



millimetre-Wave Based Mobile Radio Access Network for Fifth  
Generation Integrated Communications

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(on behalf of the mmMAGIC project consortium)*

mmMAGIC



# Project overview



**Part of 5G-PPP under the Horizon 2020 - Research and Innovation Framework Programme (proposal 671650)**

**Project runtime:** July 2015 – July 2017 + 6 pro-bono months

**Vendors:** Samsung, Ericsson, Alcatel-Lucent, Huawei, Intel, Nokia

**Operators:** Orange, Telefonica

**Leading research institutions:** CEA-LETI, Fraunhofer HHI, IMDEA Networks

**Universities:** Aalto University, University of Bristol, Chalmers University of Technology, TU Dresden

**SME:** Qamcom

**Test equipment manufacturers:** Keysight Technologies, Rohde & Schwarz

**Advisory board:** ANFR (FR), BNetzA (DE), ETSI, FICORA (FI), PTS (SWE), OFCOM (UK), Prof. Thomä (University of Ilmenau, DE)

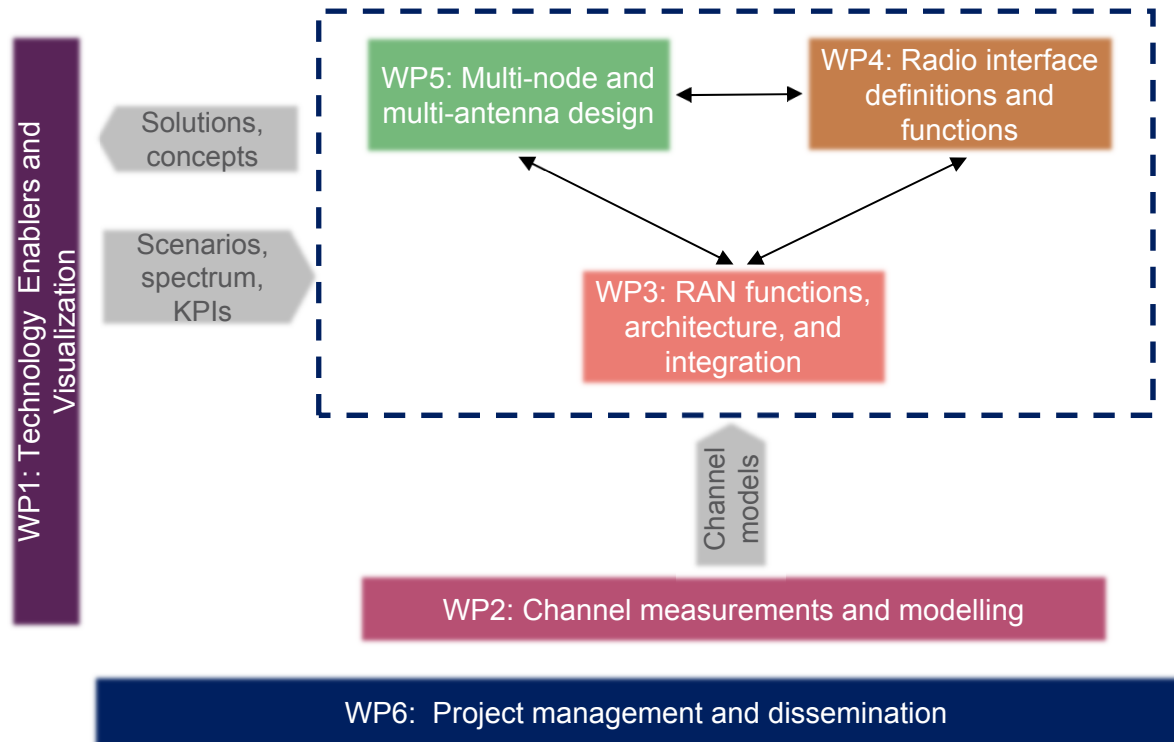
**Project coordinator:** Maziar Nekovee (Samsung)

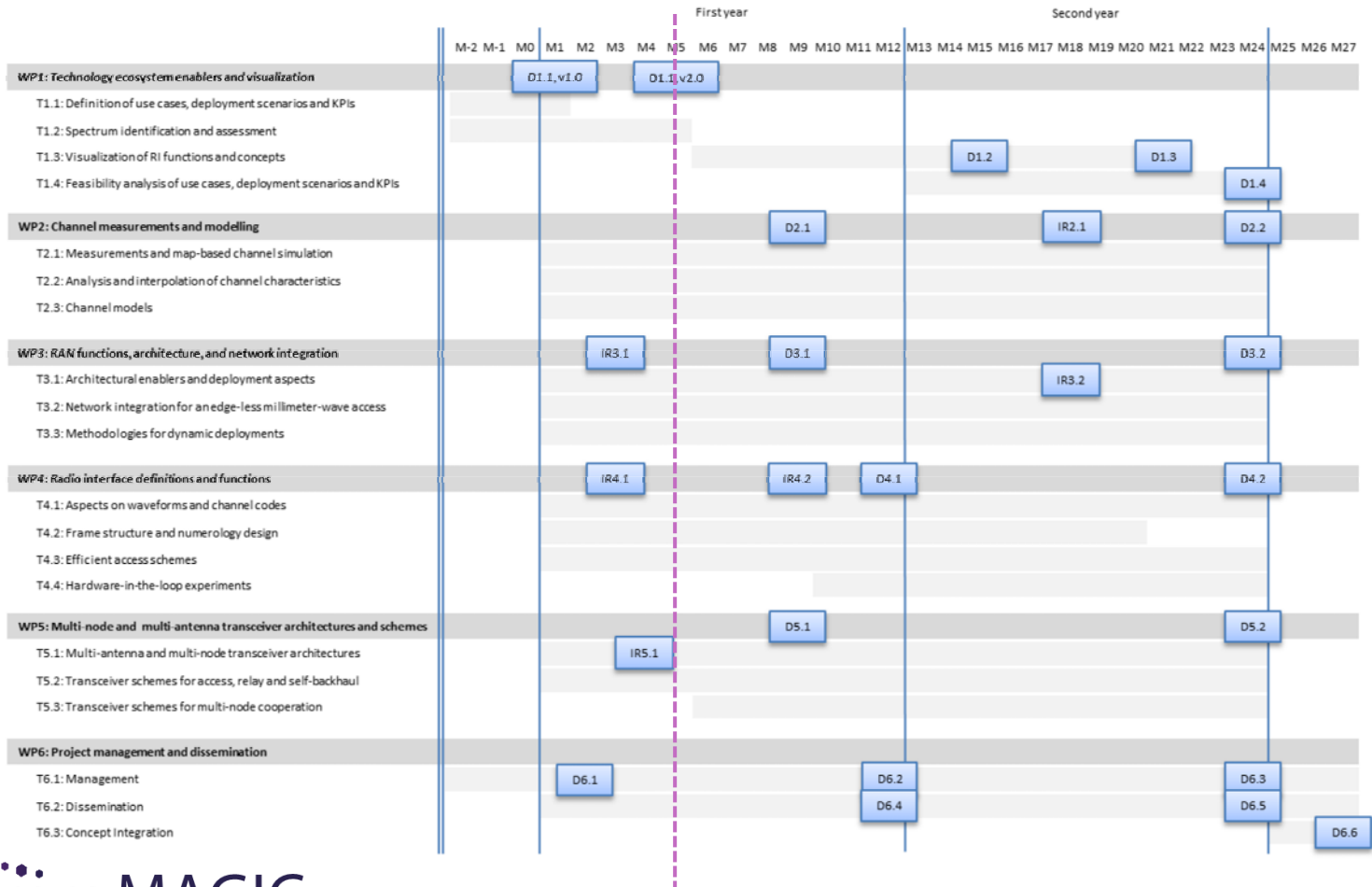
**Technical manager:** Peter von Wrycza (Ericsson)

## Project objectives and expected outcome

- ◆ **Investigate** suitable frequency ranges (6-100 GHz) for extremely high capacity mobile broadband services
- ◆ **Conduct** measurements and develop accurate channel models for identified candidate frequency ranges
  - ◆ **Comprehensive** mm-wave channel models suited for regulatory and standards fora usage, ITU-R working groups and 3GPP
- ◆ **Develop** novel mobile radio access technologies for 5G systems in frequency above 6 GHz
  - ◆ **Standards-ready** mobile radio interface operating in mm-wave frequencies (6-100 GHz), paving the way for a European head-start in 5G standards, including 3GPP and ITU-R
- ◆ **Demonstrate** feasibility of the developed concepts
  - ◆ **Demonstrator** including advanced visualization of mm-wave based mobile broadband systems operating in **real-life** service provisioning scenarios & **hardware-in-the-loop** demonstrations
- ◆ **Interface/collaborate** with other 5G PPP projects, towards achieving a common set of 5G PPP KPIs
  - ◆ **Inputs** to the EC/5G-PPP Infrastructure Association in preparation of WRC 19 and contributing to the ITU-R evaluation work on IMT above 6 GHz

# Project structure





## Concluding remarks

- ◆ **Develop and design** new concepts for mobile **Radio Access Technology (RAN)** for deployment in the **6-100 GHz** range
- ◆ **Key component in the 5G multi-RAT ecosystem** and used as a **foundation for global standardization**
- ◆ Bold ambition of **taking a leading role in 5G research pre-standardization activities**
- ◆ Contribution planned to **5G-PPP working groups** such as **Spectrum, Pre-standards and Architecture**

## Key Upcoming Events

- ◆ mmMAGIC shows its first **“5G Architecture Demo Clip”**, **IEEE Globecom**, San Diego, USA, 06.12-10.12.2015
- ◆ mmMAGIC co-organizes a workshop with FP7 MiWaveS on **“Millimeter wave-based Integrated Mobile Communications for 5G Networks”**, **IEEE WCNC**, Doha, Qatar, 3.04-6.04.2016
- ◆ mmMAGIC co-organizes a workshop on **“Millimeter-wave Networking (mmNet2016)”** along **IEEE INFOCOM**, CA, USA, April 2016
- ◆ mmMAGIC co-organizes a 5G-PPP workshop on **“5G RAN Design”** in co-location with **IEEE ICC**, Kuala Lumpur, Malaysia, 23.05-27.05.2016

Visit mmMAGIC Website: <https://5g-mmmagic.eu/>



**THANK YOU!**