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5G: the new hype?

Presented by: Inês Nolasco*

ITU Expert & Senior Legal and Regulatory Advisor, Vodafone Portugal

** The views expressed herein are purely personal*



A 5G hype?

The forces of 5G

The next generation of wireless technology is ready for take-off



Whizzy 5G tech has everything going for it barring a strong business case



FINANCIAL TIMES

VISIT FT.COM FASTFT MARKETS DATA

Superfast 5G promises to be a game-changer for humanity

Fully connected societies will share intelligence — and travel in driverless cars



Remote control: surgeons in China use a robot to remove a tumour from a patient



February 7, 2018 5:01 am by Jonathan Margolis

What has been your experience of wireless internet? I would guess you rate WiFi as "sometimes OK" and mobile data as

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NTT DOCOMO takes a co-creation approach to 5G

08 DEC 2017

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PARTNER FEATURE: Japan's largest mobile operator NTT DOCOMO, INC. is gearing up for one of the world's earliest and most high-profile 5G launches, targeting commercial deployment in time for the 2020 Summer Olympics in Tokyo. But behind the scenes the company is going to great efforts to ensure that a whole range of new markets benefit from its 5G strategy. Dr. Hiroshi Nakamura, CTO of NTT DOCOMO, talks about how to make 5G a reality.

5G: What is it, and why do you say we need it? Separating ridiculous vendor hype from hard reality

"5G is currently many things to many people" and other deflating industry flim-flam



5G - a whole extra G more than 4G. You dig?

Towards 5G

The "fifth generation" of telecommunications systems, or 5G, will be the most critical building block of our "digital society" in the next decade. Europe has taken significant steps to lead global developments towards this strategic technology.



Videos | Telecom | Wireless

6 May 2017 | 13:00 GMT

5G Bytes: Millimeter Waves Explained

High-frequency millimeter waves will greatly increase wireless capacity and speeds for future 5G networks

By Amy Nordrum, Kristen Clark and IEEE Spectrum Staff

SUSAN CRAWFORD BACKCHANNEL 08.11.16 12:00 AM

THE NEXT GENERATION OF WIRELESS — "5G" — IS ALL HYPE.

5G IS JUST A MARKETING TERM. THE CONNECTIVITY WE CRAVE — CHEAP, FAST, UBIQUITOUS — WON'T HAPPEN WITHOUT MORE FIBER IN THE GROUND.

“ Virginia Woolf talked about a day when ‘human character’ changed. The impact of this could be humanity fundamentally evolving ”

Asha Keddy

intel | OLYMPIC WORLDWIDE PARTNER

EXPERIENCE THE OLYMPIC GAMES IN 5G

Together with partners, Intel is bringing the power of 5G to life at The Olympic Winter Games. For the first time ever, the unlimited potential of next generation connectivity will be on full display bringing attendees in South Korea experiences from the greatest athletes on earth.

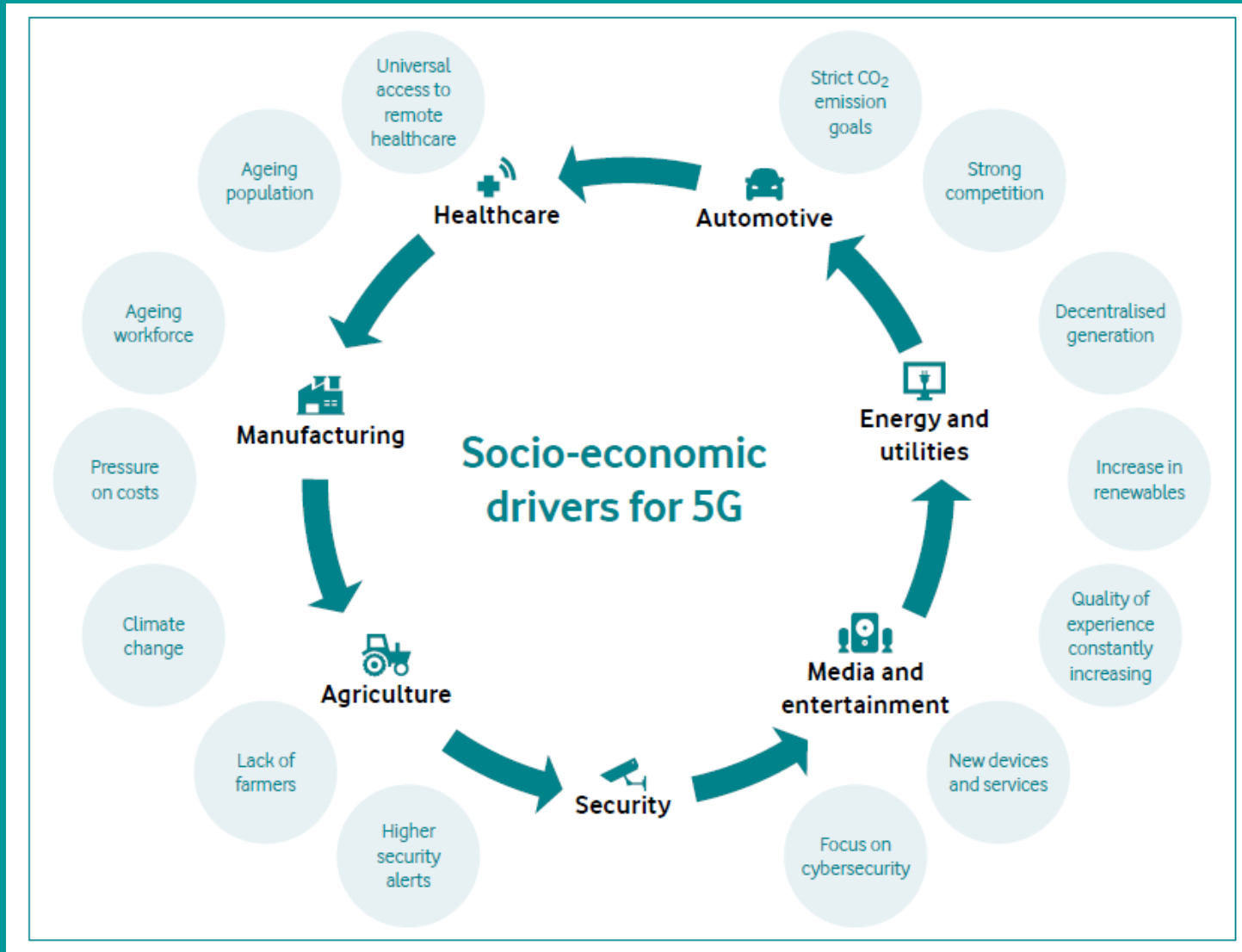


Contents



- What is 5G and why do we need it? Drivers, use cases, main pillars & requirements
- Spectrum needs & standardisation
- EU initiatives - 5G PPP & 5G EU Action Plan
- Policy Recommendations

Socio-economic drivers for 5G



In: Creating a Gigabit Society –The role of 5G, Arthur D. Little for Vodafone Group Plc, 2017

5G use cases

FACTORIES OF THE FUTURE

- 1 Time-critical process control
- 2 Non time-critical factory automation
- 3 Remote control
- 4 Intra/Inter-enterprise communication
- 5 Connected goods

ENERGY

- 1 Grid access
- 2 Grid backhaul
- 3 Grid backbone

e-HEALTH

- 1 Assets and interventions management in Hospital
- 2 Robotics
- 3 Remote monitoring
- 4 Smarter medication

MEDIA & ENTERTAINMENT

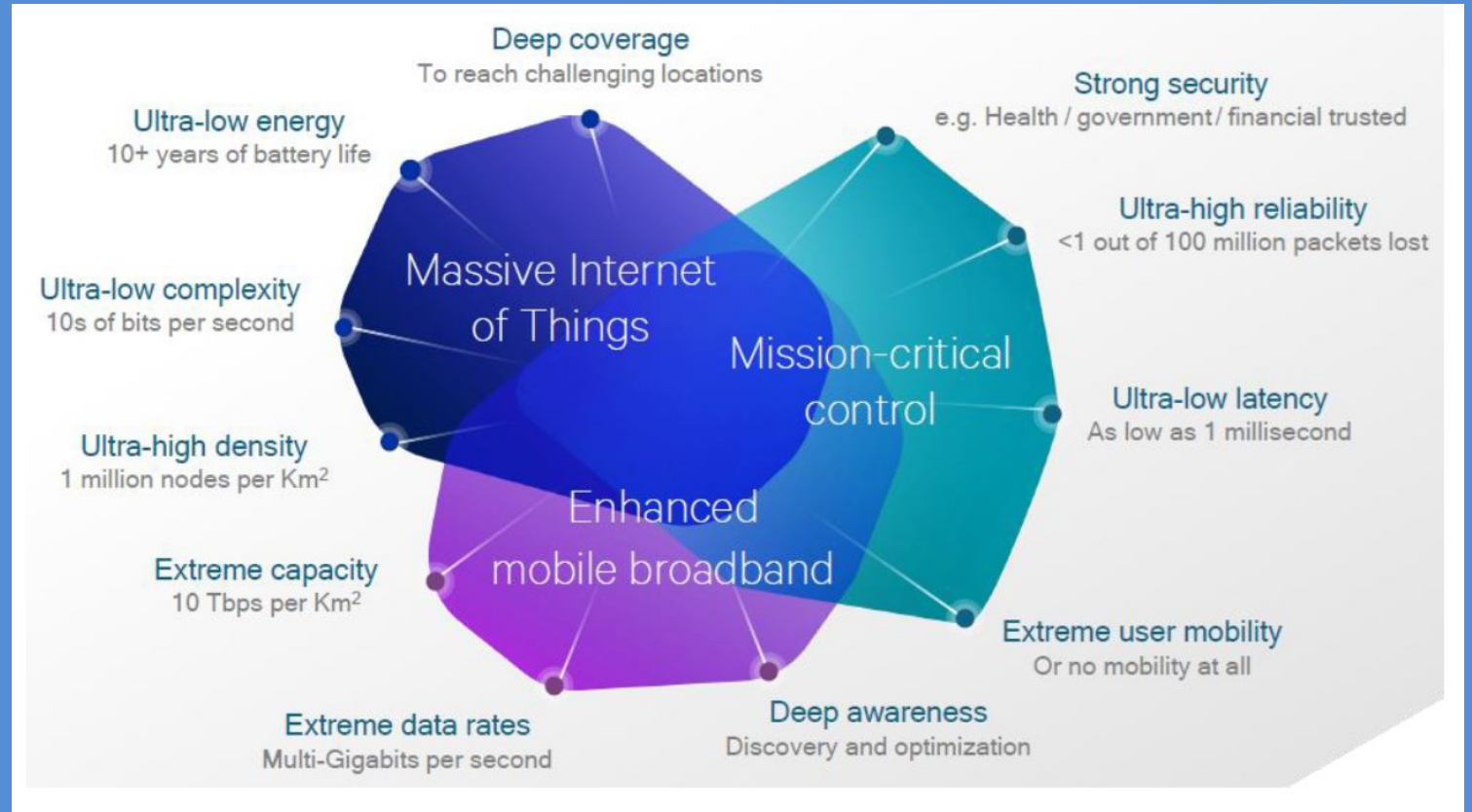
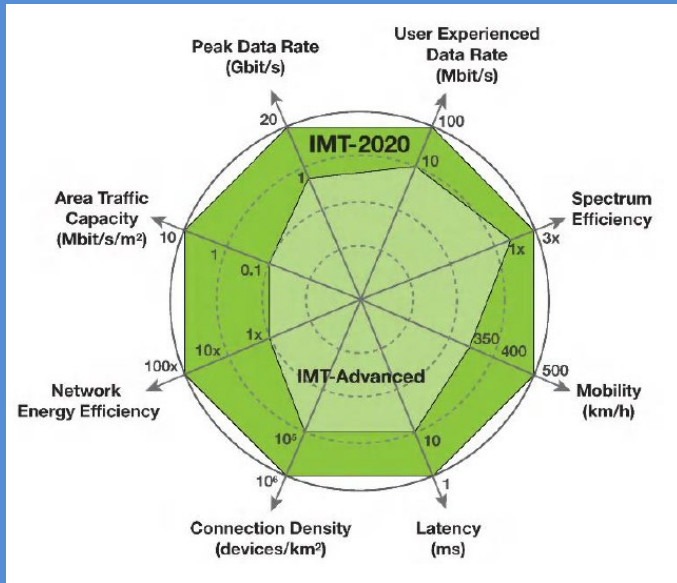
- 1 Ultra High Fidelity Media
- 2 On-site Live Event Experience
- 3 User/Machine Generated Content
- 4 Immersive and Integrated Media
- 5 Cooperative Media Production
- 6 Collaborative Gaming

AUTOMOTIVE

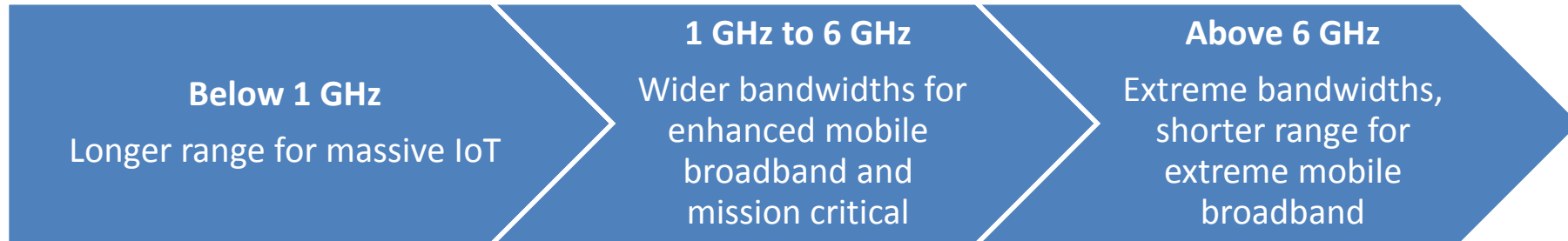
- 1 Automated driving
- 2 Share My View


- 3 Bird's Eye View
- 4 Digitalization of Transport and Logistics
- 5 Information Society on the road

5G main pillars & requirements



5G spectrum needs



- EU RSPG identified 5G pioneer bands:
 - 3.4-3.8 GHz – first primary band for 5G; can be used to provide high capacity and coverage
 - 26 GHz - pioneer band above 24 GHz, bring ultra-high capacity for innovative new services/areas with high-demand (e.g. entertainment venues, industrial sites)
 - 700 MHz and other harmonized bands below 1GHz – enable coverage to all areas
- WRC-19 will define 5G bands above 6 GHz
-  New Radio (NR) specifications adopted in December 2017





The 5G Infrastructure Public Private Partnership

- Created in 2013 under the Horizon 2020 Research and Innovation Programme.
- EU flagship initiative to accelerate research and innovation developments in 5G technology. Implementation of a set of strategic industry-led projects.

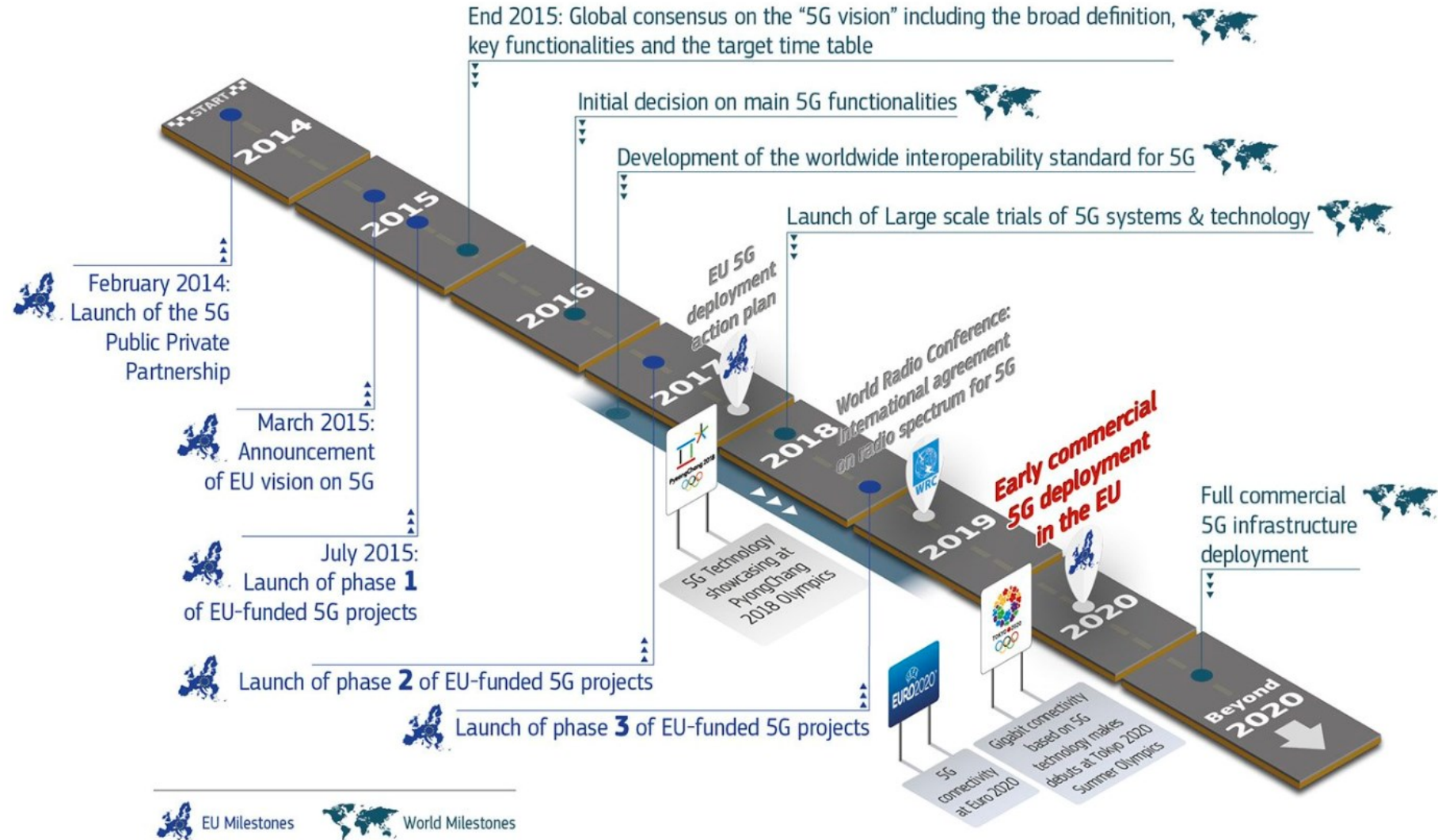
5G Infrastructure PPP: The next generation of communication networks will be “Made in EU”.

- Building the foundations of the next decade communications networks
- Addressing the future “connectivity” needs in key societal and economic domains
- Boosting European industrial leadership in telecommunications



- Joint initiative by EU Commission & ICT industry (manufacturers, telcos, service providers, SMEs and researcher institutions -166 stakeholders).
- EU funding: € 700 million leveraging € 3.4 billion from the private sector between 2014 and 2020.

5G roadmap



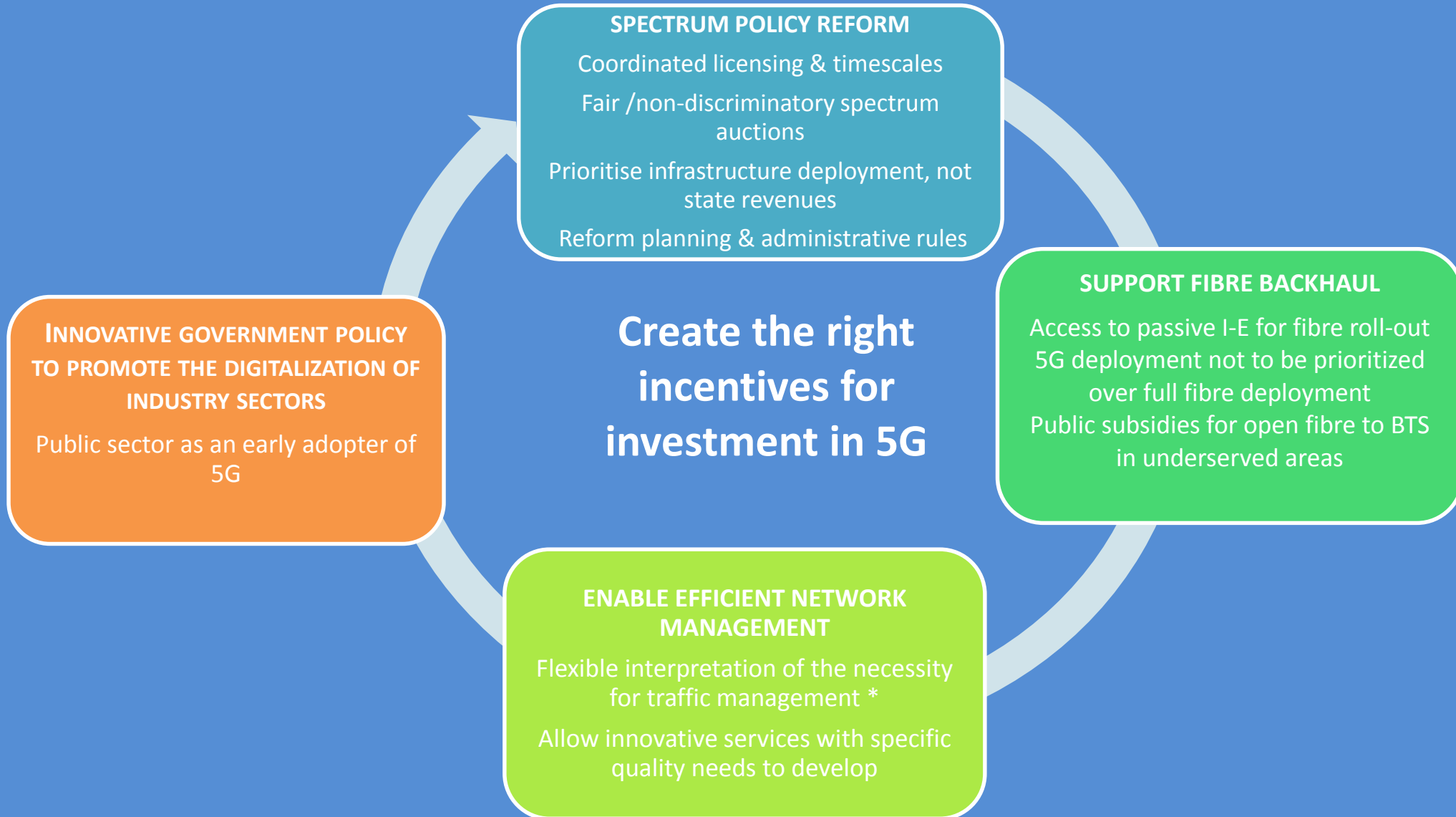
5G for Europe Action Plan (2016)



- Keeping the EU ahead in the 5G race – foster adequate **coordination**, build momentum for **investment** in 5G networks and create **innovative ecosystems**
- Key elements:
 - **Common EU timetable for the introduction of 5G** - Align roadmaps and priorities for coordinated 5G deployment: early network introduction by 2018, commercial large scale introduction by end 2020.
 - **Promote early deployment in major urban areas and along major transport paths** – address interplay between fibre and wireless deployment requirements and increase consistency of administrative conditions/timeframes to facilitate denser cell deployment
 - **Make provisional spectrum bands available for 5G ahead WRC-19**, to be complemented by additional bands asap. Work towards a recommended approach for the authorisation of the specific 5G spectrum bands above 6 GHz.
 - Promote **pan-European multi-stakeholder trials** as catalysts to turn technological innovation into full business solutions.
 - Facilitate the implementation of an **industry-led venture fund in support of 5G-based innovation**.
 - Unite leading actors in working towards the **promotion of global standards**.



A few policy recommendations (EU)



Conclusions



- There is a hype around 5G. Not there yet but developments under way (trials, standardisation, spectrum). The EU wants to lead having set deployment objectives and made financing available.
- Policy and regulation have a fundamental role in ensuring that 5G effectively materializes. ROI is key. Governments to prioritise infrastructure deployment, not state revenues.
- Fibre backhaul essential for 5G - ensure access to passive infrastructure to facilitate fibre deployment.



Thank you!

Key bibliography

- *Creating a Gigabit Society –The role of 5G*, Arthur D. Little for Vodafone Group Plc, 2017
- EC Communication: *5G for Europe: An Action Plan & Staff working document*, 14.09.2016
- EC Study on spectrum assignment in the European Union, 2017
- 5GPPP documents – available at: <https://5g-ppp.eu/>