



# eltic-Plus<sup>+</sup>

Smart Connected World



Proposers' Day  
7 May 2015, Oulu

## 7-minute Pitch on the Project Proposal

# Reliable Industrial Communication Over the Air - RelCOvAir

*Marko Sonkki, Centre for Wireless Communications, University of Oulu  
marko.sonkki@ee.oulu.fi*



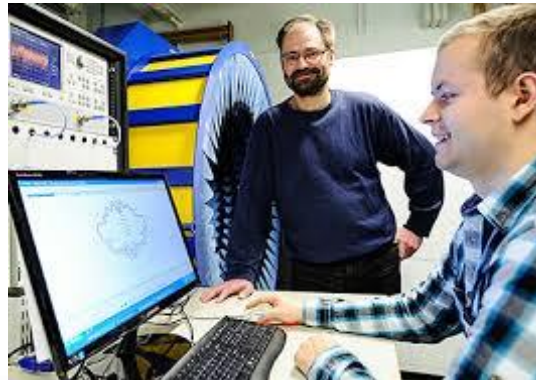


## CWC - Centre for Wireless Communications

University-based research group operating within the Department of Communications Engineering at the University of Oulu, Finland

Our mission is to

- conduct world-class research, train world-class graduates, create new technology and support industry
- be one of the leading wireless research institutes globally



# Proposal Introduction (1)

## Assumptions:

- *The majority of **industrial communication systems** is currently still based on cables*
- *Wireless communication will **replace wired connections***
- *Wireless control links bring **flexibility** to the production line design and allow an **easy restructuring** of old production lines*

## Prerequisites:

- *Selected wireless communication system must **fulfill the requirements** for the given industrial applications*
- *The systems require **highly reliable and secured** wireless communications and control links*

## Solutions:

⇒ *Celtic-Plus Project **RelCoVAir***

# Proposal Introduction (2)

## The Plan:

- *Analyse challenging scenarios of wireless industrial automation, derive requirements, and define test cases*
- *Perform measurements (environments, frequencies)*
- *Update and validate the QuaDRiGa channel model*
- *Implement emulation/validation environment (testbed)*
- *Standardization of test-cases (rating system)*

## Results:

- *Emulation/validation platform for industrial communication systems, based on:*
  - *Channel model for industrial environments*
  - *Software and hardware channel emulators*
  - *Standardized rating of wireless communication systems*

⇒ ***Proven and qualified performance of wireless communication systems for the industry***

# Partners (1)

*Germany:*



*Finland:*



CENTRE FOR WIRELESS COMMUNICATIONS  
University of Oulu



*Spain:*



# Partners (2)

We are seeking industrial partners with expertise on:

- *Radio channel measurement environments*
- *Integrated radios and sensors*
- *Industrial communication security demands*
- *Channel emulator manufacturing*

... and partners to provide:

- *Knowledge on industrial communication technology requirements/scenarios*
- *Industrial environments for testing communication networks*

... and partners that can think of:

- *Acting as early adopters for the ReICOvAir results*

# Contact Info

For more information and for interest to participate, please contact:



Marko Sonkki  
Centre for Wireless Communications  
email: [marko.sonkki@ee.oulu.fi](mailto:marko.sonkki@ee.oulu.fi)  
mobile: +358 40 835 2009  
FI-90014 University of Oulu  
web: [www.ee.oulu.fi/~msonkki/](http://www.ee.oulu.fi/~msonkki/), [www.cwc.oulu.fi/](http://www.cwc.oulu.fi/)

Project coordinator:



Frank Burkhardt  
Fraunhofer-Institut für Integrierte Schaltungen IIS  
email: [frank.burkhardt@iis.fraunhofer.de](mailto:frank.burkhardt@iis.fraunhofer.de)  
Tel: +49 (0)9131 776 6312  
Am Wolfsmantel 33  
91058 Erlangen, Germany  
web: <http://www.iis.fraunhofer.de>