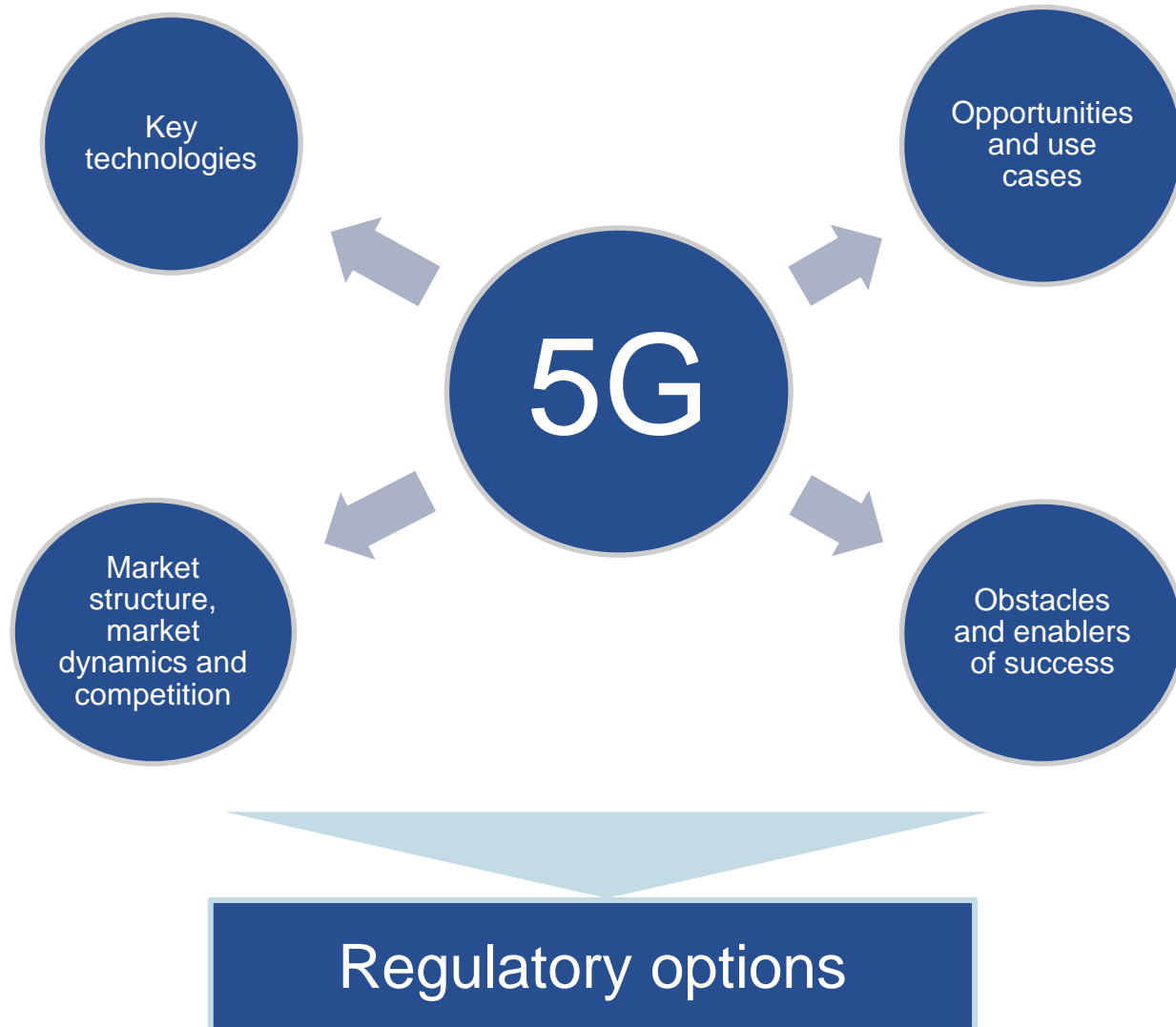


# Study on Implications of 5G Deployment on Future Business Models

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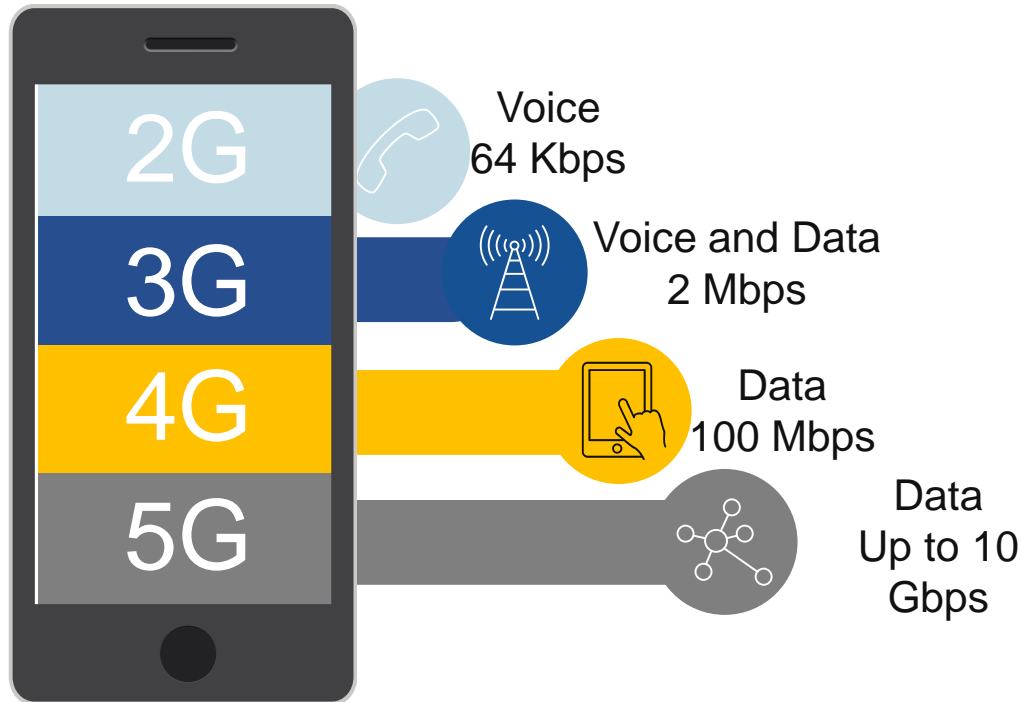
BEREC Plenary

Bratislava, 7 March 2018



# 5G opportunities and use cases

In the timeframe of this study



## Healthcare

Remote surgery,  
smart medication



## Manufacturing & Logistics

Remote control,  
connected workers



## Automotive

Automated driving,  
car platooning



## Agriculture

Distributed sensors,  
crop monitoring



## Energy & Utilities

Grid monitoring,  
control applications



## Media & Entertainment

Augmented reality  
Virtual reality

Enhanced MBB

The diagram consists of a dark blue arrow pointing right, containing the text 'Enhanced MBB'. This arrow points into a white arrow pointing right, containing the text 'Differentiated services'. A vertical line extends from the bottom of the 'Enhanced MBB' arrow down to a light blue box containing a bulleted list.

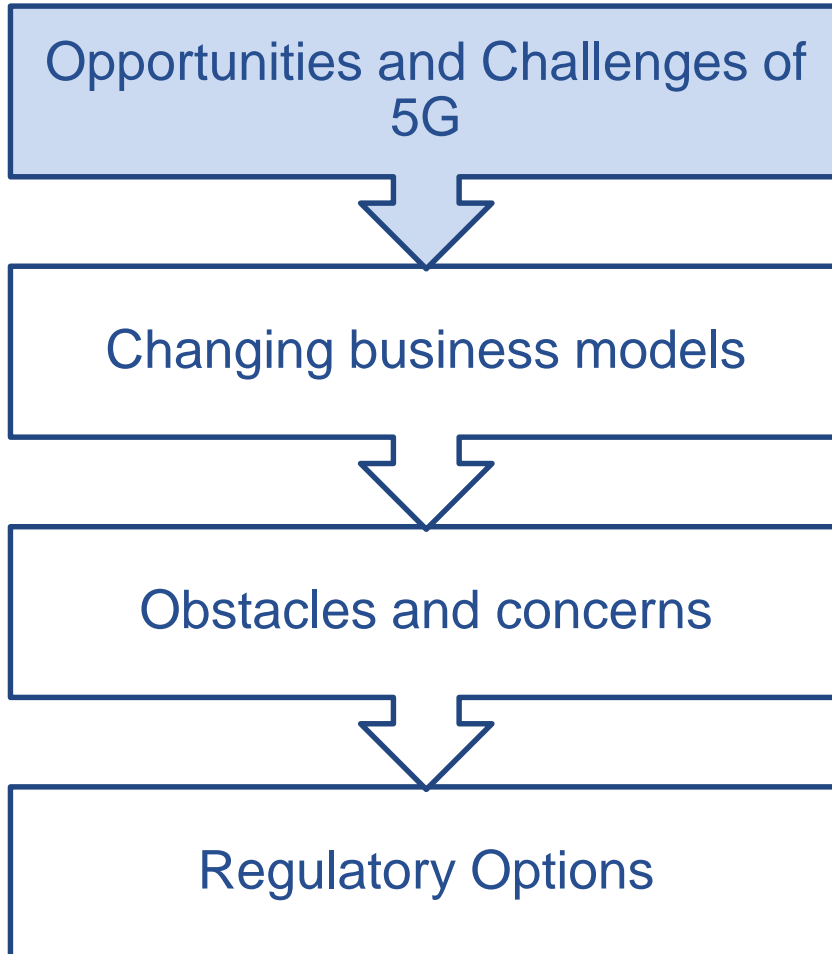
Differentiated services

- Willingness to pay for enhancement?
- Network costs of meeting data growth
- Competitive quality of service

Enhanced MBB

Differentiated services

- Agile network slicing
- Pricing structures for new uses?
- Willingness to pay and fall back connectivity?



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Network slicing

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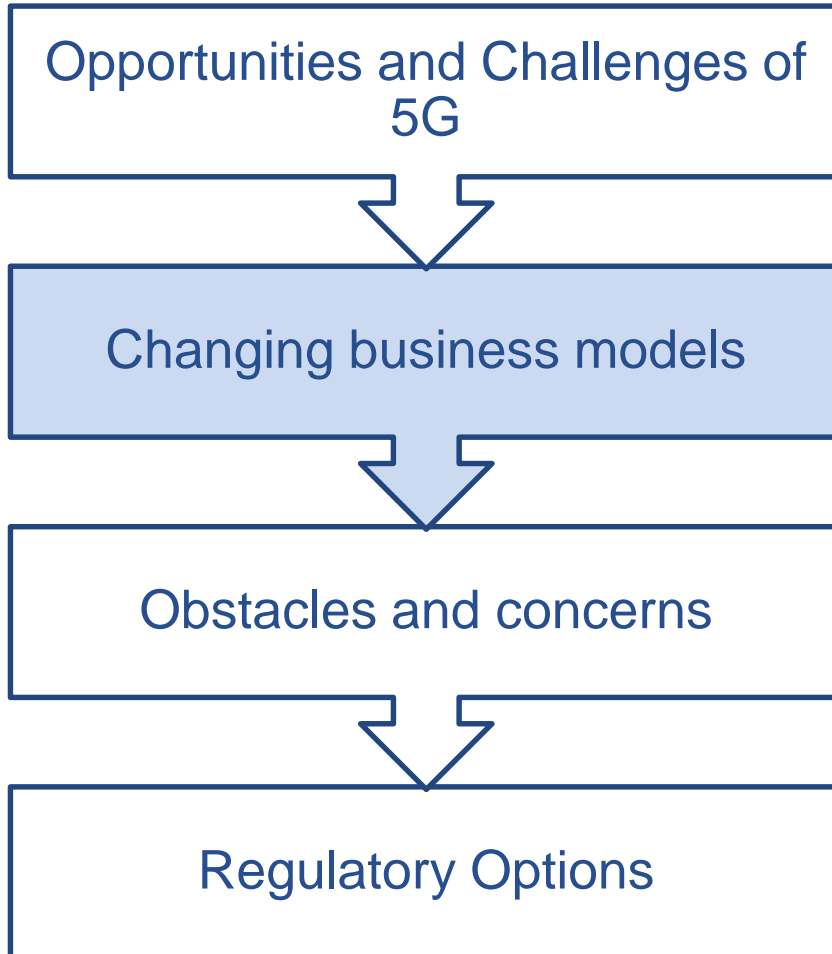
Network densification

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Growing market for embedded connectivity

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Synergy across FWA-MNO-PPDR provision



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Differentiation of services

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New pricing models and risk sharing

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New entry to densify networks and infrastructure sharing

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Role for intermediaries to orchestrate different networks

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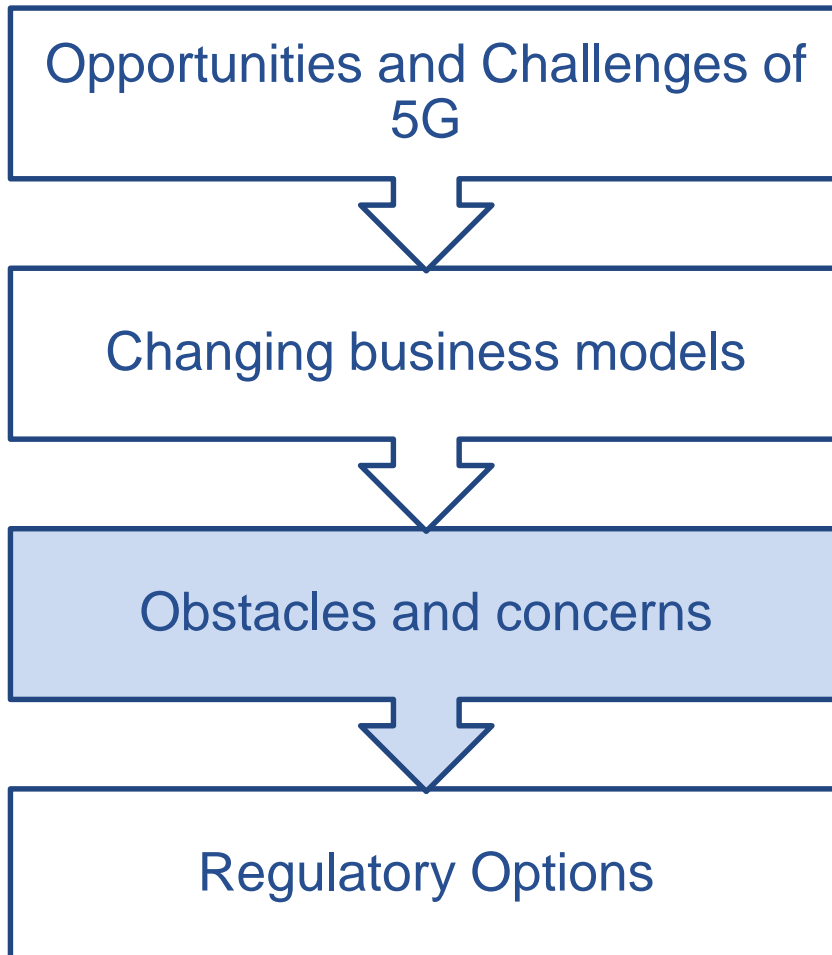
Private networks for verticals

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FWA-MNO-PPDR consolidation

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Low latency edge computing



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Inefficient pricing structures

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Spectrum licensing for private networks

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Site owners trying to extract maximum value

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Lack of backhaul in rural areas

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Competition issues from infrastructure sharing

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Coverage and incentives to develop for 5G

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Network neutrality



## Pivotal site owners

- Exclusive or restrictive arrangements
- Planning and practical constraints
- Public sector site owners

## Access to spectrum

## Coverage

## Competition

## Backhaul

## Edge computing

## Net neutrality

## Sector regulation

Exclusive site owners

Access to spectrum

- Timely spectrum for public networks
- Coordination in bands and licensing model for private networks
- Spectrum awards to allow entry of non-traditional operators

Coverage

Competition

Backhaul

Edge computing

Net neutrality

Sector regulation

Exclusive site owners

Access to spectrum

Coverage

- Roll out in urban areas first
- Mixed connectivity environment
- Differentiated services make defining coverage more difficult

Competition

Backhaul

Edge computing

Net neutrality

Sector regulation

Exclusive site owners

Access to spectrum

Coverage

Competition

- Encouraging private networks and non-traditional entry
- Supply side complementarity between fixed and mobile
- Infrastructure sharing and upstream competition

Backhaul

Edge computing

Net neutrality

Sector regulation

Exclusive site owners

Access to spectrum

Coverage

Competition

Backhaul

- Rural backhaul – synergies with national broadband interventions
- Physical infrastructure access

Edge computing

Net neutrality

Sector regulation

Exclusive site owners

Access to spectrum

Coverage

Competition

Backhaul

Edge computing

- Low latency applications might eventually be important
- Limited by available operators at a given location
- Open standards to avoid switching costs

Net neutrality

Sector regulation

Exclusive site owners

Access to spectrum

Coverage

Competition

Backhaul

Edge computing

Net neutrality

- Regulation does not prohibit network slicing
- Clarity needed on NRA assessment of specialised services
- Burden of proof

Sector regulation

Exclusive site owners

Access to spectrum

Coverage

Competition

Backhaul

Edge computing

Net neutrality

Sector regulation

- Exciting new uses subject to sectoral regulation (e.g. aviation, health)
- Assessing network reliability



## About DotEcon

DotEcon is an economic consultancy offering analytical and empirical support to public sector bodies (including sectorial regulators) and private sector companies, assisting with:

- regulatory proceedings and policy;
- economic and market analysis in competition cases and
- commercial litigation;
- public policy design and impact assessments;
- design of auctions or trading mechanisms and bidder support;

Together DotEcon's consultants provide high-value advice and analysis to governments and leading companies using rigorous microeconomic techniques. DotEcon works for clients across the world, and is involved with many high-profile policy debates and business decisions. We have particular expertise in network industries - such as telecommunications – and in adapting to the new challenges of the digital economy.

## About Axon

Axon Consulting is an international consulting firm providing advisory services to a broad client base in the ICT industries.

We have a well-merited reputation as a world-class leader in helping regulators and service providers achieve strategic and regulatory objectives.

Our most typical engagements include supporting institutional bodies to develop regulatory policy and monitor competition; and advising service providers on business, commercial and regulatory strategy.

Axon Consulting counts with top-class clients, served out of its 7 international offices (Bogotá, Delhi, Dubai, Istanbul, Madrid, Mexico and Miami).