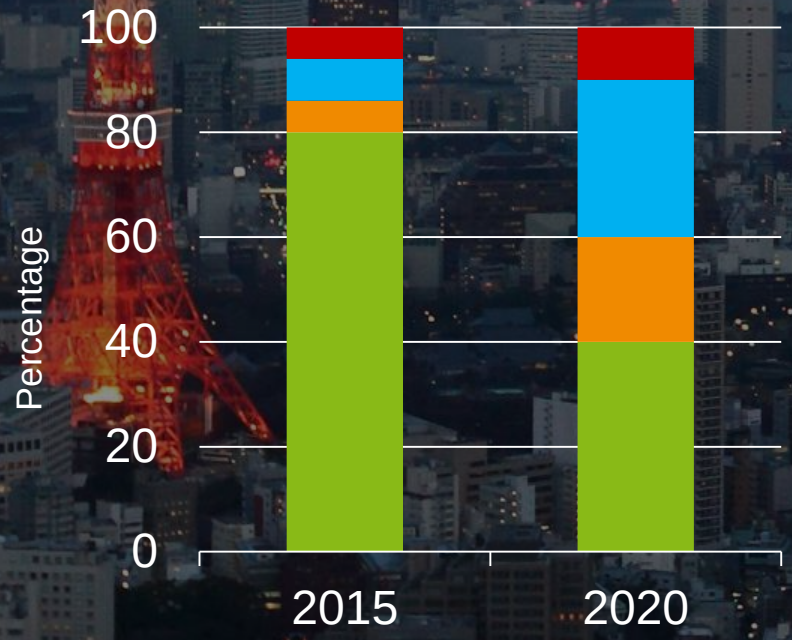
FULL RANGE OF SOLUTIONS

Addressing diversity of use cases

EC-GSM	Global cellular IoT for all GSM markets
LTE-M	Wide range of Massive IoT applications
NB-IoT	Low-bitrate Massive IoT applications
5G NR	Critical Machine-Type Communication

TELECOM OPERATORS

IoT Revenue Opportunity



Business Integration

Consulting, program mgmt, systems integration

Application Specific Solutions

Cloud, security, data mgmt, policy mgmt, app enablement

Platforms

Hardware, software, data insights, vertical expertise, IoT “as-a-service”

Connectivity

Communications services, hardware, connectivity mgmt

Source: Informa Telecoms & Media

ERICSSON IOT FOR INDUSTRIES

Utilities

- Deregulation & competition
- Introduction of renewables
- Aging infrastructure
- Theft prevention

Transport

AUTO SHIPPING ITS

- Fuel efficiency & sustainability
- Passenger safety & crew welfare
- Capacity management
- Autonomy & electrification

Public Safety

- Cross-agency collaboration
- Changing threat landscape
- Actionable intelligence
- Public sector overhaul

5G FOR SWEDEN

INDUSTRIAL MOBILE COMMUNICATION IN MINING

- Evaluate mobile communication infrastructure in an industrial context
- Consider strict requirements on safety and robustness in underground mining

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- Increased productivity
- Improved Safety
- Industrial 5G requirements
- Understanding new eco system, business models, etc.

ABB BOLIDEN ERICSSON TeliaSonera VOLVO WOLFIT

5G-ENABLED WORLD CLASS MANUFACTURING

- Evaluate 5G technology in manufacturing industry
  - Wireless factory communication
  - Industrial Internet of Things (IIoT)
  - Mission critical clouds (MCC)
  - Data analytics

⇩

- Improved production efficiency
- Increased flexibility
- Excellent traceability

SKF CHALMERS ERICSSON

CONNECTED MOBILITY ARENA STOCKHOLM

- Create Europe's leading test site for connected mobility
  - Open innovation platform
  - Open cellular radio connectivity
  - Management and control platform
  - Efficient management of test activities (system configuration, road authority, etc.)

⇩

- Emergency vehicle prioritization
- Remote-controlling of platoons
- Automatic service orchestration

SCANIA ITRL – INTEGRATED TRANSPORT RESEARCH LAB ERICSSON

ABB
REMOTE OPERATION OF ROBOTS

- Evaluate potential of mobile communication for industrial use
- Consider requirements from mission critical operation

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- Industrial 5G requirements
- Transformation benefits
  - Central utilization of expertise
  - Minimize personnel in hazardous environments
  - Increased productivity

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