



celtic-Plus⁺

Smart Connected World



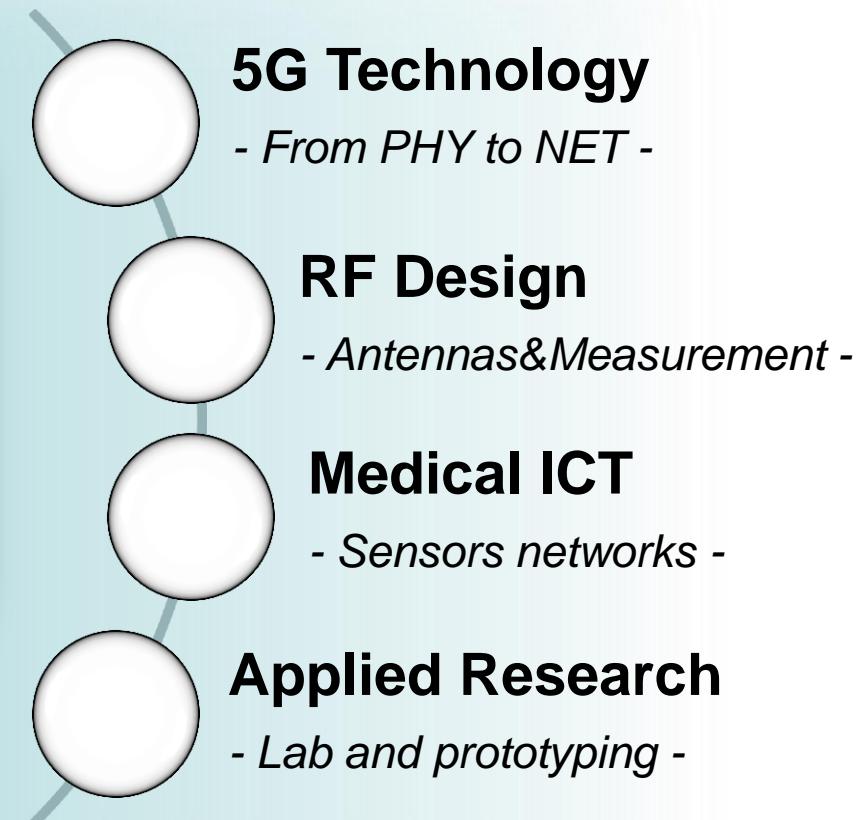
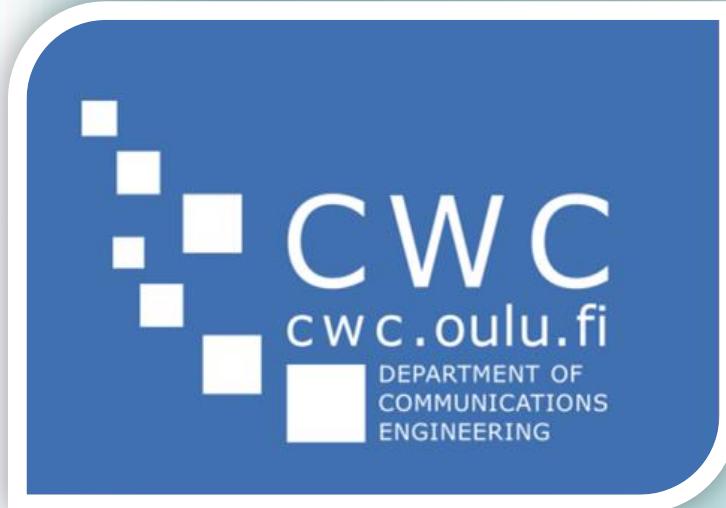
Proposers Day
7 May 2014, Oulu



5G Positioning technology for future mobile services (5GPLUS)

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2G

1992



100Kbit/s

SMS

3G

2001



10Mbit/s

4G

2012



100Mbit/s

5G

2020



Connectivity



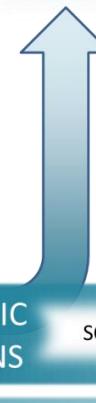
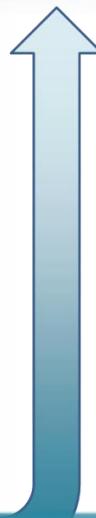
M2M IoT



SMART

E112

Location



SERVICES

UBIQUITOUS
CONNECTIVITY

M2M/IoT

POSITIONING

5G+

USER-CENTRIC
APPLICATIONS

SOCIAL PHONE

CLOUD

MEDIA

MOBILE WEB

MULTIMEDIA

STREAMING

HIGH DEFINITION VIDEO

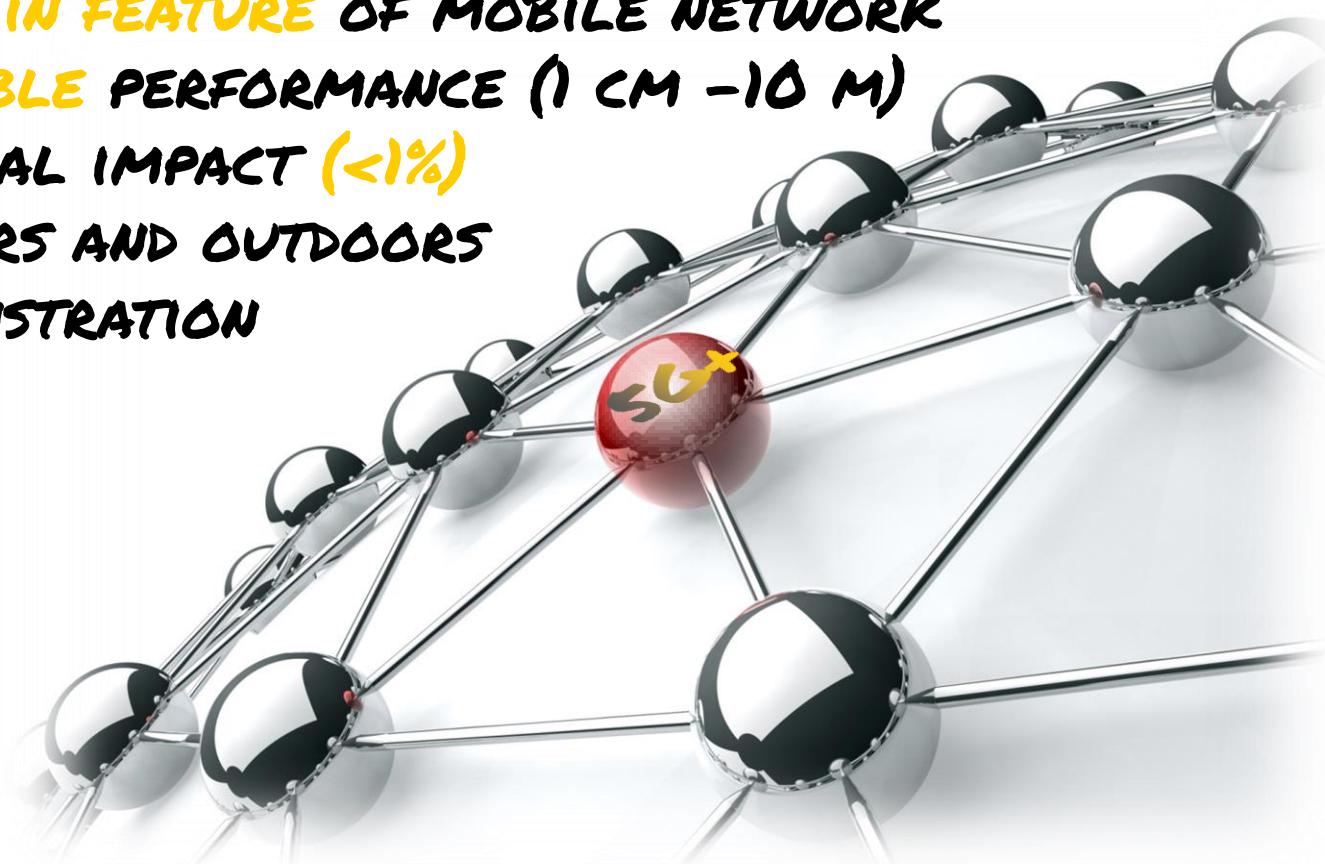
VOICE

CALL/SMS

VOIP/CHAT

5G+ APPROACH

- **UNIQUE CO-DESIGN OF COMMUNICATIONS AND POSITIONING**
- **BUILT-IN FEATURE OF MOBILE NETWORK**
- **SCALABLE PERFORMANCE (1 CM -10 M)**
- **MINIMAL IMPACT (<1%)**
- **INDOORS AND OUTDOORS**
- **DEMONSTRATION**



5G+ TECHNOLOGY COSTS



5G+ OUTCOME - IMPACT



A central graphic featuring the word "3 Years" in large, bold letters. Surrounding this are various technological and business terms, some rotated vertically or diagonally:

- M2M
- Patents
- Terrestrial-positioning-service
- Business
- Efficiency
- Accurate
- Urban
- Sub-urban
- Mobile-users
- Applications
- V2V
- Standard
- 5G
- Innovation Technology
- Indoors
- LBS
- Consumers
- Healthcare
- Enterprise
- UbiquitousIoT
- Smart-services
- Scalable
- Low-power
- Low-cost
- E112

PARTNERS

- University of Oulu (FI)
- Tampere University of Technology (FI)
- Chalmers University (SWE)
- Telespazio (FR)
- AVEA (TU)

Looking for

- SME (LBS developers)
- SME (System integrators)
- Large company (Mobile network)
- Large company (Operators)

CONTACT INFO

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