# Tecnologia 5G, Oportunidades e Impactos

Critical Emergency Rescue Scenario using 5G





#### ITU-R (International Telecommunication Union) defined IMT-2020 (5G) aspiration:

"Enabling a *seamlessly connected society* in *the 2020 timeframe* and beyond that *brings together people along with things, data, applications, transport systems and cities* in a smart networked communications environment"

# 5G performance improvement requirements



Communications service availability	Allowed E2E latency	Use case
99,9999% to 99,999999%	≤ 0.5 ms	Motion control and control- to-control use cases
99,9999% to 99,999999%	≤1 ms	Motion control and control- to-control use cases
99,9999% to 99,999999%	≤ 2 ms	Motion control and control- to-control use cases

Industrial IoT requirements (3GPP TS 38.825) Low latency and ultra-reliability

Significant performance Improvements over current networks (e.g. 4G, WLAN, LoRa)

These are the *facilitators* for the development of a *new generation of services and applications* 

### **5G System**



Workshop on 3GPP submission towards IMT-2020, Brussels, October 24/25, 2018 "System and Core Network Aspects" Erik Guttman, 3GPP TSG SA Chairman, Samsung R&D Institute UK

# 5G 'Usage Scenarios' (ITU-R)



5G will power a **new generation of services and applications** in the areas of:

> **1.** Enhanced Mobile BroadBand (eMBB) **Make it faster!**

2. Massive Machine Type Communications (mMTC) Make it massive!

**3.** Ultra-Reliable, Low Latency Communications (URLCC) **Make it trustable and responsive!** 

All with a single, unified technology

### 5G use cases: B2C and B2B



### Society and Economic Impacts

#### 3G and 4G

→ Stimulated the mobile Internet and the emergence of OTT, addressing mainly the B2C market

#### **5**G

→ From a best-effort service to low latency, high reliability and bandwidth, and massive IoT, expanding to the B2B market 5G will hit 24 million subscriptions worldwide in 2021 (OVUM)

Sales of 5G Smartphones to hit 100 million in 2021 (CCS Insight)

5G to boost annual U.S. GDP by \$500 billion through job growth and investments in deploying the new network (*Accenture*)

In 2035, 5G will enable \$12.3 trillion of global economic output (*IHS*)

The global 5G value chain will generate **\$3.5 trillion** in output and support **22 million** jobs in 2035 (*IHS*)

5G could add 22 million jobs around the world by 2035 (*Qualcomm*)

IHS Economics & IHS Technology, "The 5G economy: how 5G technology will contribute to the global economy", Jan/2017





Place: Aveiro, Altice Labs Campus Use Case: Public Protection and Disaster Relief Used Network: Ericsson and Altice Labs technology



# Tecnologia 5G Oportunidades e Impactos

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