

**How regulation can encourage investments in 5G**  
ITU Regional Seminar 5G implementation in Europe and CIS

# Deloitte activities in telecommunications economics

## Team

- 300 economists around the world working on industrial economics issues
- Sectorial specialists in telecommunications
- Telecom consulting teams in our ~150 countries of presence

## Areas of expertise



### **Regulation**

- Cost modelling
- Relevant markets definition
- Spectrum management and licensing
- Universal service



### **Competition issues**

- Dominant position abuses
- Counter evaluations
- Damages evaluations



### **Prices and observatories**

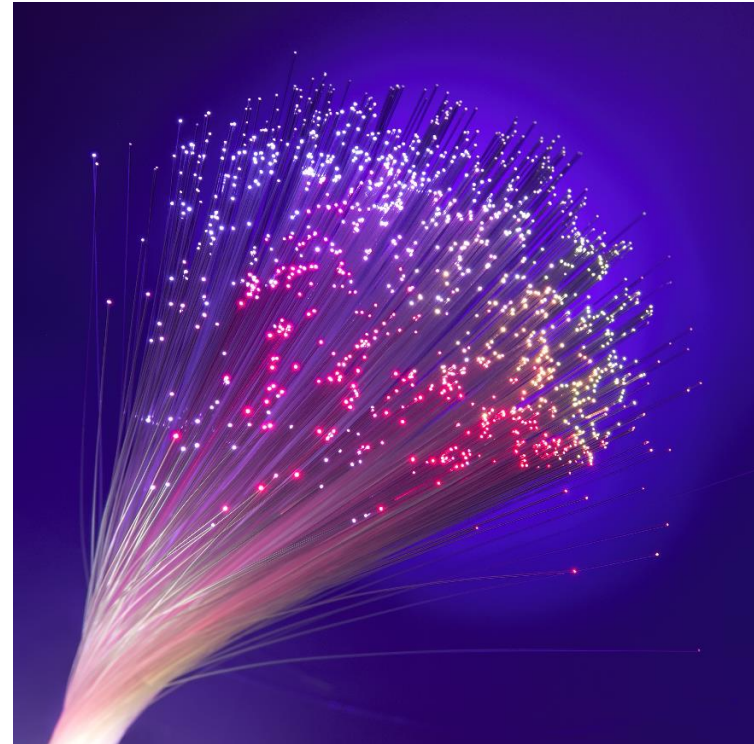
- Market analysis
- Geographical observatories



### **Public policies**

- Tax
- National broadband plans
- Rural areas coverage

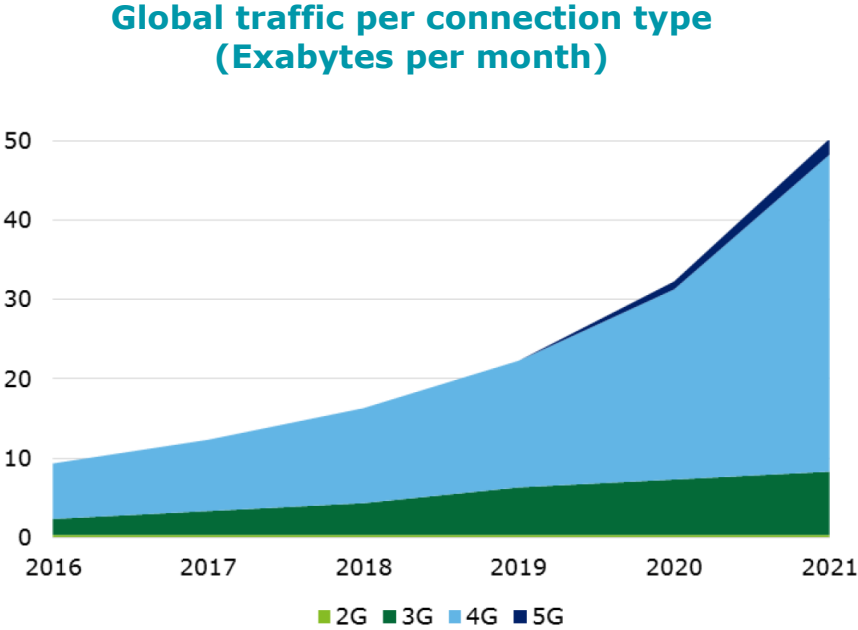
# The 5G case



# The bandwidth requirements will dramatically increase in the next 10 years

The current trend on bandwidth usage **is over 40% per year**

New usages and vertical services will also need even more bandwidth. This will increase even more the need for bandwidth



Source: Cisco 2017

### New usages

- Artificial intelligence and advanced machine learning
- 3D printing and additive manufacturing
- Blockchains and distributed ledgers
- Genomics
- The Internet of Things
- Robotics
- Drones
- Self-driving cars
- Virtual and augmented reality
- Wearables

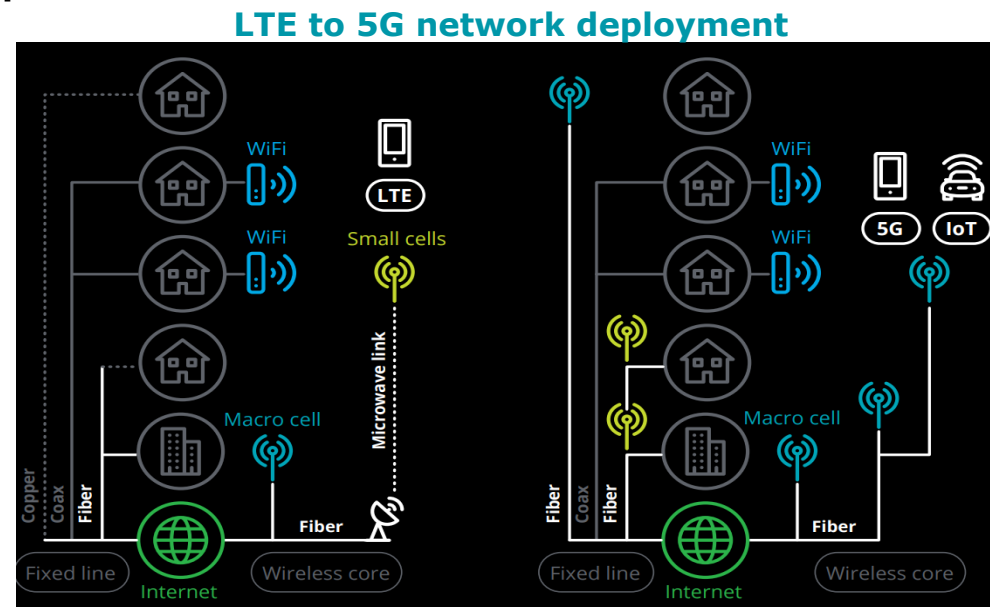
Source: Deloitte

These bandwidth requirements can only be met by important investments in future technologies

Only 5G can keep up the demand on the long term

Unlocking the full potential of 5G rests on a key assumption: **the extension of fiber deep into the network**

**This will require large CAPEX from operators**



Source: Deloitte

**To enable future technologies, an important objective of regulation is to encourage operator's investments in new infrastructures**

# Regulation to encourage investments in 5G



## Enabling investments through regulation

Several aspects of sectorial regulation can leverage operators' investments in 5G

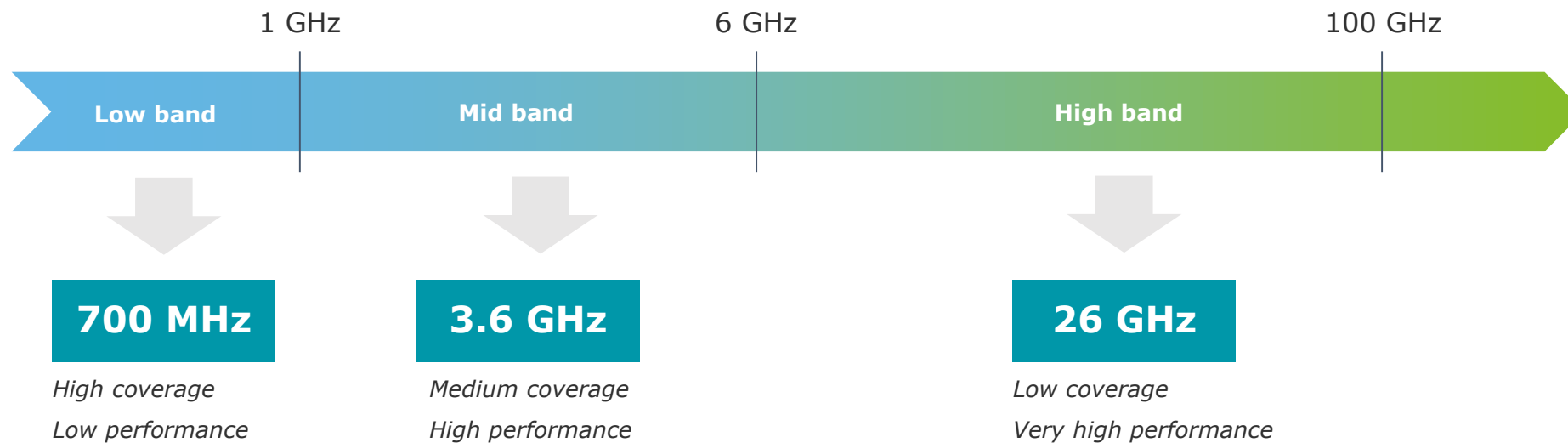
- 1** **Spectrum management**
- 2** **Limited regulatory holiday**
- 3** **Network sharing**
- 4** **Fixed access wholesale products for mobile backhaul**
- 5** **Tax and license prices**

# Enabling investments through regulation

## Spectrum management (1/2)

LTE Advanced and 5G will need large amount of spectrum to enable multi-gigabits speeds in dense areas

In ITU Region 1 (EMEA area), according to WRC-19 discussions, 3 bands are identified for 5G:



**The licensing of 700 MHz, 3.6 GHz and 26 GHz bands is key to enable 5G performances and investments**



# Enabling investments through regulation

## Spectrum management (2/2)

### licenses duration

Investment decisions need long-term certainty

Longer license durations for mobile technologies spectrum will reinforce the predictability needed for investment

*Current average license duration*

**10-15 years**

*Proposed license duration*

**25+ years**

*Source: European Commission*

### Technology neutral spectrum licenses

They allow existing bands which are used for existing mobile technologies to be easily refarmed for 5G thus ensuring spectrum is used most efficiently.

Need for a roadmap to ensure predictability to the industry

Possibility to ask for supplementary fees for a neutralization of currently attributed spectrum

**Longer and technological spectrum licenses enable mobile operators to invest in the most advanced technologies**

# Enabling investments through regulation

## Limited regulatory holiday

For **legacy** telecommunication networks, regulation consists in organising competition on **already deployed infrastructure**

For **future** telecommunication networks, regulation can have an **impact on investments and on the speed of deployments**

### Typical regulatory measures for legacy networks

Cost oriented prices

Immediate access to infrastructure

Infrastructure access based on rental fees

### Typical regulatory measures for new generation networks

Non excessive prices, including risk premium

Access to infrastructure few months after deployment

Infrastructure access based on co-investment

**Too heavy regulation on deploying networks can deter investments**

# Enabling investments through regulation

## Network sharing

Network sharing is a way to reduce deployment costs.

In order to avoid anti-competitive effects, it can be restricted geographically (rural areas) and within a time period

### Main mobile network sharing flavours

**Passive infrastructure sharing**

**Radio Access Network (RAN) sharing**

**National roaming**

**Increased  
level of  
sharing**

**Network sharing can increase the coverage and the investments in rural areas**

# Enabling investments through regulation

## Fixed access wholesale products for mobile backhaul

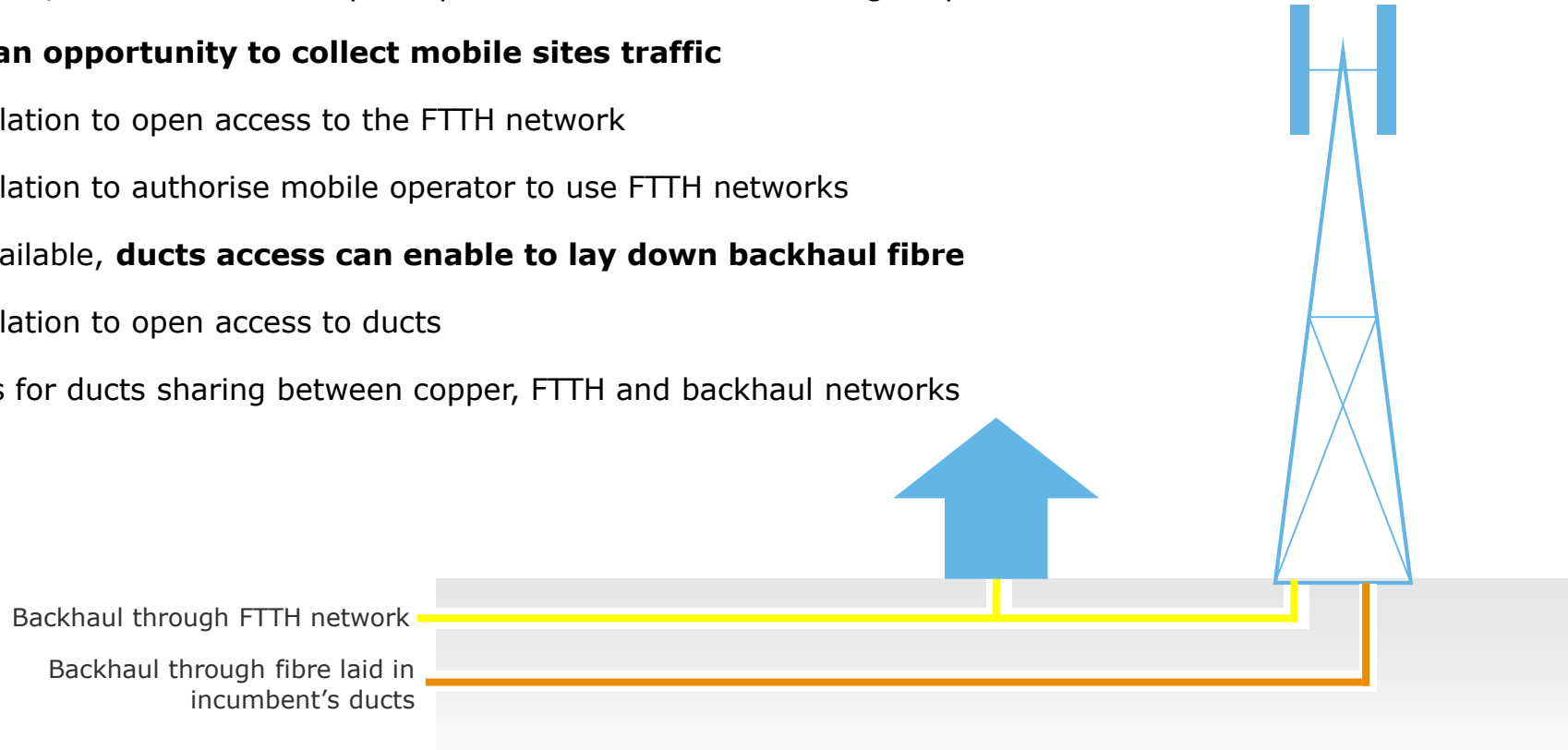
For LTE advanced and 5G, fibre backhaul is a prerequisite to enable full technological potential

### **FTTH networks are an opportunity to collect mobile sites traffic**

- Need for the regulation to open access to the FTTH network
- Need for the regulation to authorise mobile operator to use FTTH networks

In case FTTH is not available, **ducts access can enable to lay down backhaul fibre**

- Need for the regulation to open access to ducts
- Need for fair rules for ducts sharing between copper, FTTH and backhaul networks



**Access to FTTH or ducts can ease fibre backhaul of LTE/5G sites**

# Enabling investments through regulation

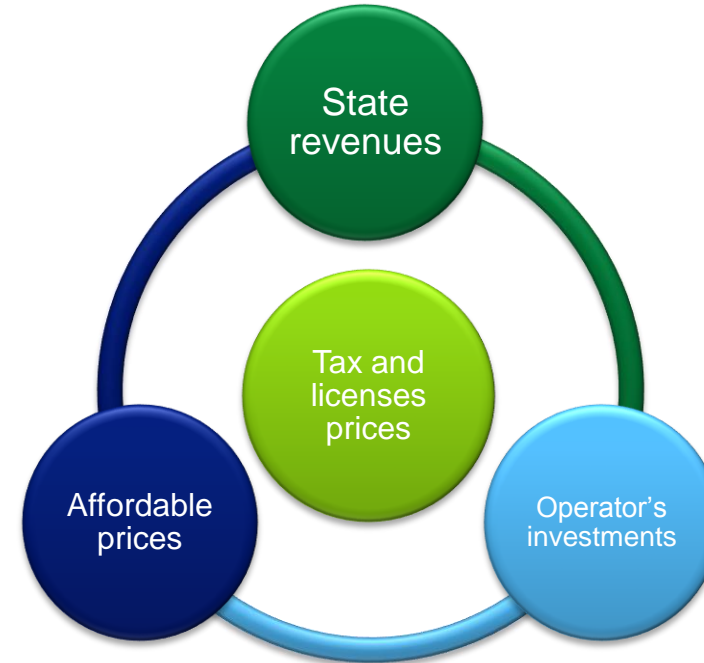
## Tax and license prices

Three objectives are usually set by public authorities for tax and spectrum license prices:

1. Affordable retail prices in order to encourage adoption
2. Promote operator's investments
3. Maximizing states revenues

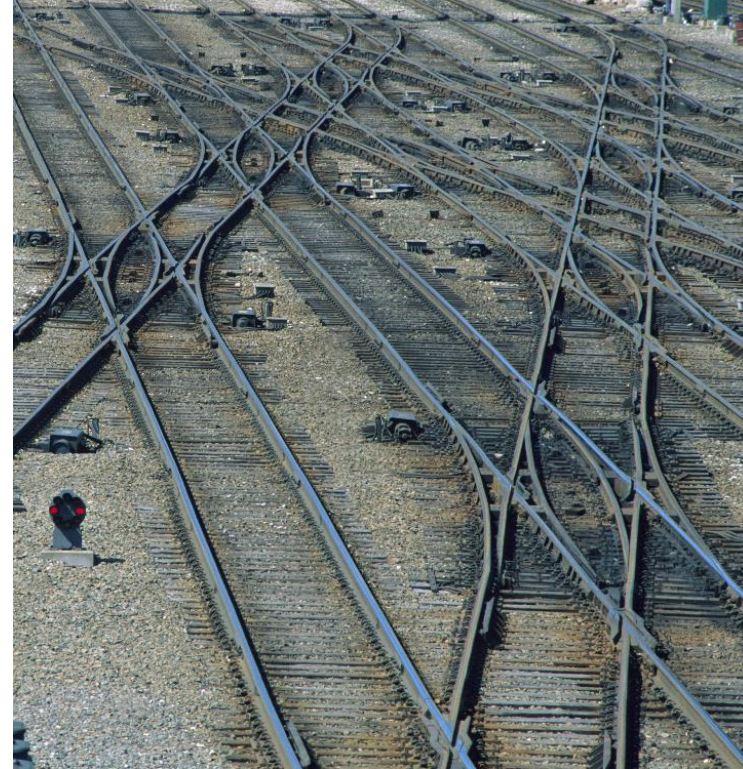
The combination of these three objectives is a complex exercise

Trade-off on states revenues and retail prices can encourage operators investments.



**Low license prices can be negotiated against operators' investments obligations**

# Conclusion



# Conclusion

## Recommendations

In order to promote investments in new networks, regulators can leverage on the following recommendations:

### **Recommendations on regulation**

Licensing of 700 MHz, 3.6 GHz and 26 GHz for mobile networks

Extension of spectrum license duration to 25 years or more

Introduction of technology neutral spectrum licenses

Lighter regulation on newly deployed infrastructures

Authorisation of mobile infrastructures sharing in rural areas

Obligation to provide access to FTTH and/or ducts for mobile backhauling

Negotiation of low license prices against large investment obligation

# Thank you!



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