

Towards to implement 5G mobile communications systems in Japan for 2020

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The Fifth Generation Mobile Communications Promotion Forum

IEEE WCNC 2015
New Orleans, USA

9 Mar. 2015

- 1. Established in 1882 by Mr. Shigenobu Okuma**
- 2. 7 Prime Ministers, and 14 Olympic Gold medalists**
- 3. Students: undergraduate 43,962, graduate 9,127
(as of May 2014)**
- 4. Faculty 2,141 full-time, Staff 1,122 full-time**
- 5. 10 faculties and 8 research councils from humanities, and social sciences to science and engineering**
- 6. Focusing research area for global collaboration;**
 - (1) Frontier of Embodiment Informatics: ICT and Robotics**
 - (2) New Horizon Materials for Life and Energy Devices**
 - (3) Multi-scale Analysis, Modeling and Simulation**
 - (4) Health Promotion: The Joy of Sports and Exercise**
 - (5) Global Japanese Studies**
 - (6) Empirical Analyses of Political Economy**



Market and user trends

1. “Everything can be done via the Internet” and people will enjoy its benefit.
2. ICT will be used in much more cases and will be applied for vast variety of services.



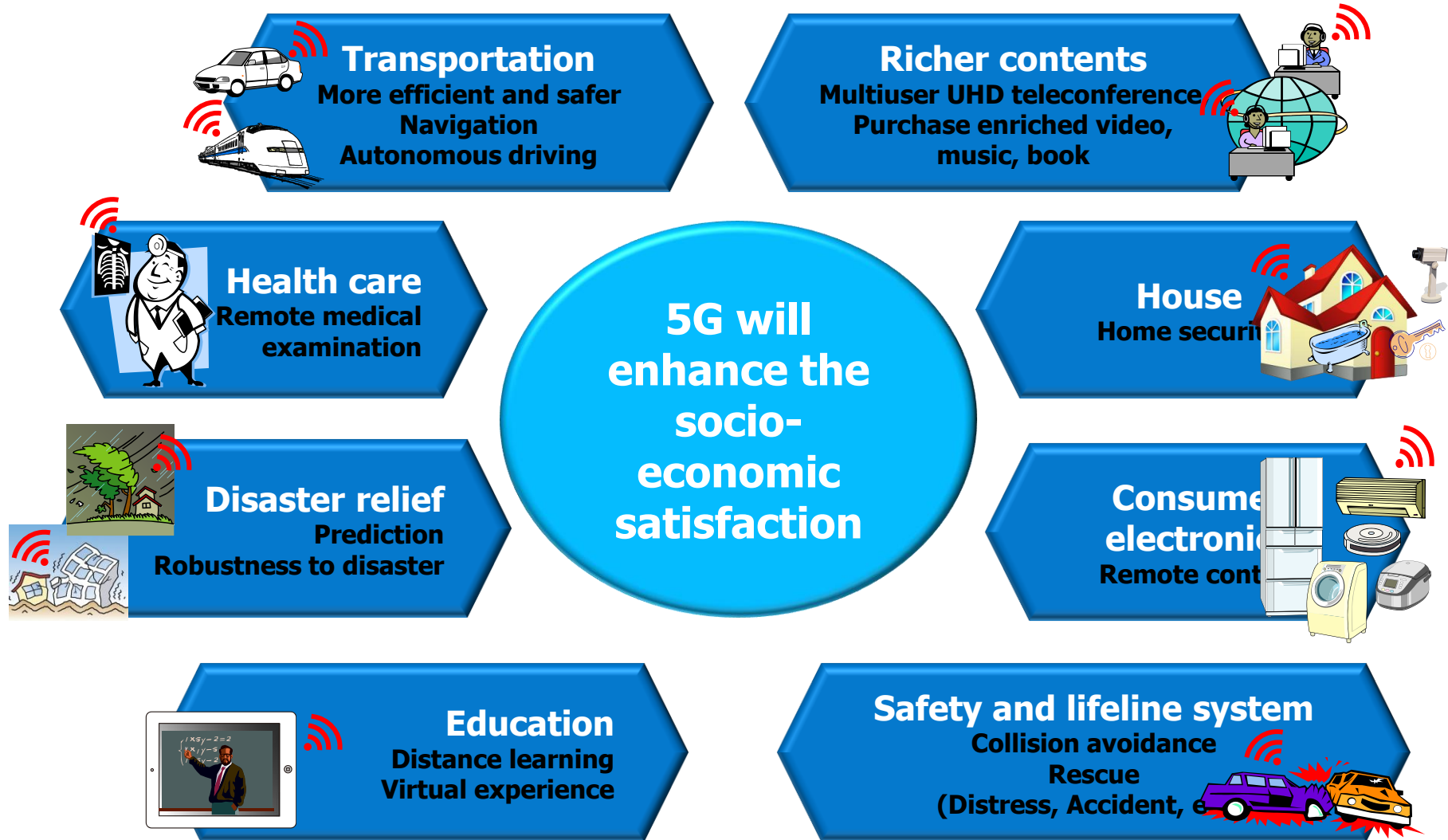
Wide variety of applications, thereby fostering every industry innovation

supporting flexible life styles



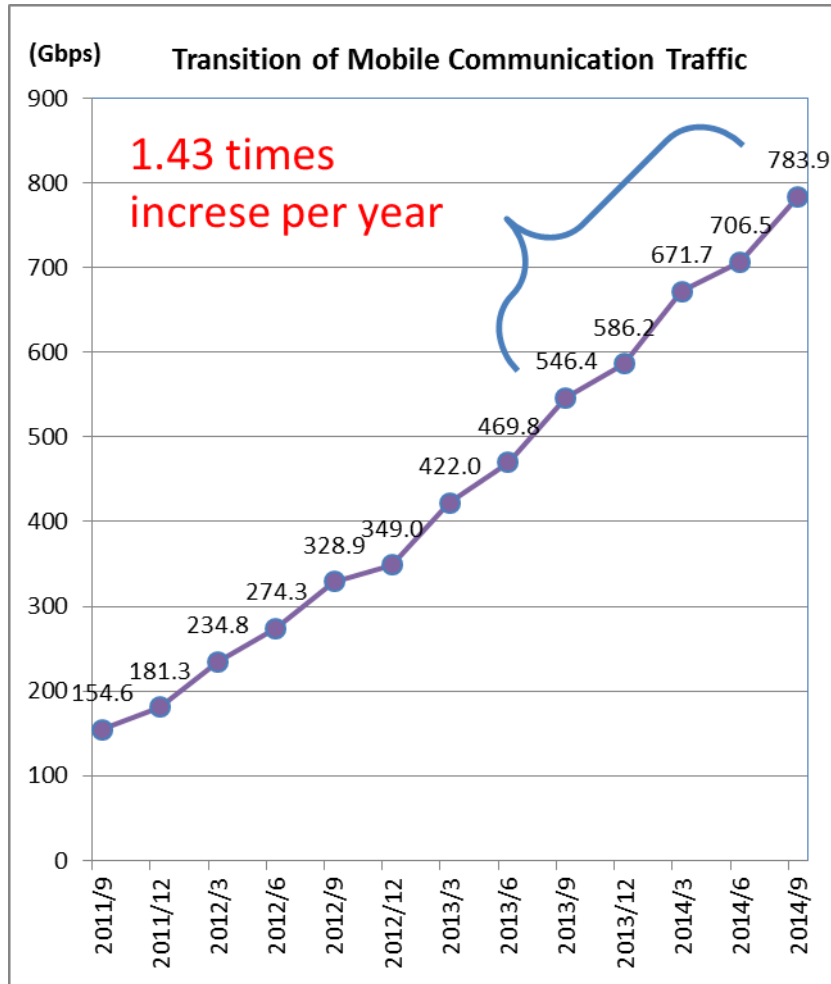
Serve numerous socio-economic requirements (Disaster prevention, Medical Care, Energy saving, Environmental problem)

Typical usage scenarios of 5G



"Mobile Communications Systems for 2020 and beyond", ARIB 2020 and Beyond Ad Hoc Group White Paper, October 2014.

Traffic trend of mobile communication



- 1.5~2.0 times increase trend per year

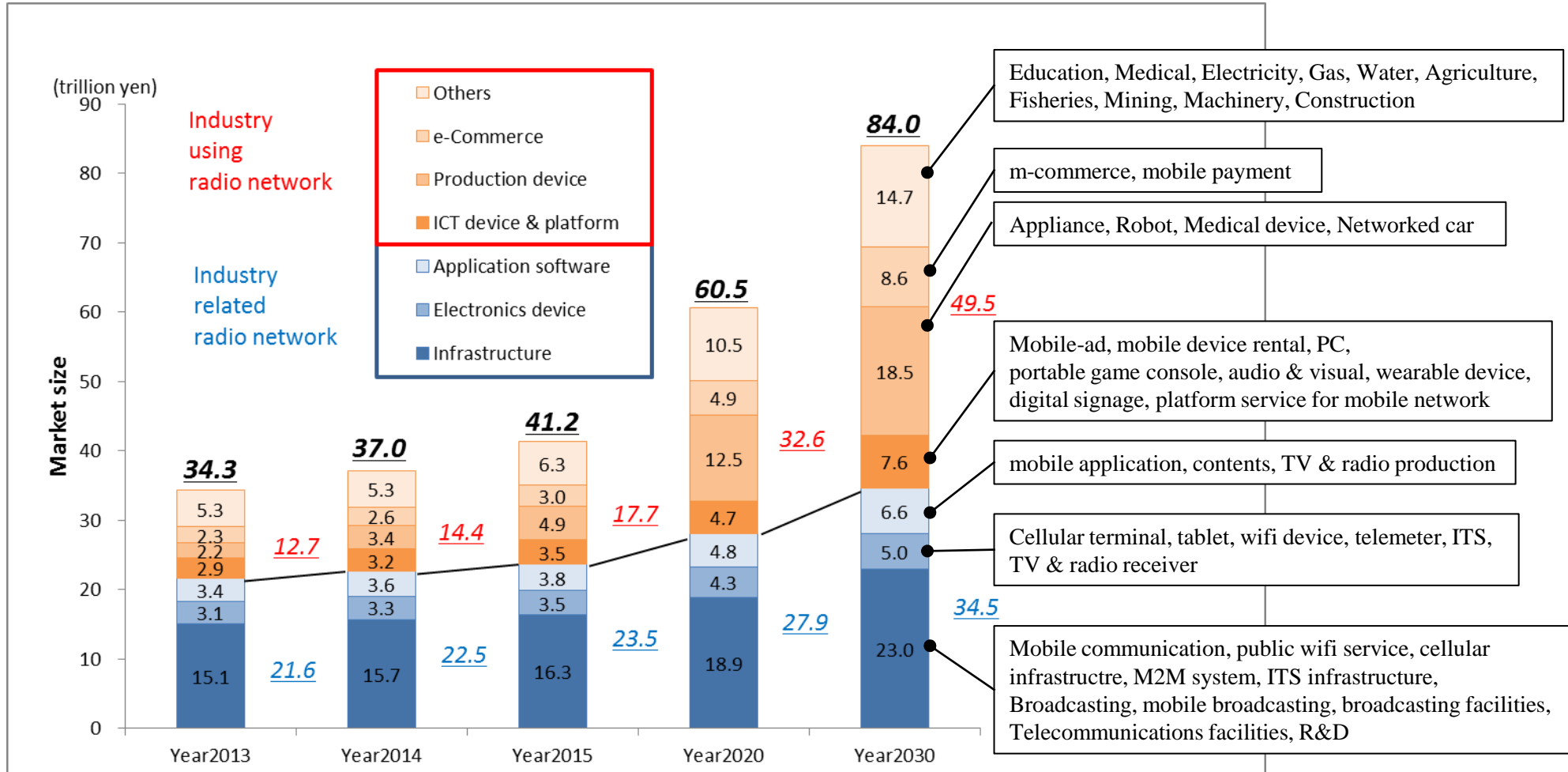


In case factor of 2.0 times,

- 1,000 times increase within 10 years!!

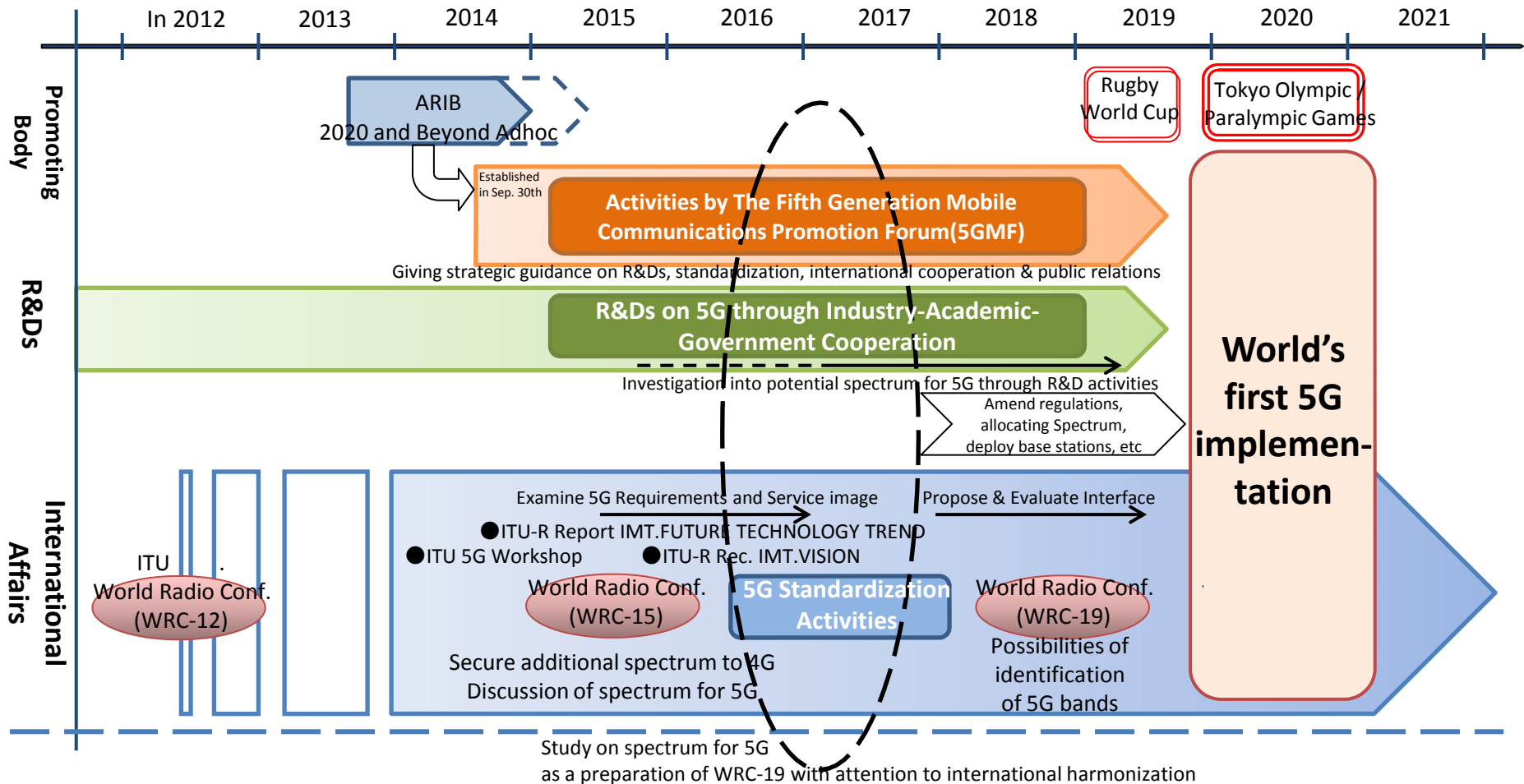
Translated from "Final Report from the Radio Policy Vision Council", Ministry of Internal Affairs and Communications, Japan, December 2014.

Industrial market size forecast relating to radio network

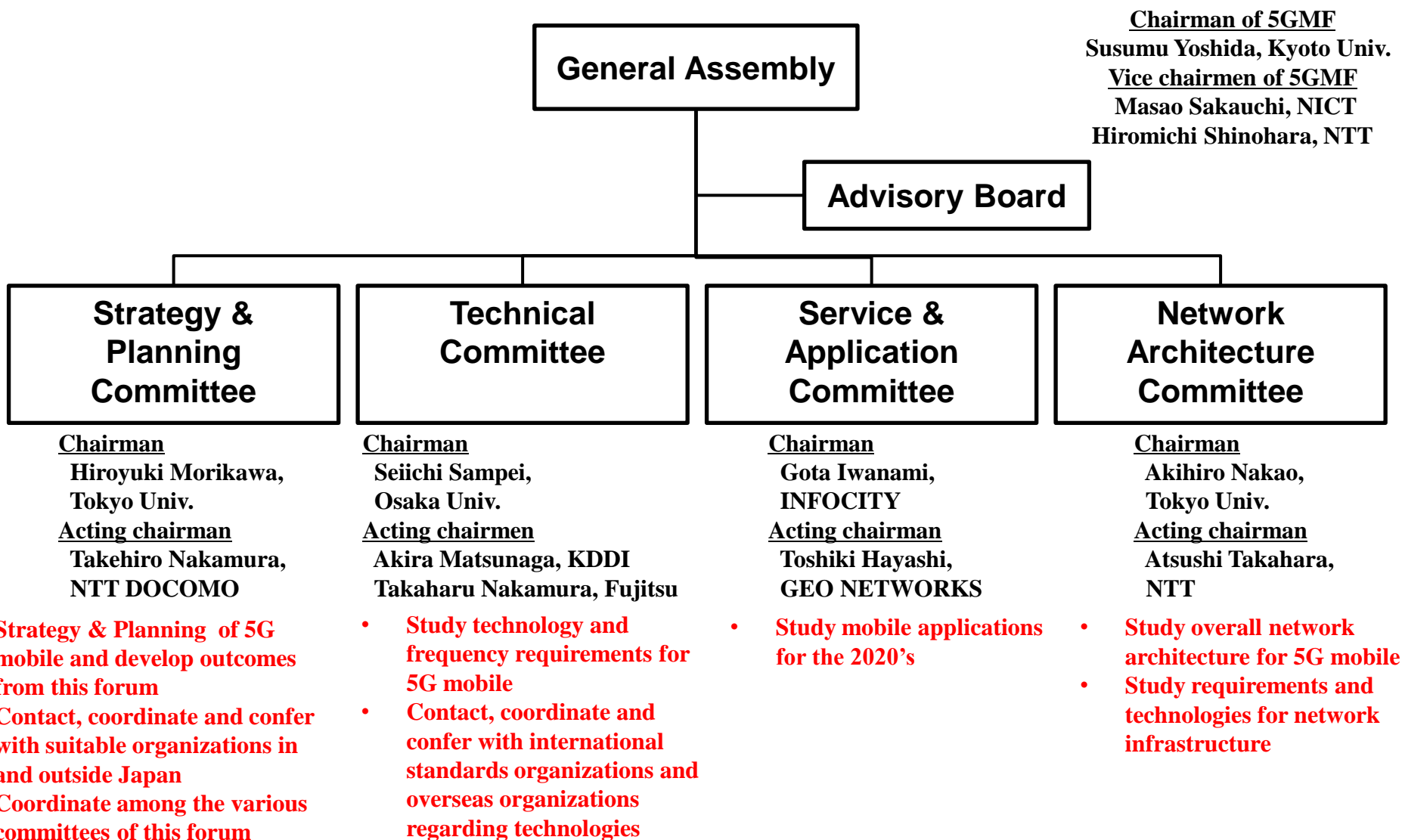


Excerpted from "Final Report from the Radio Policy Vision Council", Ministry of Internal Affairs and Communications, Japan, December 2014 presented by Mitsubishi Research Institute, Inc..

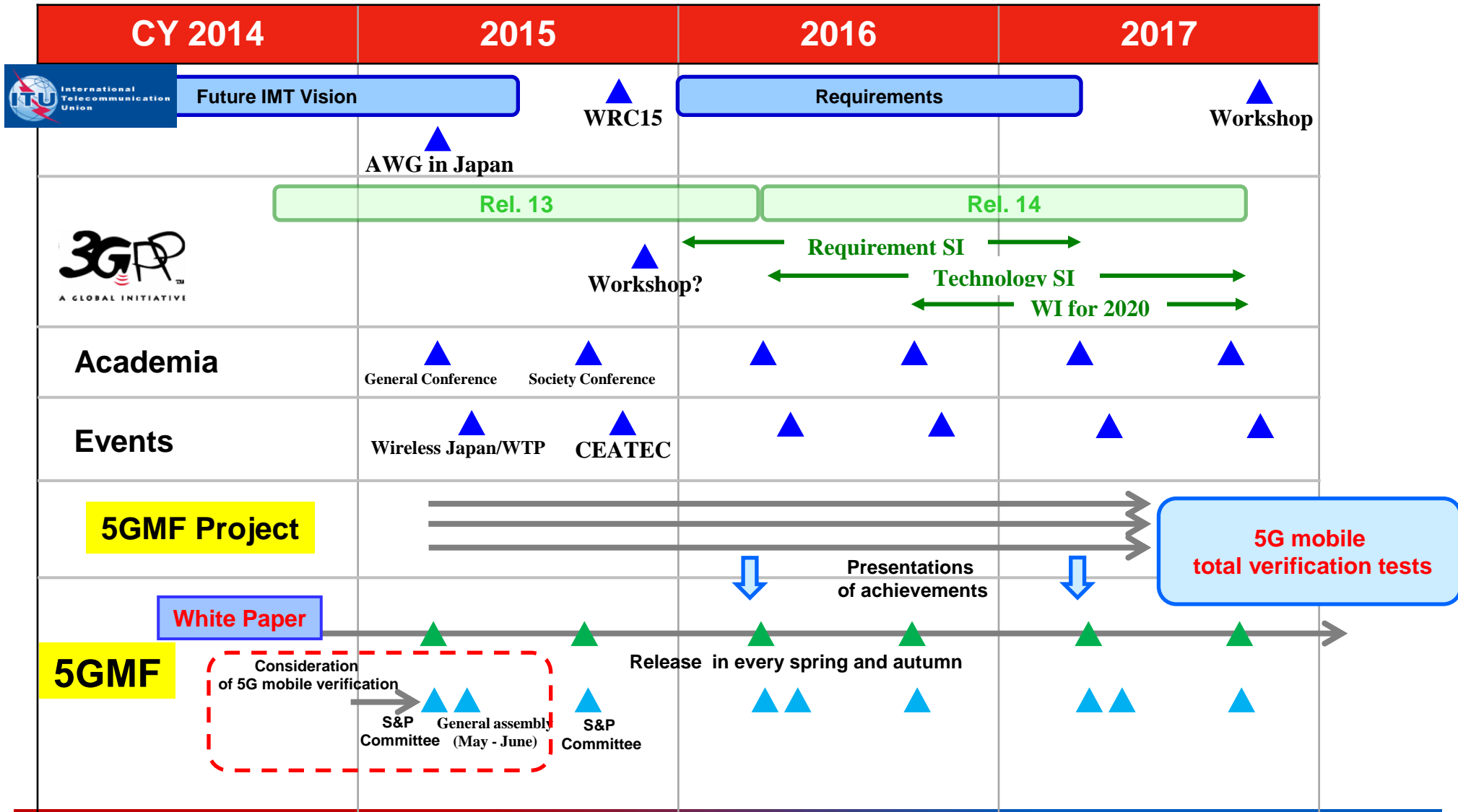
Roadmap towards implementation of 5G mobile in Japan



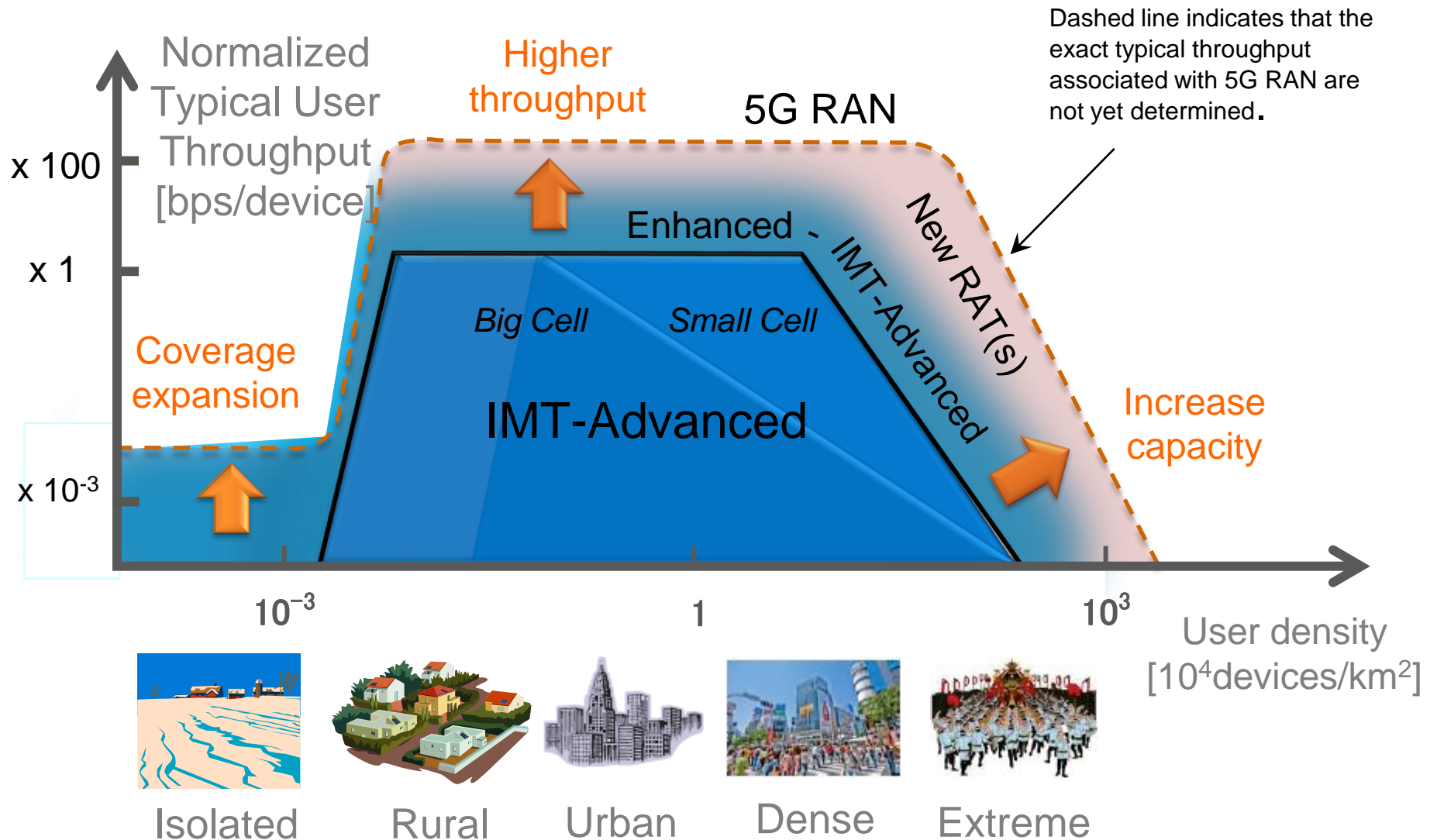
Translated from "Final Report from the Radio Policy Vision Council", Ministry of Internal Affairs and Communications, Japan, December 2014.



Mid-term activities plan of 5GMF

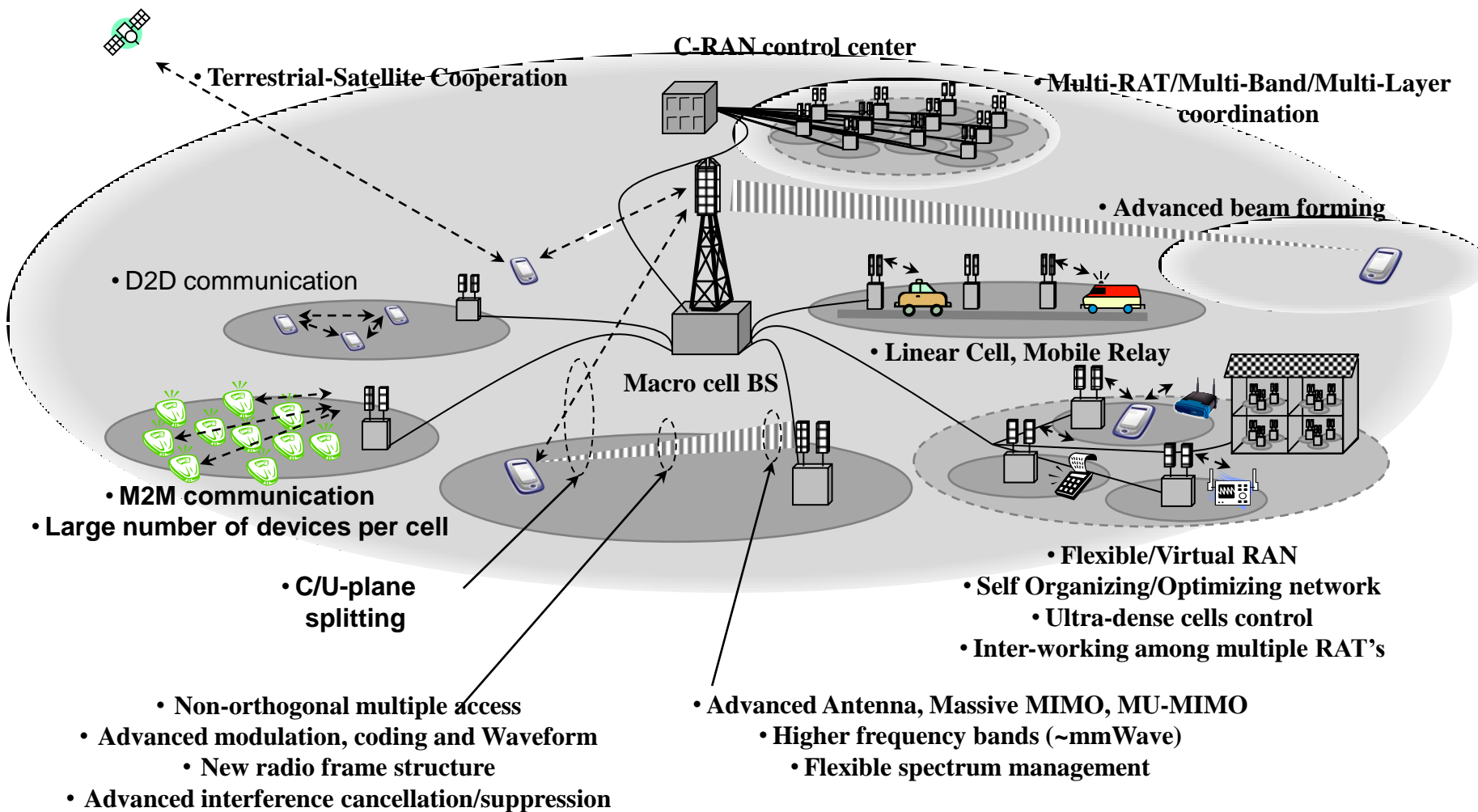


Framework for 5G RAN



"Mobile Communications Systems for 2020 and beyond", ARIB 2020 and Beyond Ad Hoc Group White Paper, October 2014.

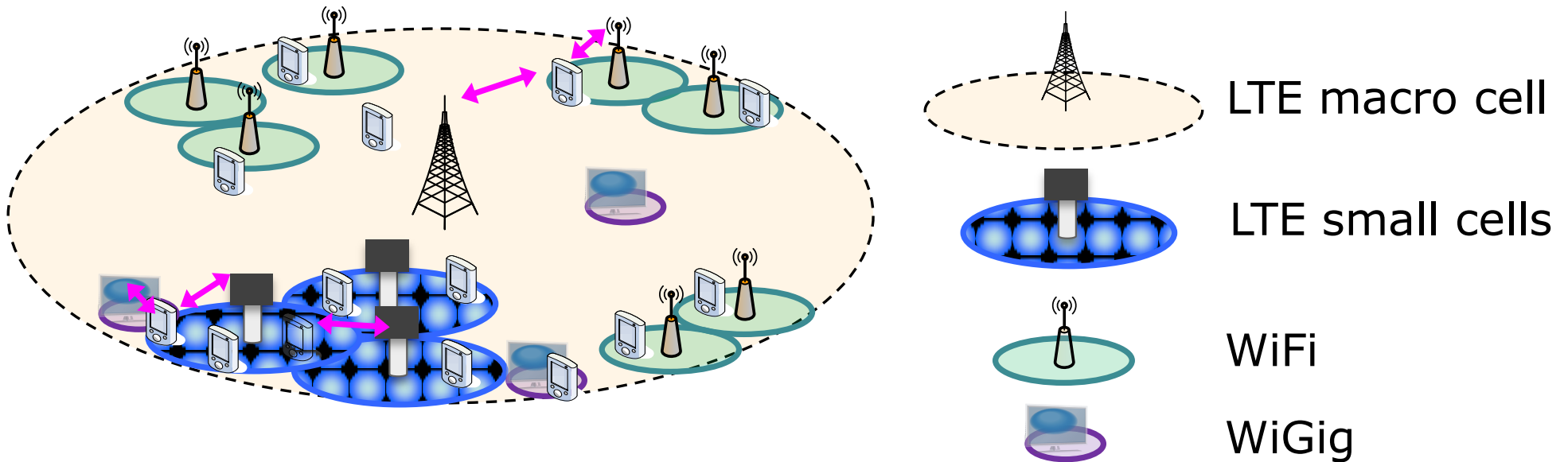
Radio Access Technologies for 5G mobile



"Mobile Communications Systems for 2020 and beyond", ARIB 2020 and Beyond Ad Hoc Group White Paper, October 2014.

Heterogeneous network

- Heterogeneous network including different types of RATs



"Mobile Communications Systems for 2020 and beyond", ARIB 2020 and Beyond Ad Hoc Group White Paper, October 2014.

The 5GMF will strive to make contributions to the research and development and standardization of the 5G mobile communications system in collaboration with other related organizations.

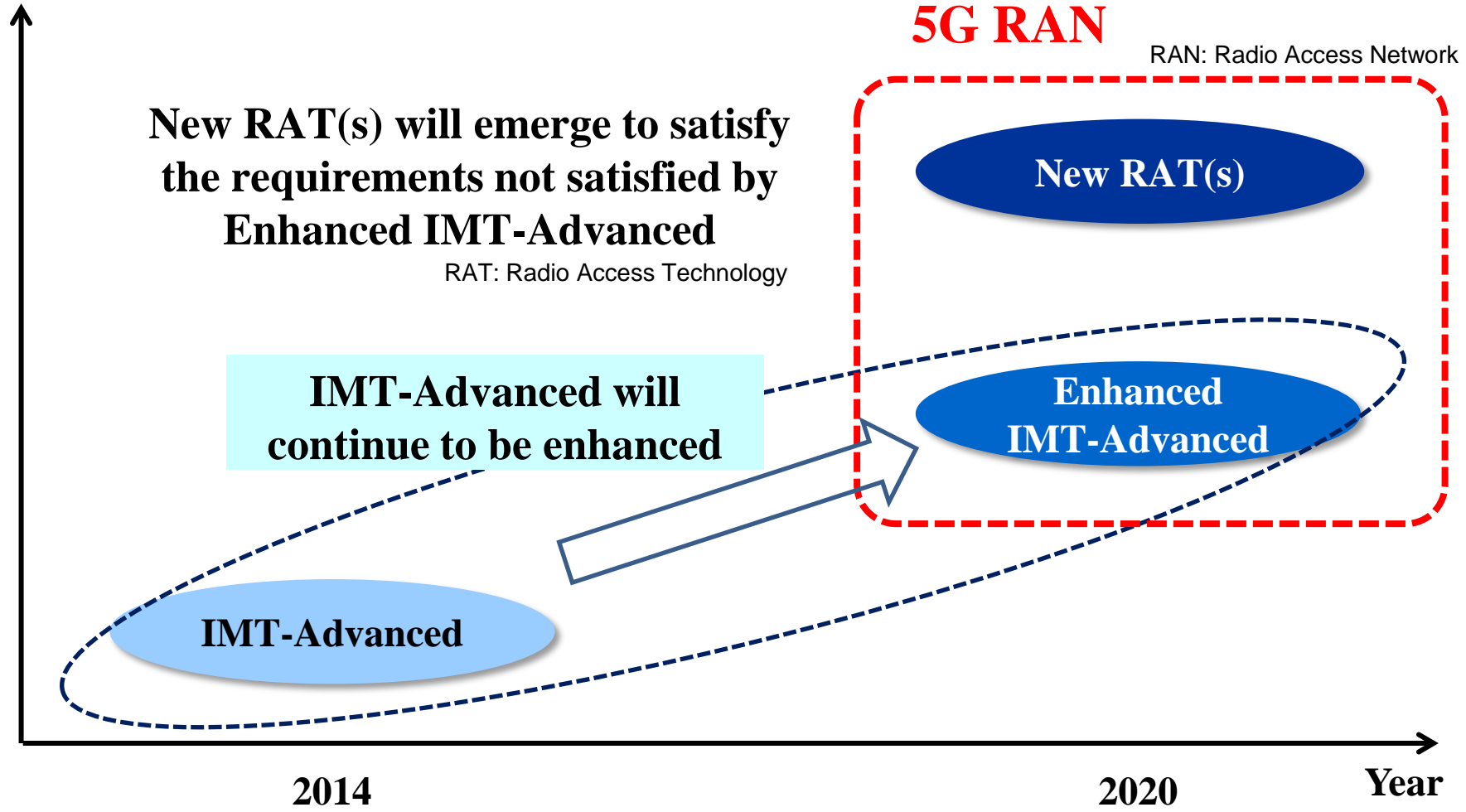
Please visit to http://5gmf.jp/index_e.html

Appendix

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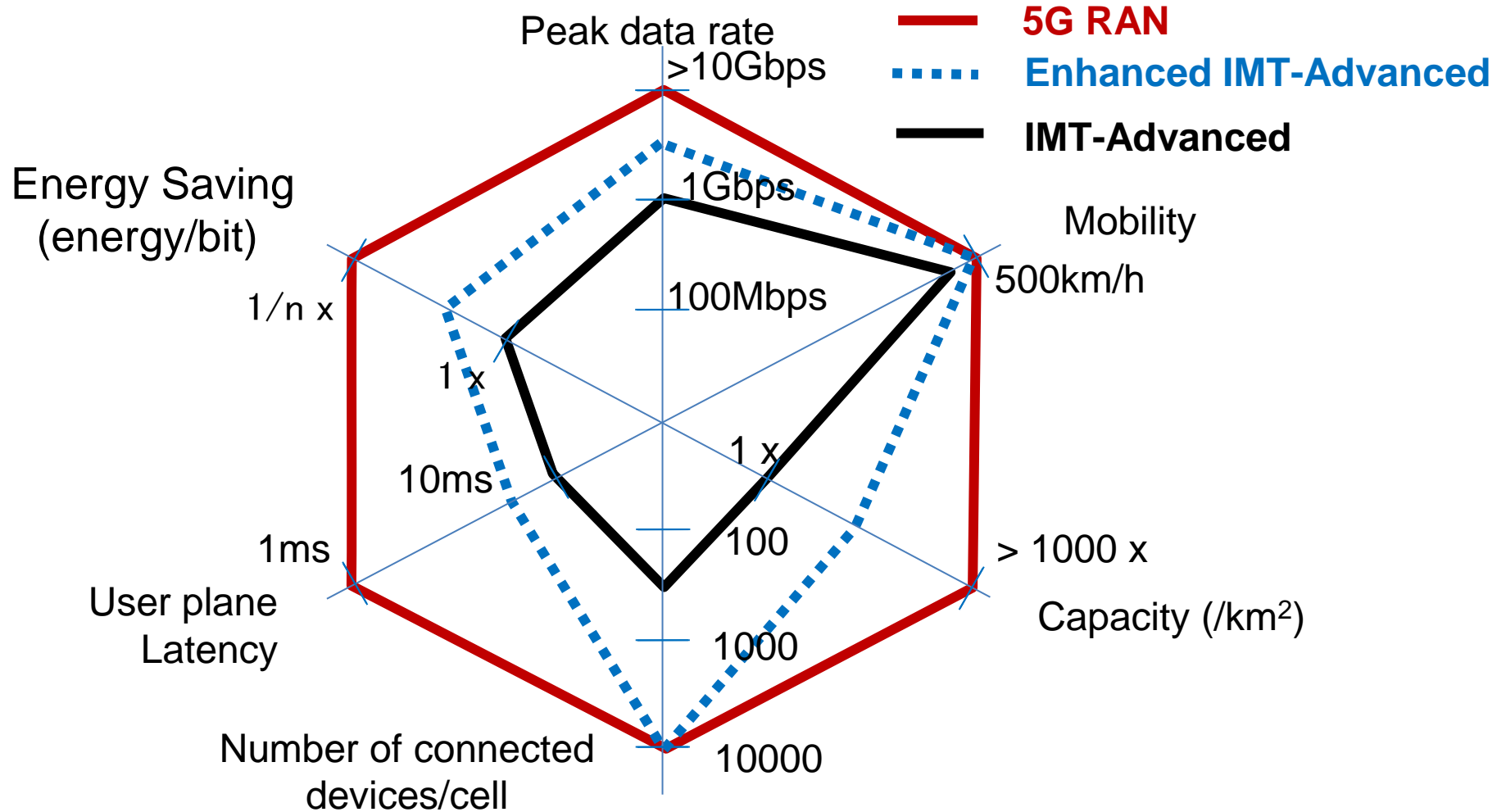
Road to 5G mobile

Evolution



"Mobile Communications Systems for 2020 and beyond", ARIB 2020 and Beyond Ad Hoc Group White Paper, October 2014.

Maximum system capabilities(1)

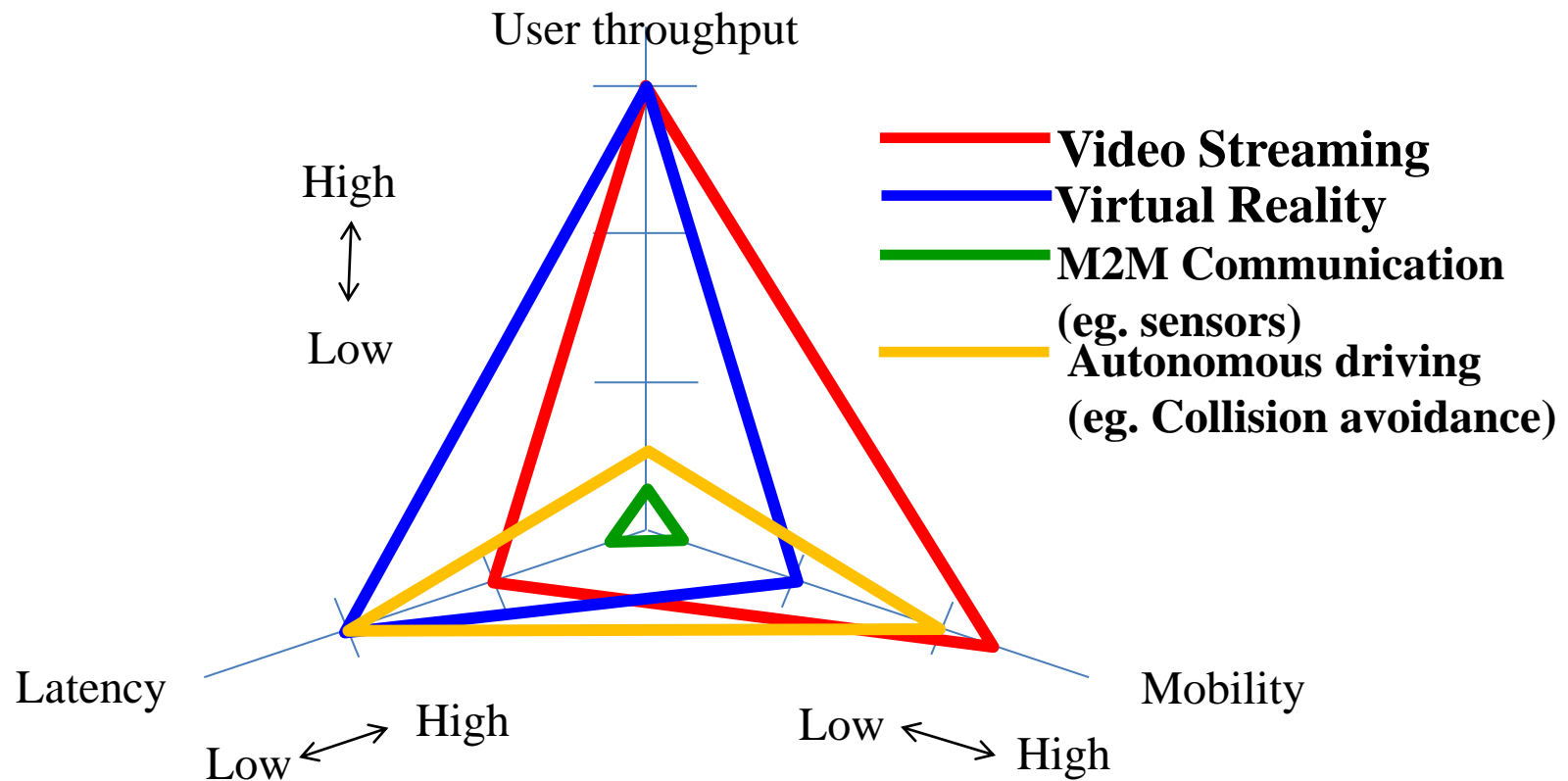


"Mobile Communications Systems for 2020 and beyond", ARIB 2020 and Beyond Ad Hoc Group White Paper, October 2014.

Maximum system capabilities(2)

Required capabilities vary depending on applications from a user perspective.

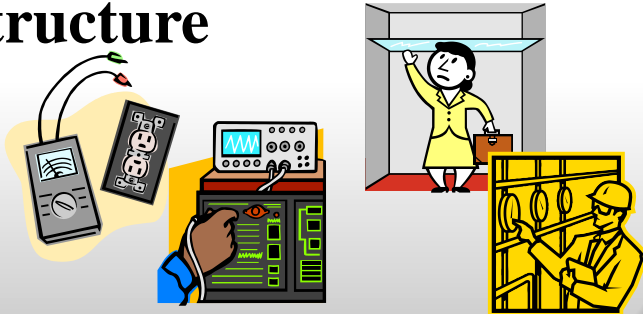
Efficient use of resources will be desirable.



"Mobile Communications Systems for 2020 and beyond", ARIB 2020 and Beyond Ad Hoc Group White Paper, October 2014.

5G mobile is expected to cope with a huge amount of data from a wide variety of applications, thereby fostering every industry innovation, e.g. M2M

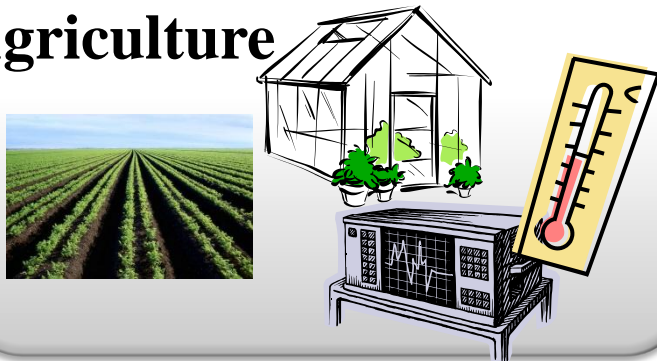
Structure



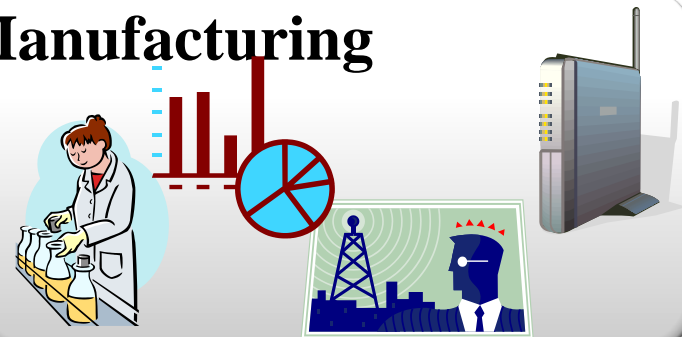
Healthcare



Agriculture



Manufacturing



5G mobile is expected to support flexible life styles

- e.g. working, learning, shopping
- creating community and interest group



5G mobile is expected to serve numerous socio-economic requirements in order to address

- Disaster prevention and relief
- Super-aging society - Medical/Health Care, Nursing Care
- Resource problems e.g. energy saving
- Environmental problem

