

5G for Connected Autonomous Vehicles

Where do we stand?

Thomas Zemen

BMVIT, September 20, 2016

5G Workshop Agenda

14.00 Welcome and Introduction, *Lisbeth Mosnik, bmvit und Andreas Dorda, bmvit*

14.10 Where do we stand - *Wrap-Up of first Workshop 2015, Thomas Zemen, AIT*

14:30 – 15.30 5G PPP

14:30 New Developments in 5G PPP, *Emilio Calvanese, CEA-LETI*

14.50 Discussion and exchange of experiences

15:30 Break

16:00 – 18.00 5G for connected automated vehicles (vertical market)

16:00 5G and mobility, *Susana Sargento, University of Aveiro*

16:20 5G Research Areas in CEA-LETI, *Emilio Calvanese, CEA LETI*

16:40 Challenges and Chances in Future Data Transfer for in-Car and Car to X
Communication, *Erich Leitgeb, TU Graz*

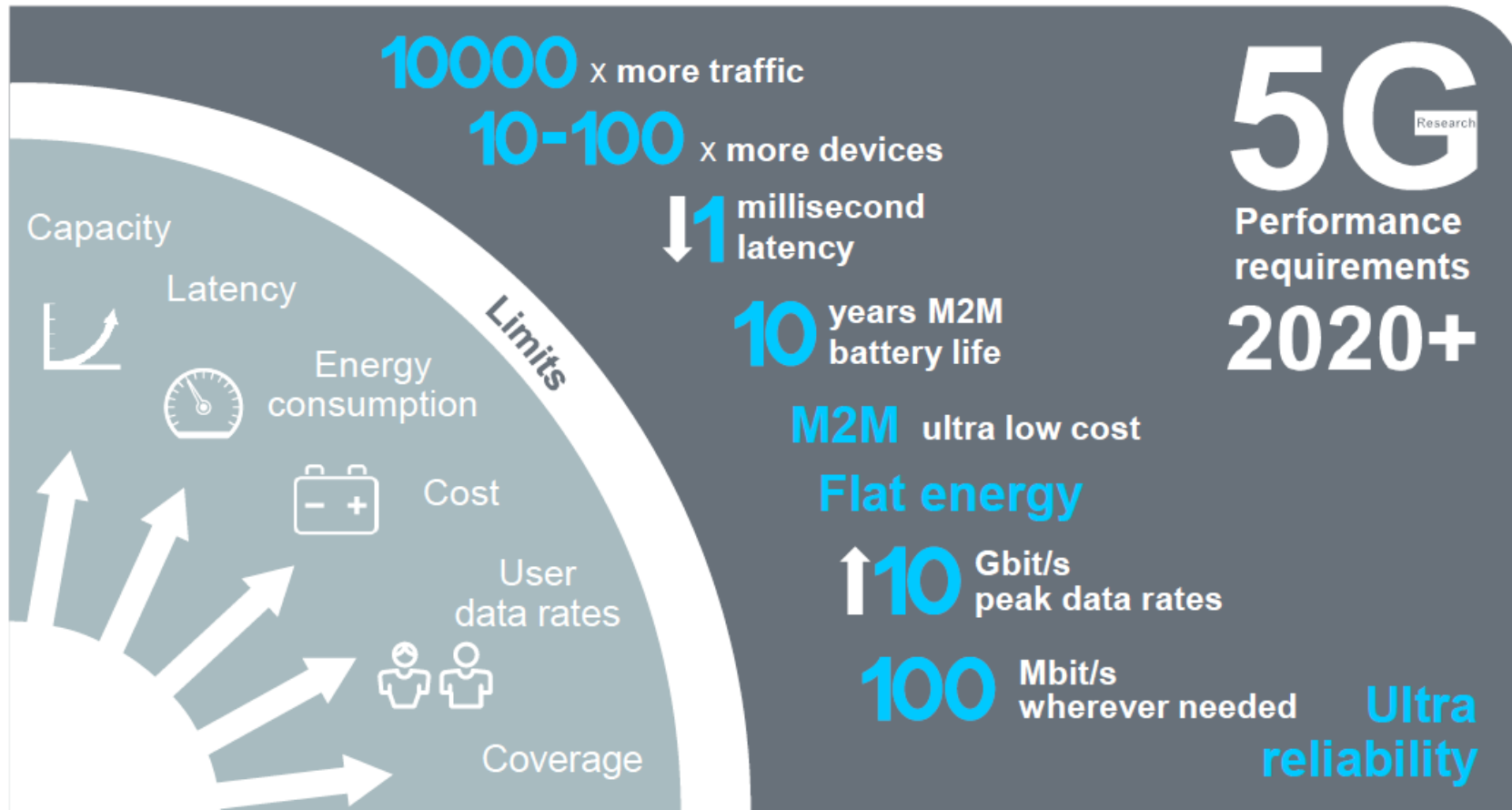
17:00 “automated – connected – mobile: Policy Priorities and Actions in Austria”, *Martin
Russ, austriatech*

17:20 Discussion and next steps

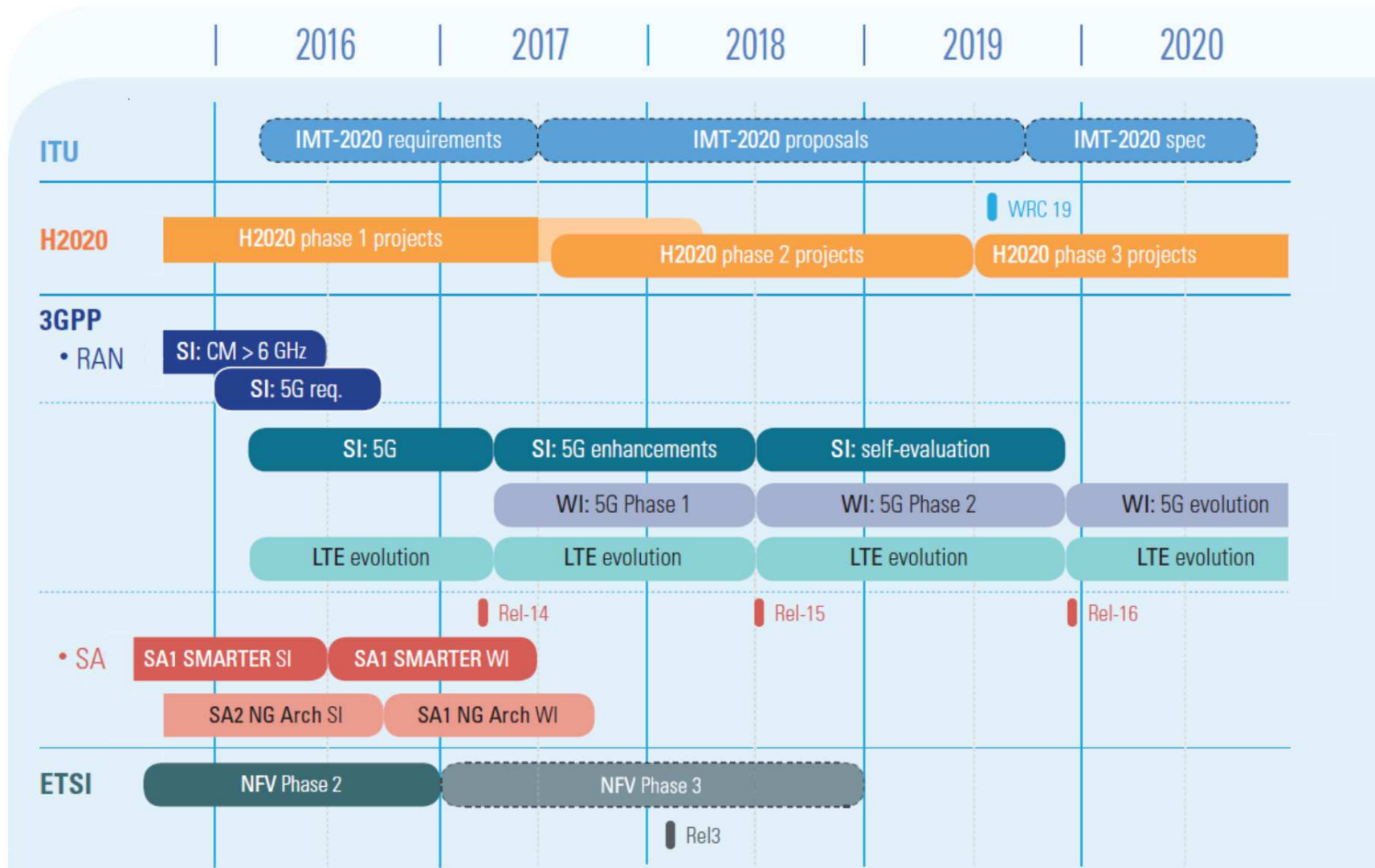
Outline

- Call 1 participation
- 5G Workshop 2015 - survey results
- Call 2 pre-structuring
- Upcoming calls in 5G PPP
- Networld 2020 strategic research agenda
- Split-up of Networld 2020 and 5G PPP -> Emilio Calvanese

5G Targets



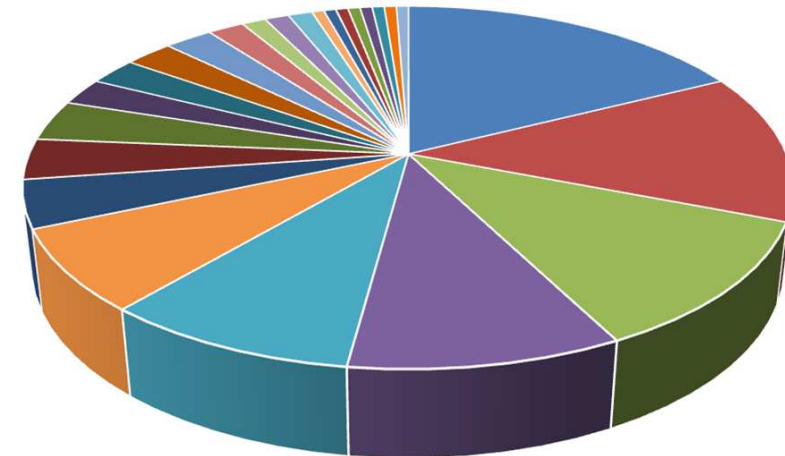
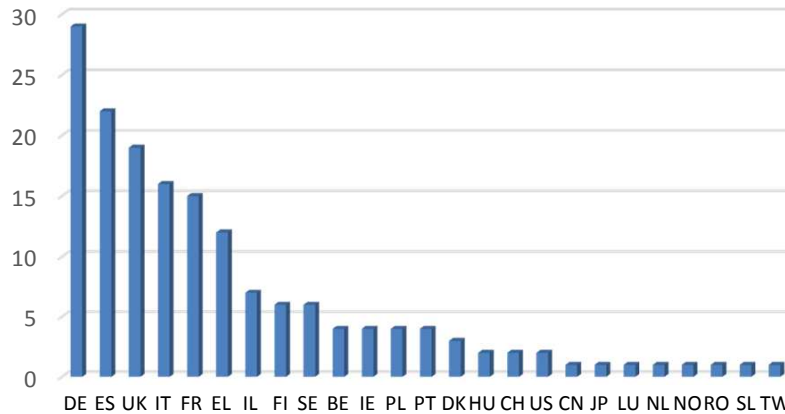
5G Timeline



Source: 5G Infrastructure Association: 5G Empowering vertical industries White Paper, February 2016.

Participation in Call 1

Number of organisations

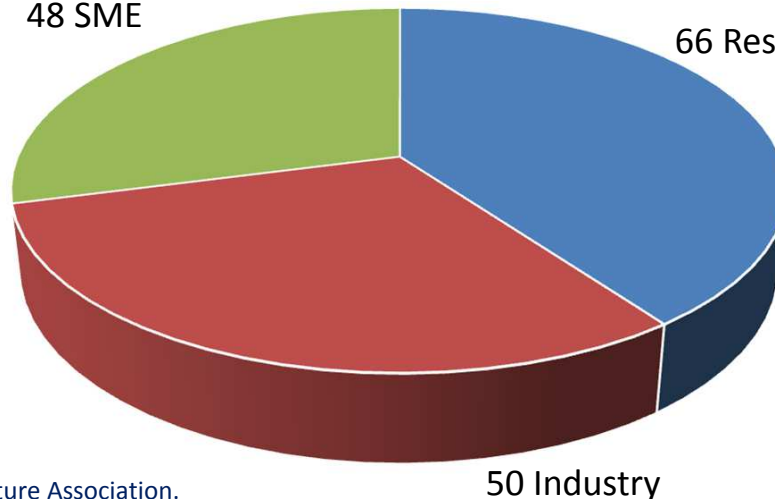


DE ES UK IT FR EL IL FI SE BE IE PL PT
DK HU CH US CN JP LU NL NO RO SL TW

Number of organisations

48 SME

66 Research



50 Industry

- BE Belgium
- CH Switzerland
- CN Canada
- DE Germany
- DK Denmark
- EL Greece
- ES Spain
- FI Finland
- FR France
- HU Hungary
- IE Ireland
- IL Israel
- IT Italy
- JP Japan
- LU Luxembourg
- NL Netherlands
- NO Norway
- PL Poland
- PT Portugal
- RO Romania
- SE Sweden
- SL Slovenia
- TW Taiwan
- UK United Kingdom
- US USA

Source: 5G Infrastructure Association.

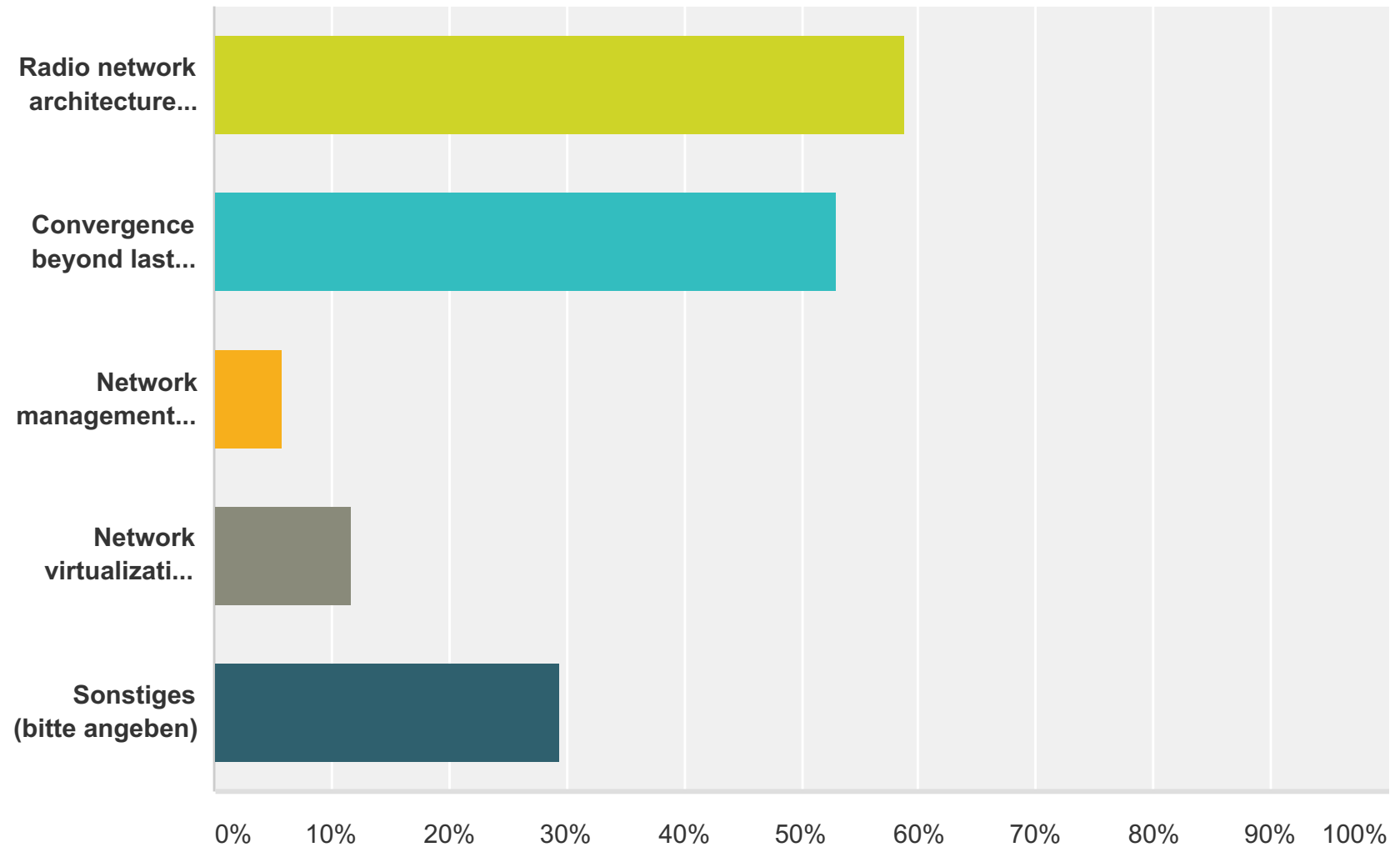
2016 Survey on 5G Topics in Austria

Workshop: 5G for cyber physical systems, Dec. 12, 2015

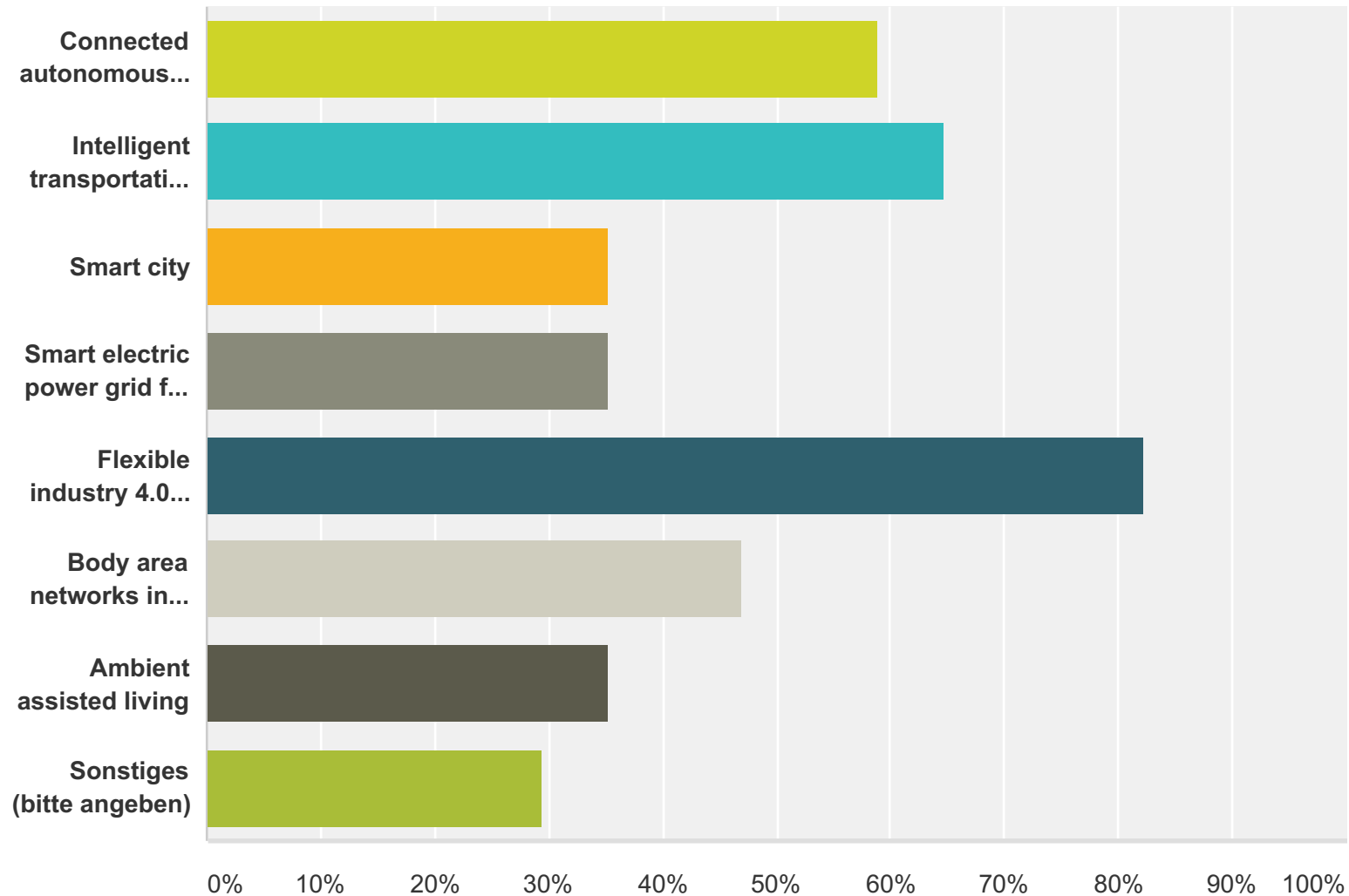
- 40 participants from industry and academia
- Invitation to participate in survey sent out
- 17 responses received



Core Platform



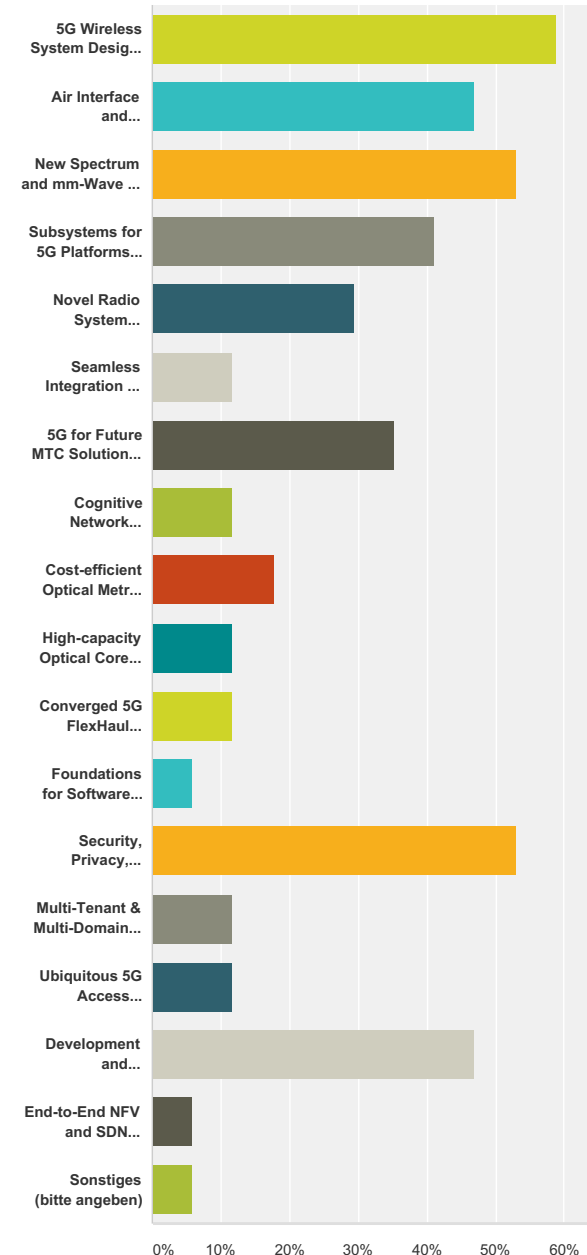
Use Cases



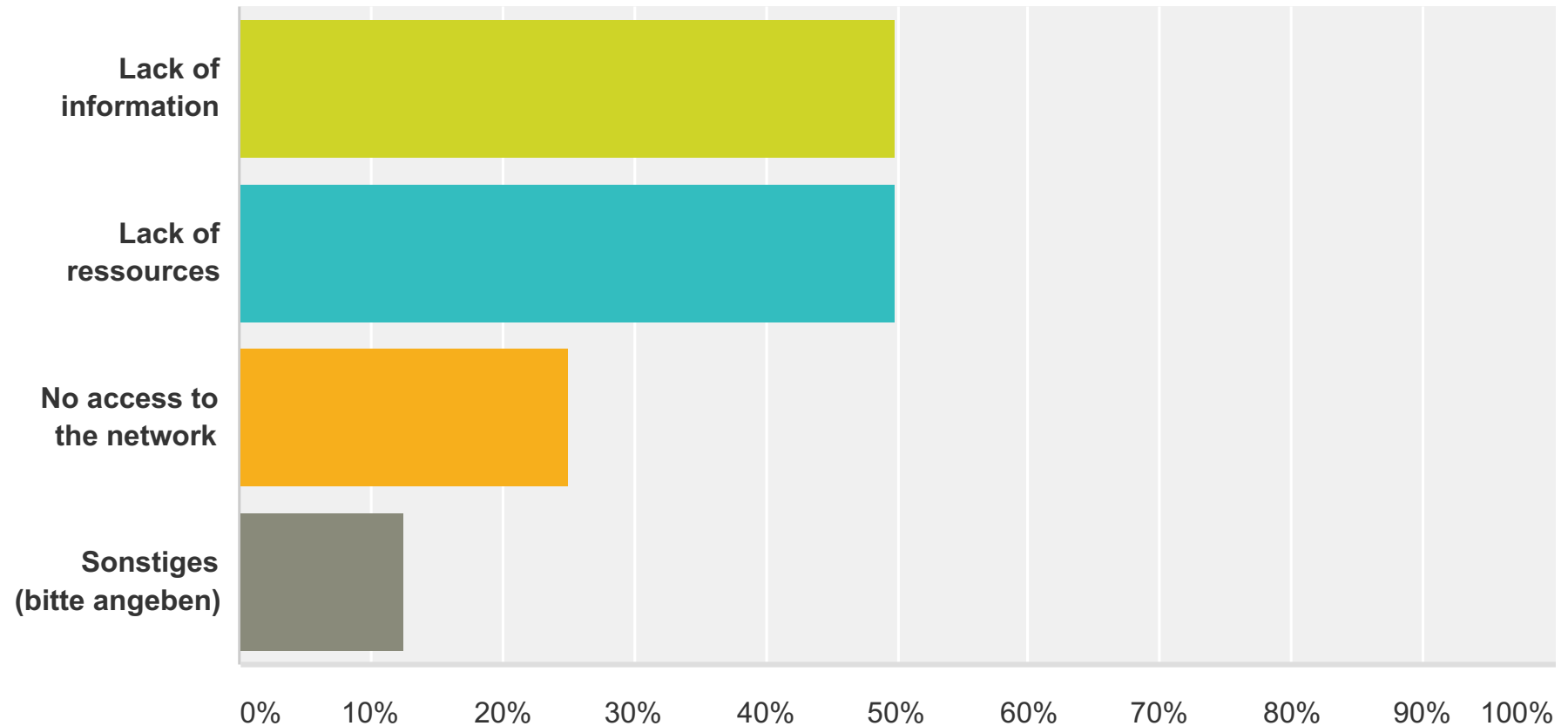
5G PPP Target Actions

Top 6 (multiple choices possible)

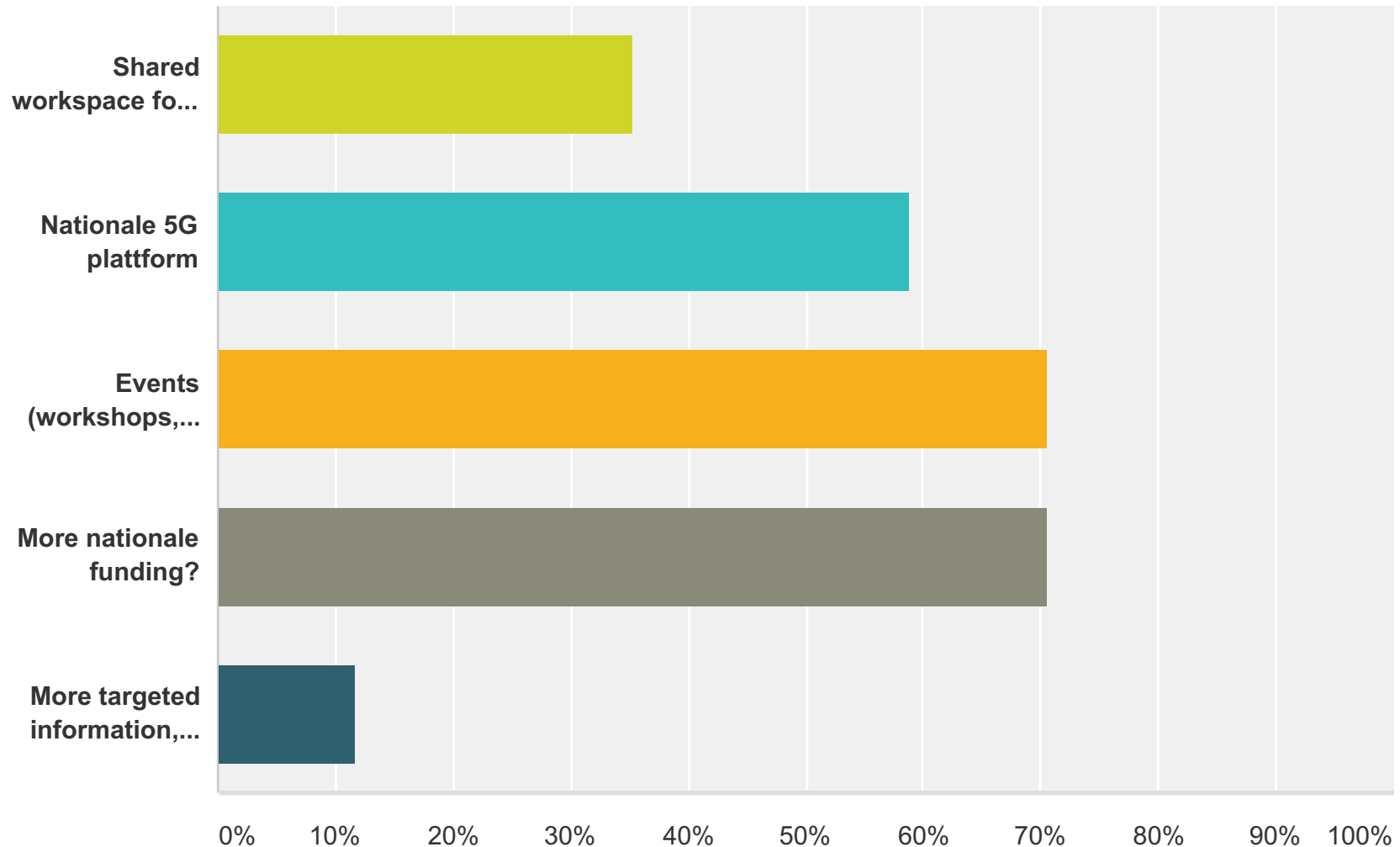
5G Wireless System Design	59%
Security, Privacy, Resilience, and High Availability	53%
New Spectrum and mm-Wave Air Interface for Access, Backhaul and Front haul	53%
Development and Verification Platform for Industry- specific Network Services and Apps	47%
Air Interface and Multi-Antenna, Multi-Service Air Interface below 7 GHz	47%
Subsystems for 5G Platforms: Integration of Hardware and Software Aspects	41%



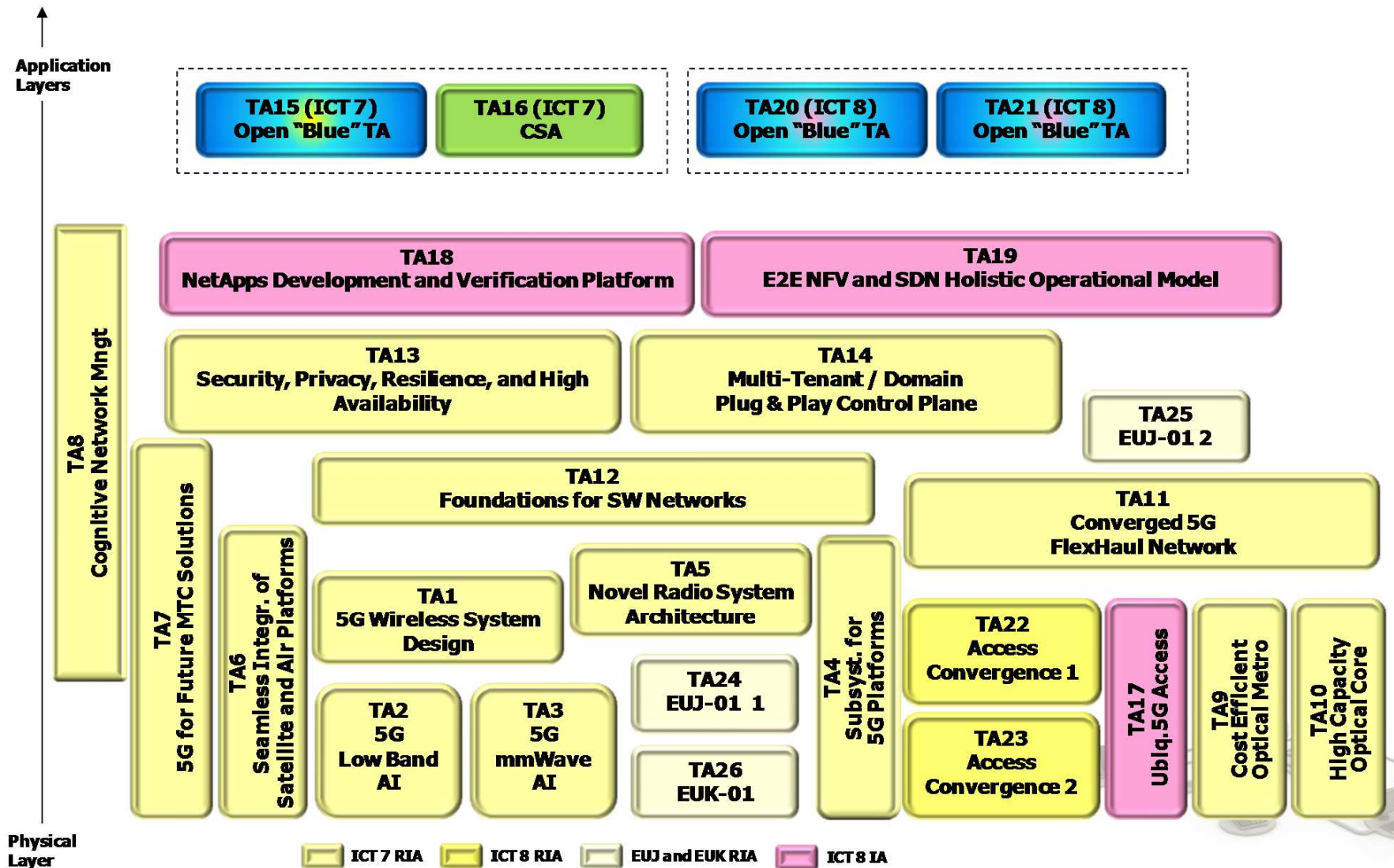
What are the hurdles and obstacles you face in 5G international RTD collaboration?



What kind of national support actions would be useful for you?



Phase 2 pre-Structuring



Upcoming Calls

- **ICT-07-2017 – 5G PPP Research and Validation of critical technologies and systems (100M€) – 2016-11-08**
 - **Strand 1 topics:**
 - flexibly adapting to different “vertical” application requirements;
 - experimental testing with “vertical” sectors;
 - novel air interfaces ... supporting mission critical M2M;
- **ICT-09-2017 – Networking research beyond 5G (18M€) – 2016-11-08**
 - **Strand 1 topics:**
 - excellence notable in the DSP domain;
 - exploiting spectrum above 90GHz,
 - new cooperation networking and protocols, notable in the mobility context;

Networld 2020 SRIA



Joint Expert Group and Vision Group Workshop
“Networld 2020 Strategic Research Agenda”

Bologna, Italy
16th March 2016, 9:00 to 18:00

Networld 2020 strategic research and innovation agenda (SRIA)

5G research planning support for the European commission in the following domain:

1. Virtualization of Network Services
2. Radio Networks and Signal Processing
3. Optical Networks
4. Experimentation and Verticals

http://www.networld2020.eu/wp-content/uploads/2014/02/SRIA_final.pdf

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your ingenious partner

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