5G-SMART

Prof. Jose F. Monserrat

EuCNC, Valencia, June 21st 2019



The 5G-SMART project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 857008.



5G-SMART Objectives

Field trials:

Demonstrate, evaluate and validate 5G systems in industry field trials for smart manufacturing

Business models:

 Identify viable business models for smart manufacturing (with and without mobile network operators)

Concept work:

- Develop 5G radio deployment and network architecture options for the manufacturing ecosystem
- Develop of new 5G technology features beyond Release 15 targeting the manufacturing industries
- Develop an industrial-centric network configuration and management framework



WP2, WP3, WP4: Field trials



5G FOR SMART MANUFACTURING



WP2: Kista trial site

Trial setup in Ericsson Kista factory:

- WP2-participants: Ericsson, ABB
- Ericsson 5G NR system and edge cloud
- Two ABB industry robots

Use cases:

- Robot control moved to the local cloud
- Controlling robot operation from ABB 5G Lab in Västerås
- Machine-vision assisted robot control with video processing and analysis in the local cloud
- Visualization of Factory Floor (AR/VR)
- Coexistence testing between indoor private network with outdoor public network





WP3: Aachen trial site

Trial setup in IPT Aachen factory:

- WP3-participants: Ericsson, IPT, Marposs, U-blox
- Ericsson 5G NR + LTE system and edge cloud
- IPT machining tools
- Marposs advanced sensors
- Time-sync capable devices from U-blox

Use cases:

- Real-time workpiece monitoring during machining and adaptive production
- Shopfloor monitoring for digital twin
- Localization and time-synchronization





WP4: Reutlingen trial site

Trial setup in Bosch Reutlingen factory:

- WP4-participants: Ericsson, Bosch, Lund University, Budapest University of Technology and Economics
- Ericsson 5G NR system and edge cloud
- Bosch factory, AGVs, industry LAN

Use cases:

- Cloud-based mobile robotics for (coordinated) automated guided vehicles (AGV), positioning
- Industrial LAN/Time Sensitive Networking (TSN) over 5G

Studies:

- Electromagnetic compatibility testing between 5G and industrial equipment
- Channel measurements on shopfloor (3.5+26 GHz)





5G-SMART Grant Agreement No. 857008

"The 5G-SMART project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 857008

If you need further information, please contact the coordinator: Dr. Leefke Grosjean, ERICSSON E-Mail: <u>coordination@5gsmart.eu</u> or visit: <u>www.5gsmart.eu</u>

The information in this document is provided "as is", and no guarantee or warranty is given that the information is fit for any particular purpose. The content of this document reflects only the author's view – the European Commission is not responsible for any use that may be made of the information it contains. The users use the information at their sole risk and liability.