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THINKING ABOUT 5G

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Agenda

- Introductory Round Table
- The role of the Malta Communications Authority
- What is 5G?
- The European Context
- Why 5G is Different?
- Discussion

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The role of the Malta Communications Authority

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The Malta Communications Authority

- The National Regulatory Authority for Electronic Communications Networks and Services
  - contributes to the **development** and **implementation** of electronic communications regulatory policy.
  - Regulate in a manner that:
    - Ensures an efficient and effective use of spectrum
    - Promote a competitve approach
    - Promote further investment and innovation
    - Safeguards the public interest

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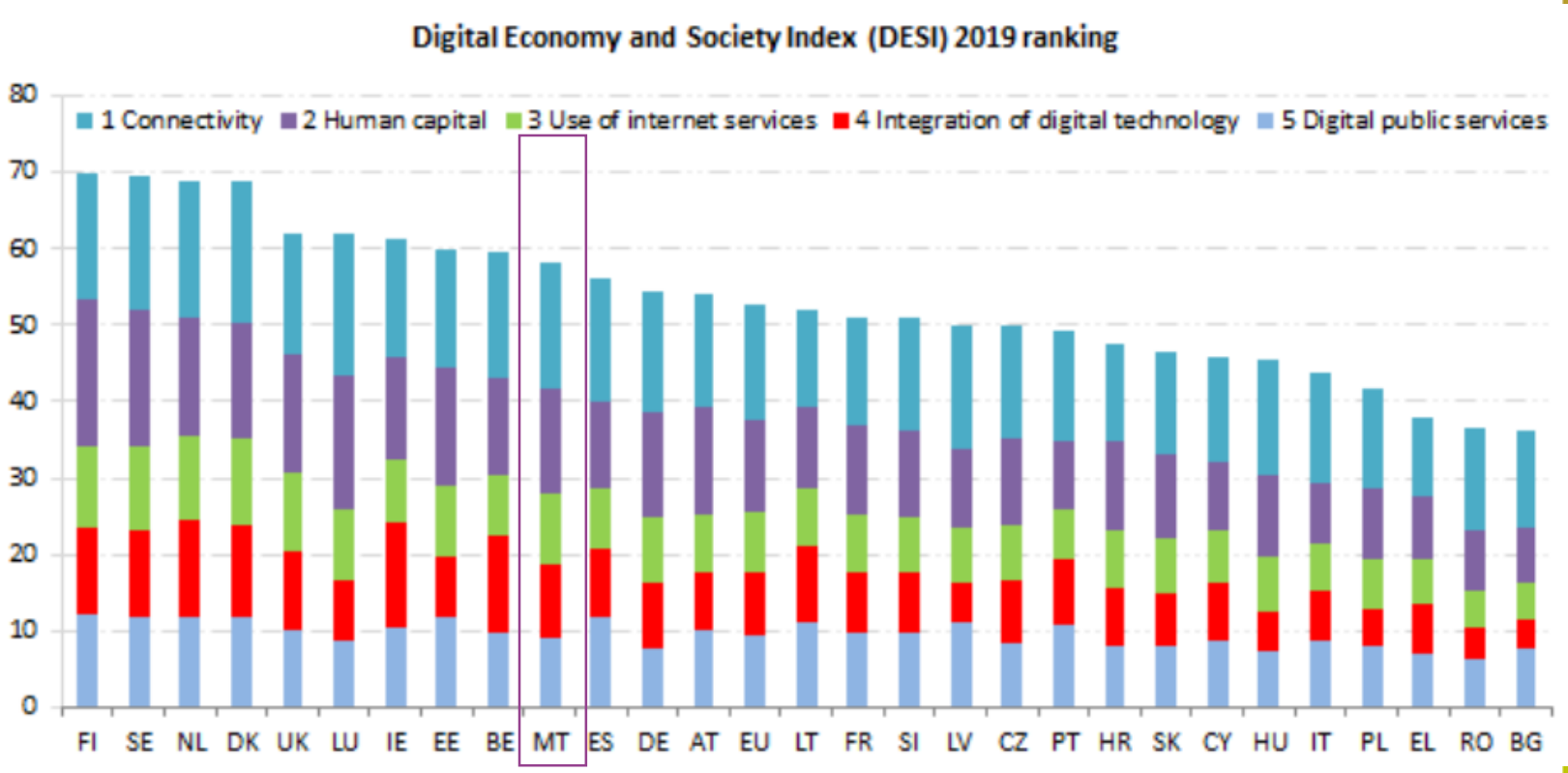
Role as the national Broadband Competence Office

- Bring reliable, high-speed broadband connectivity to the Maltese citizens
- Investment and Funding opportunities
- Reach the Gigabit Society Objectives
- Form part of the BCO Network

Digital Economy and Society Index

"A composite index that summarises relevant indicators on Europe's digital performance and tracks the progress of EU Member States in Digital Competitiveness"



Source: https://ec.europa.eu/digital-single-market/en/desi

Digital Economy and Society Index

- One of the five dimensions of the DESI:
  Connectivity
- Demand and Supply
- Coverage and Take-Up

- The MCA's Role as a NRA is to regulate aspects concerning Supply whilst facilitating Demand

- Technology and Service Neutral

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What is 5G?

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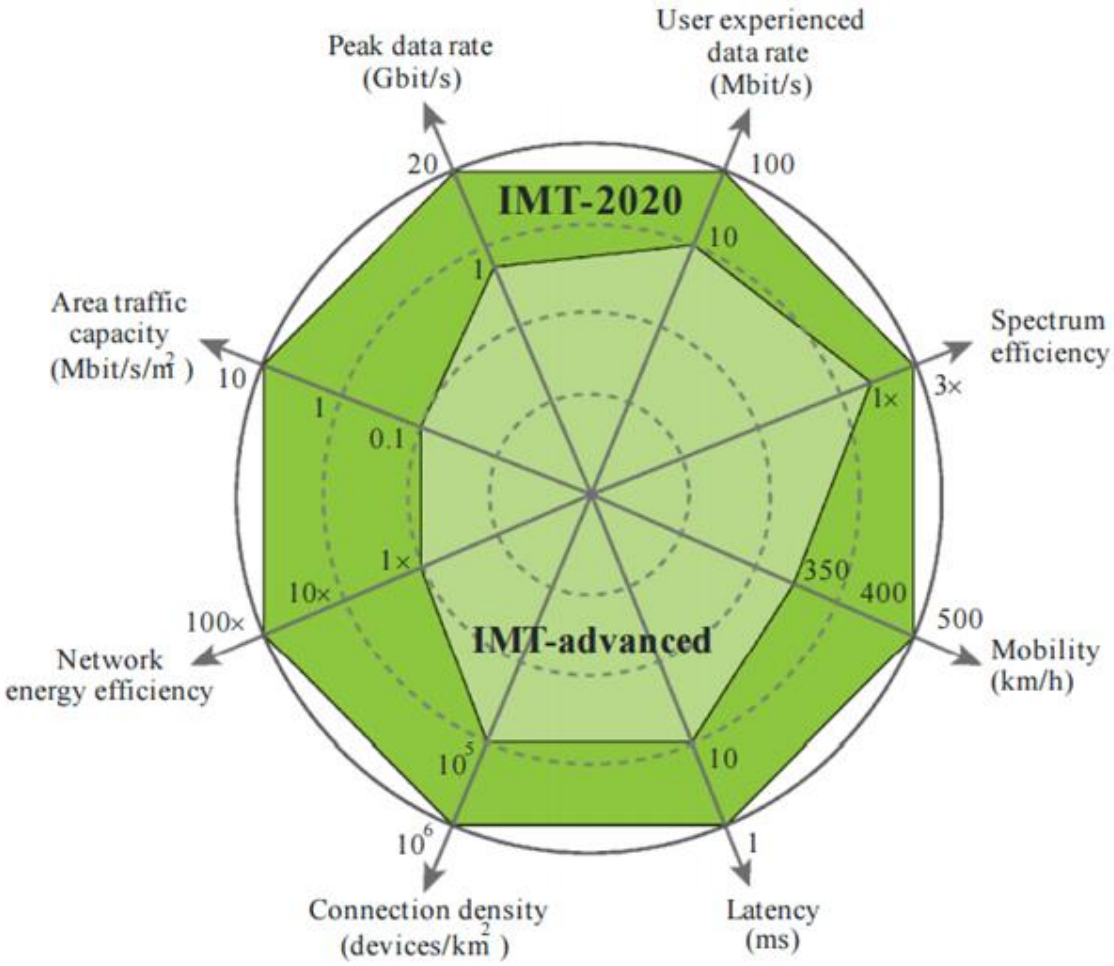
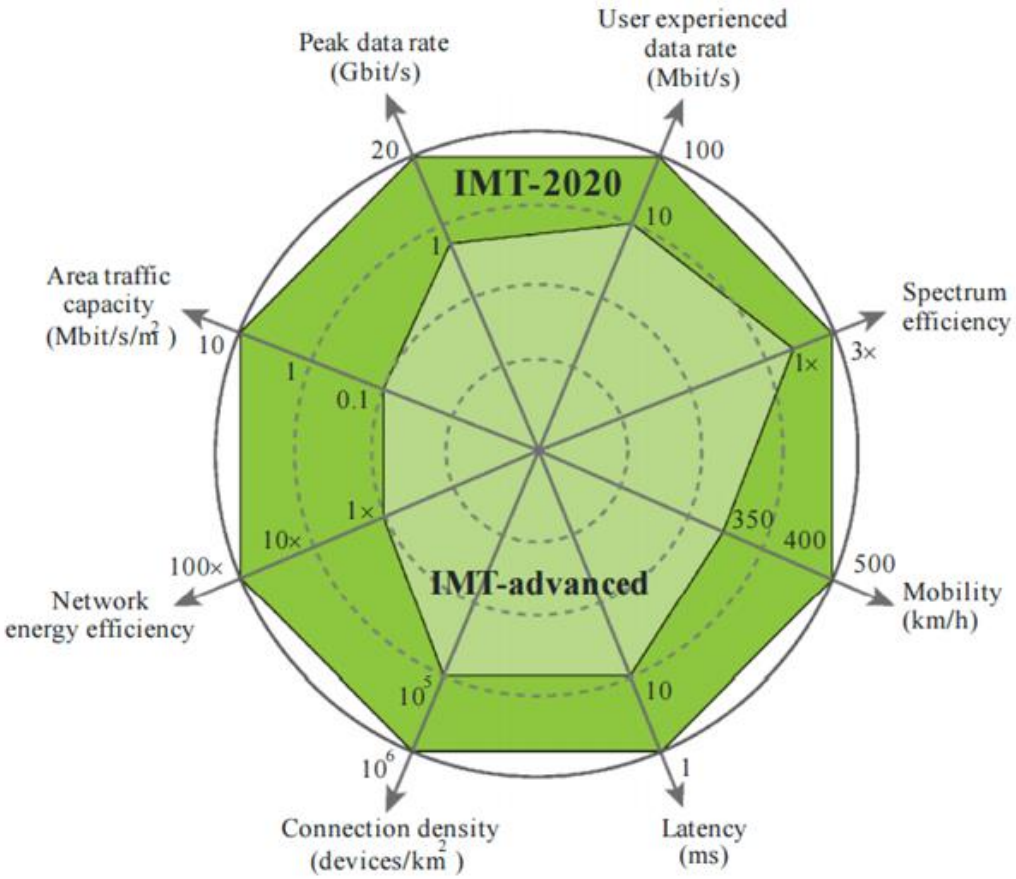
5G is not just about speed



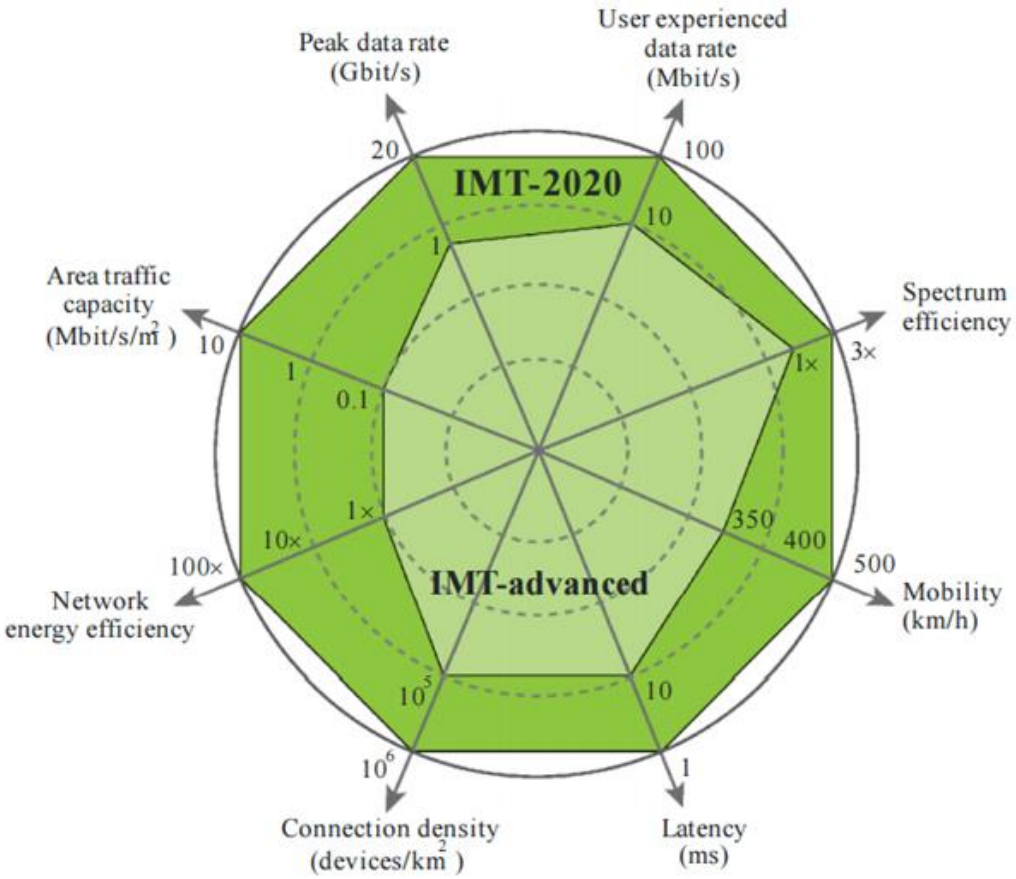
Source: ITU-R M.2410-0 (11/2017), “Minimum Requirements related to technical performance for IMT-2020 radio interface(s)”

What does 5G Offer?



5G Offer	The Needs it will address
Increased network Capacity	Continuously increasing traffic consumption
Increased energy efficiency	Battery Life
Ultra-Low Latency	Mission-critical applications
Better Connection Density	Network Saturation

What does 5G Offer?



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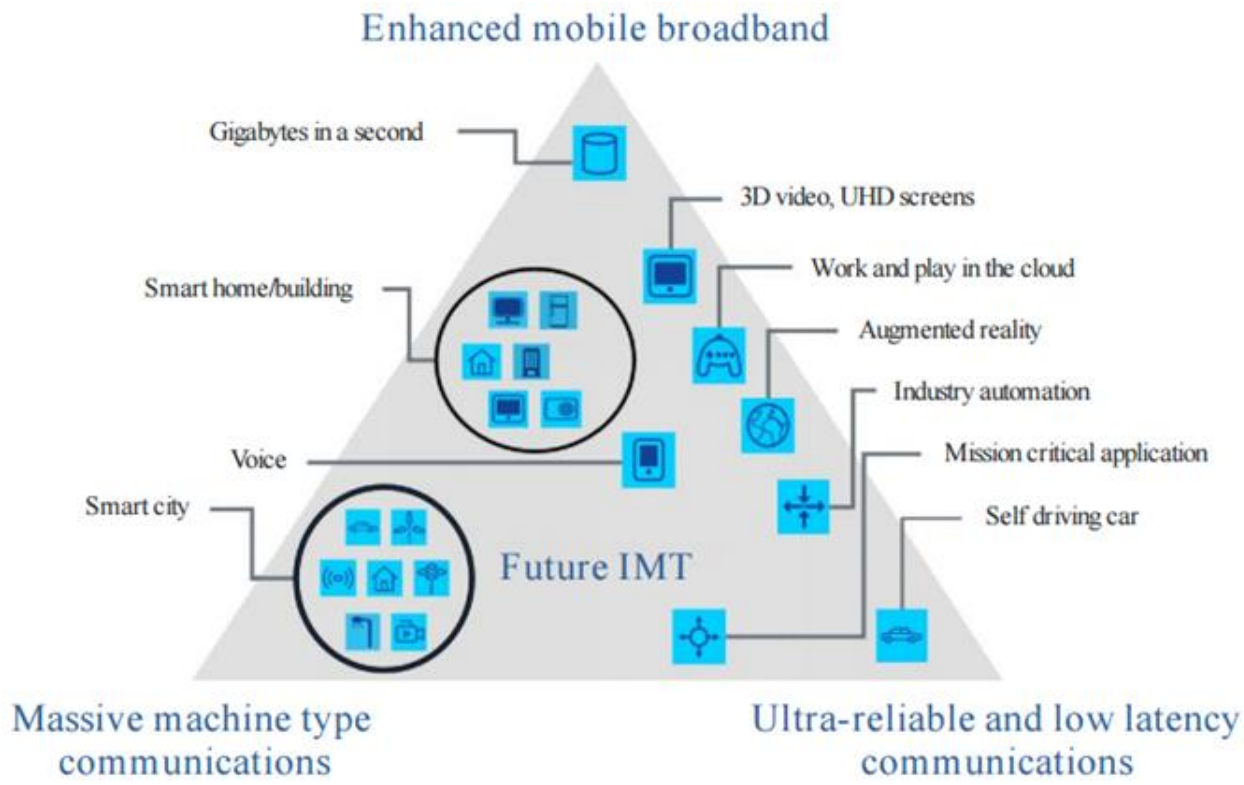
- New Use Cases
- Improving Consumer Experience
- Increasing Network Cost Efficiency

Usage scenarios for IMT for 2020 and Beyond



Source: ITU-R M.2083-0 (09/2015) “IMT Vision – Framework and overall objectives of the future development of IMT for 2020 and beyond”

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Use case drivers behind 5G

International Telecommunications Union

Use Case	Definition	Example
Enhanced Mobile Broadband (eMBB)	an enhanced user experience addressing the ever increasing demand for Mobile Broadband from human-centric applications	-Virtual and Augmented Reality -4K/8K Resolutions
Massive Machine Type Communication (mMTC)	the provision of a network consisting of a large number of connected telemetric monitoring devices.	-m-Health -Smart Meters -Smart Agriculture -Logistics and Tracking -Fleet Management
Ultra-reliable and low-latency communication (URLLC)	innovative applications that require instantaneous reaction or the execution of mission critical applications remotely.	-Industrial applications -Traffic safety and control -Remote Manufacturing

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Which will come first?
Demand or Supply?

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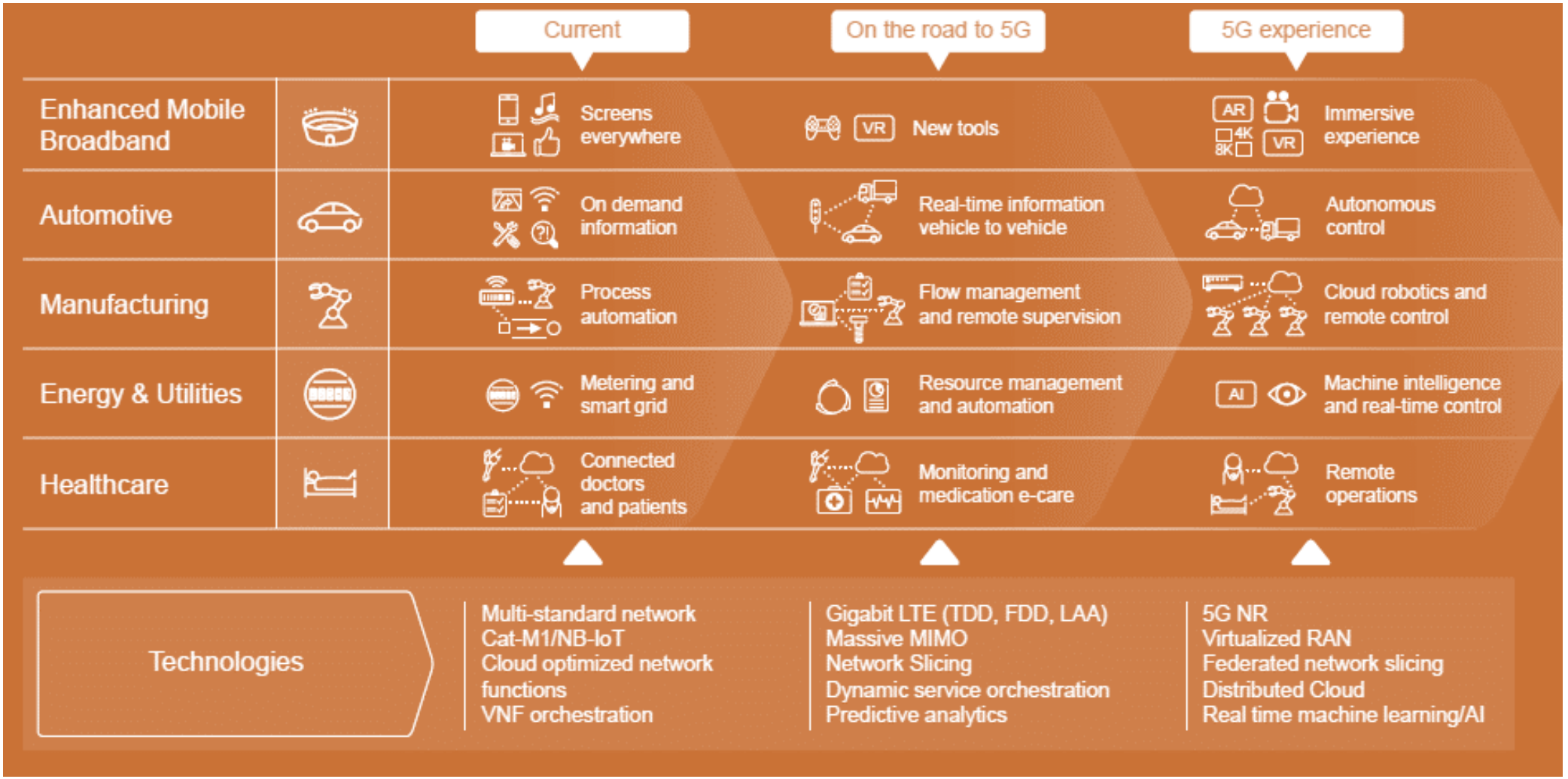
Use case evolution



Ericsson, “5G Techniques for Ultra Reliable Low Latency Communication,” Dr. Janne Peisa,
Source: http://cscn2017.ieee-cscn.org/files/2017/08/Janne_Peisa_Ericsson_CSCN2017.pdf

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Internet of Things = 5G?

- IoT can be deployed using various standards eg:
  - WiFi
  - SIGFOX
  - NB-IOT
  - LoRAWAN

- 5G however is designed with the intent of addressing
  - Increased Connection Density
  - Nation-wide Coverage
  - Enhanced Reliability
  - Lower Energy Consumption

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The European Context

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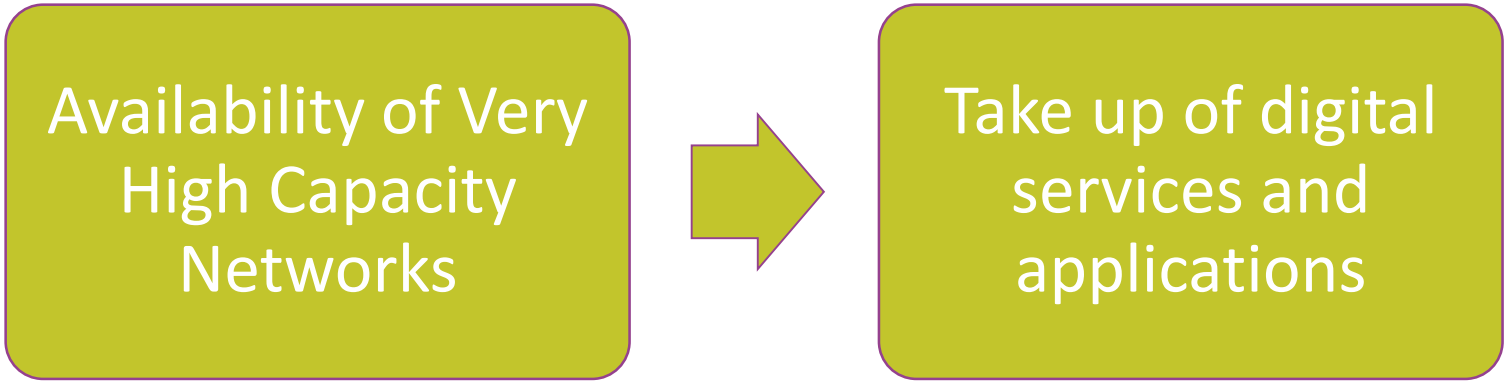
The European Union Action Plan - 2016

- Main Objective:
  - Industry Deployment of advanced 5G networks as from 2020 in a coordinated manner
  - Strategic Driver for EU Competitiveness
- Coordinated Approach
- Proposing to Member States the timely implementation of a comprehensive set of operational steps to accelerate investments in the following areas:
  - Very dense cellular coverage
  - Superfast fibre backhauling
  - Vertical industry driven connectivity service
  - New Digital Innovation Ecosystem

Source: https://ec.europa.eu/digital-single-market/en/news/communication-5g-europe-action-plan-and-accompanying-staff-working-document

Towards a European Gigabit Society - 2016

"The full economic and social benefits of this digital transformation will only be achieved if Europe can ensure widespread deployment and take-up of very high capacity networks, in rural as well as urban areas and across all of society."



Source:https://ec.europa.eu/digital-single-market/en/news/communication-connectivity-competitive-digital-single-market-towards-european-gigabit-society

EU Strategic Objectives

- Commercial launch of 5G services in at least one major city in all Member States by end of 2020
- 5G in all urban areas and along main transport paths by 2025

EU Funding opportunities

- Horizon 2020
- Connecting Europe Facility

5G Trials in various european cities

- Increase predictability
- Reduce investment risks
- Technology validation
- Business Models Validation

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Why is 5G Different?

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Why is 5G different?

- 5G is not solely about connecting people
- 5G is not just about voice, video and data connectivity
- 5G is designed with the Vertical Sectors in mind

New Expectations	Opportunities
Uncertainties	Challenges

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New Expectations

- Increased GDP
- Safeguard Competition
- Job Creation
- New Digital Economy such as Big Data Monetization
- Reduction in Cost

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Opportunities

- Digitization of the vertical sectors
  - Wireless broadband services provided at gigabit speeds
- The 5G Ecosystem involves new players
  - Mobile Network Operators
  - Service Provider
  - Intermediaries
  - Tenants

Uncertainties

- Business Models
- Pricing Structures
  - Case of mMTC or URLLC
    - Example smart farming:
      - Large number of sensors
      - Each sensor transmitting small amount of data
      - Each sensor relying on battery
  - System integrator (turnkey) v.s. Connectivity provider (consumption)

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Challenges

- Level of Investment
- Timely Investment
- Collaboration between the different stakeholders
- Regulatory Elements:
  - Data Privacy and Security
  - Cybersecurity
  - Contract law including liabilities of intermediaries
  - Liability issues

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Thank You

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