INDUSTRIAL INTERNET AND 5G

Janne Peisa
Principal Researcher, Ericsson Research
Mobile communication has revolutionized personal communication

- Installed communication infrastructure
  - Ubiquitous availability at marginal costs
  - Broad capabilities and evolving

Enabler for industry transformation with digitized processes
MOBILITY GENERATIONS

1G Voice Service
2G GSM Global Standard
3G Lead in Europe
4G 3G Mobile Broadband
5G Future of Mobile Broadband

Driven from the Asia/US
Networked Society
Extreme Performance
Connected smart meter

Monitor and manage vessels & connected devices onboard

Connected media
EVOLUTION TOWARDS 2020

- **Mobile Data Volumes**: 1000x
- **Connected Devices**: 10x-100x
- **Lower Latency**: 10x
- **End-user Data Rates**: 10x-100x
- **Battery Life for Low Power Devices**: 10x

Source: METIS
Data rates:
- More than 10 Gbps in specific scenarios
- Several 100 Mbps available in urban/suburban scenarios
- Multi-Mbps connectivity essentially everywhere

Coverage:
- Multi-Mbps connectivity essentially everywhere

Latency:
- Possibility for less than 1 ms end-to-end delay
Flexibility and Robustness

Flexibility:
- Open
- Mobile
- Programmable
- Agile
- Sustainable

Robustness:
- Scalable
- Secure
- Reliable
- Standardized
NETWORK BEYOND 2020

- Carrier Wi-Fi
- New Radio Access Technology (NX)
- LTE-Evolution
- Legacy 3GPP
- Fixed
- Wi-Fi

Management
Access
Applications
Cloud Infrastructure
Transport

5G concept
Radio + Evolved Core
5G TIMEPLAN

Vision, feasibility

Requirements

Proposals

Specs

5G studies

Initial 5G

Enhanced 5G

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SUMMARY

› 5G systems enable both mobile broadband evolution and new use cases
› 5G systems based on both evolution of existing technologies and new technology
› First commercial systems expected ~2020