

***Regional Seminar on the economic and financial  
aspects of telecommunications Study Group 3  
Regional Group for Latin America and Caribbean  
(SG3RG-LAC)***

**The regulation applied to broadband in  
a convergence world**

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# 1. Introduction:

## *Description of the market*

## Demand

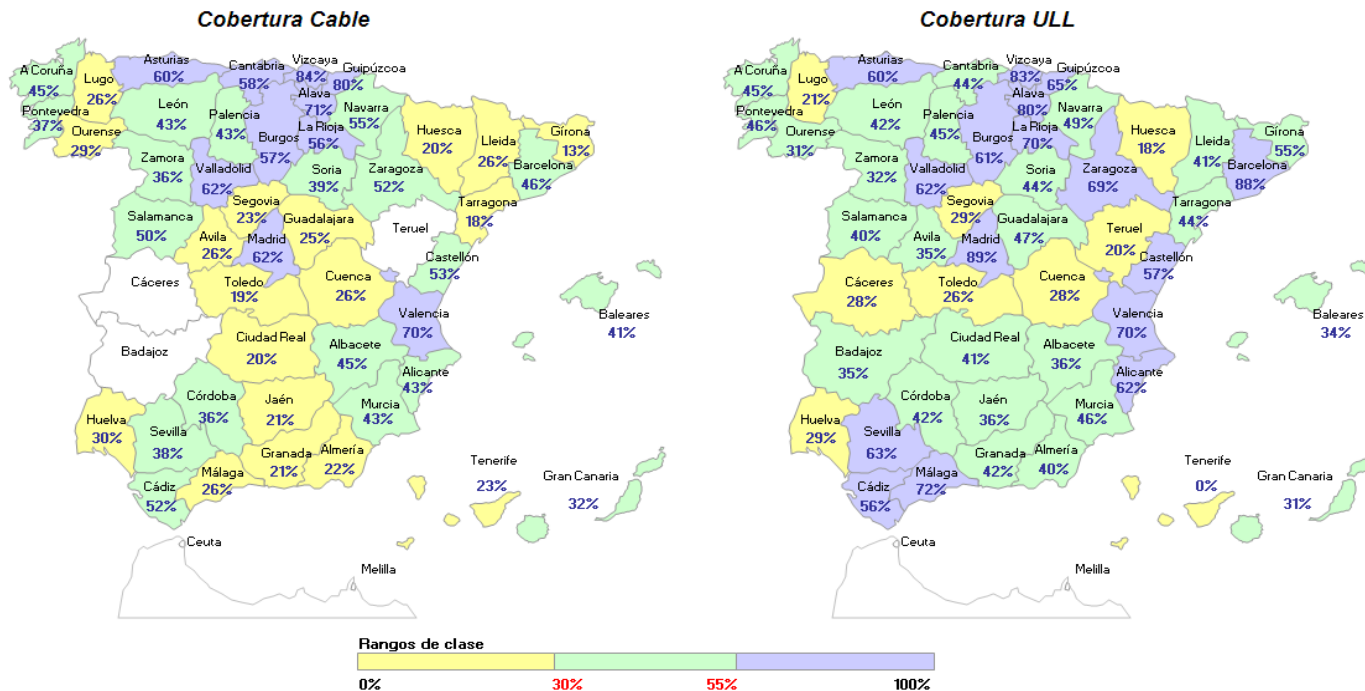
- **Increasing**
- **Focusing** on areas with **greater population density** and **better economic conditions**
- Focused on **bundling offers**
- **Customer segmentation** (heavy internet users vs soft internet users) and **fixed to mobile substitution** effect

## Supply

- Based on **cable operators** and **ULL**
- Focused on **specific geographic areas**
- **Competition** in terms of prices **is harder** in those **areas** where exists a **infrastructure based competition**
- **Service based competition:**
  - So far only in the areas where the cable is operating
  - In near future, the service based competition will depend on the NGN deployment and the pressure executed by the cable and the mobile operators
- **Increasing importance of mobile broadband**

## Introduction: *Description of the market*

The broadband market presents very **heterogeneous competitive conditions**, because **alternative operators focus** their investment effort and the deployment of their infrastructure, **especially in those areas where it is attractive to invest**, according to demand and socioeconomic conditions.



- In general, **alternative operators** have decided to go for the **ULL** to offer differentiated services. The increased presence of alternative operators in the switches of the SMP Operators is provoking **more aggressive offers** and **greater range and variety of services**.
- The **possibilities of differentiation** offered by the ULL has stimulated the subscription to bundles of services.
- **The ULL, like cable, is focused on certain geographic locations** where economic and demographic conditions are attractive. It is precisely at these locations where major operators (SMP) are losing market share



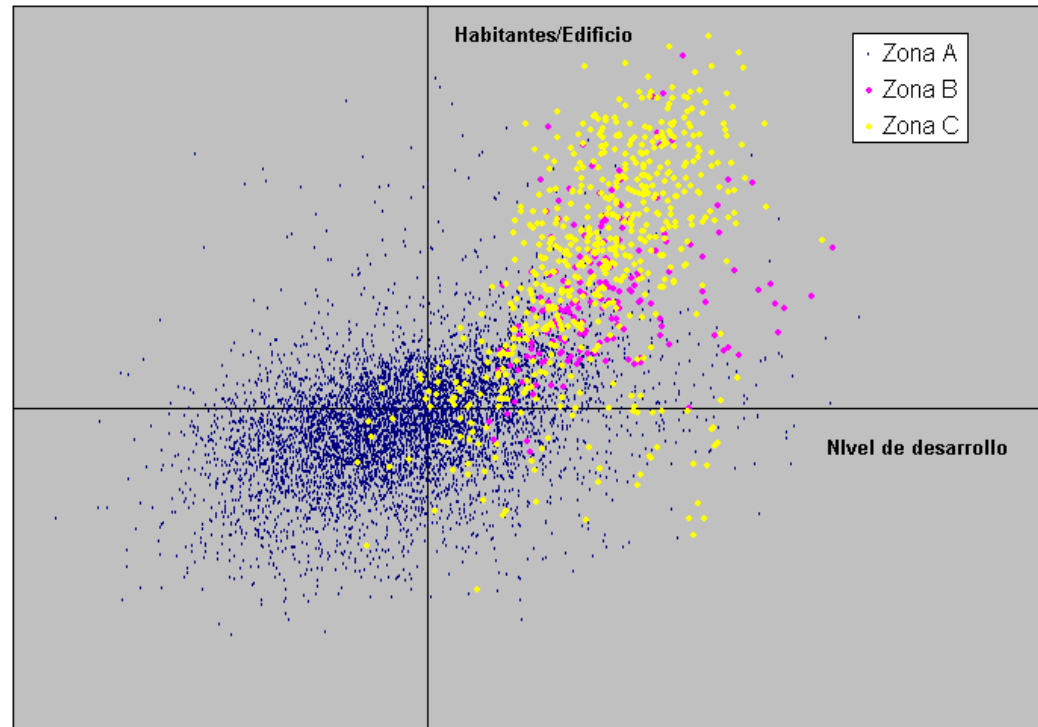
**Service based  
competition**

vs

**Infrastructure based  
competition**

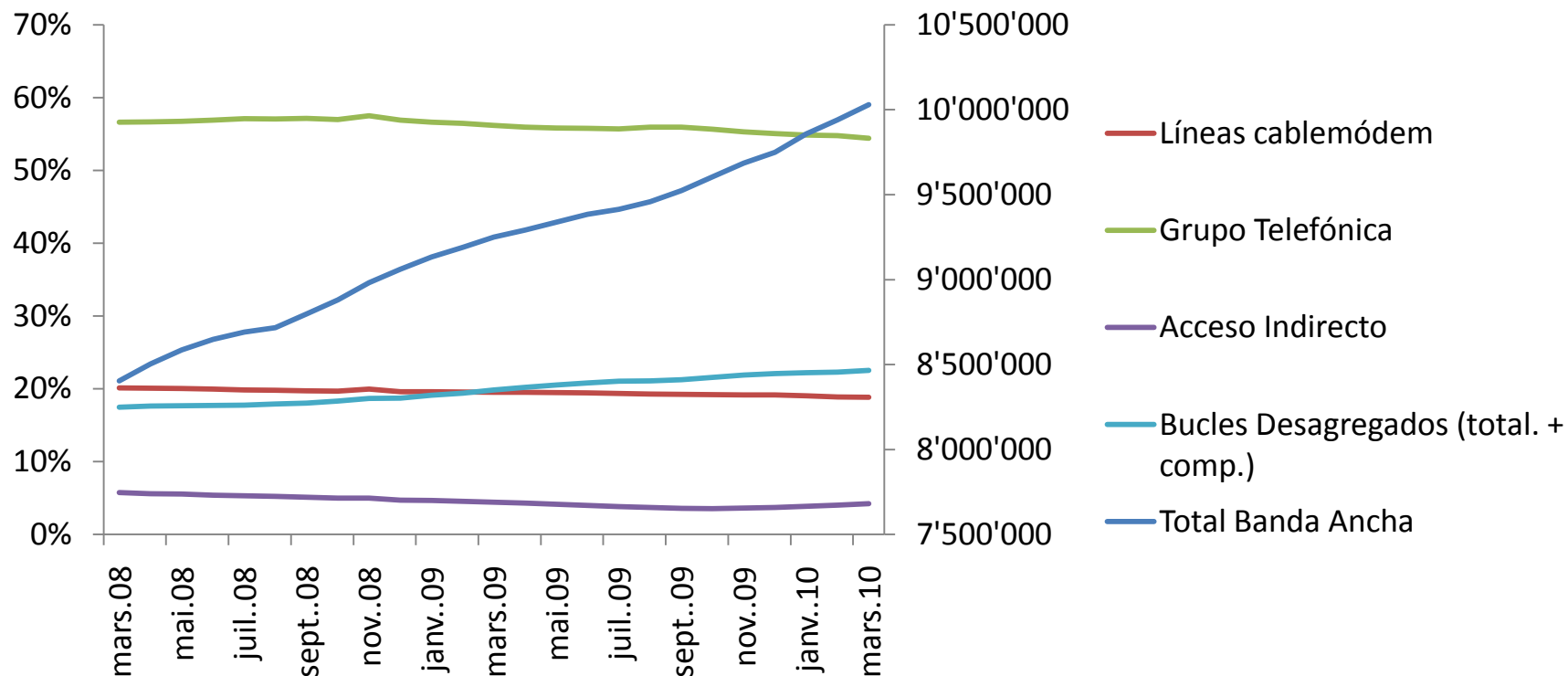
**Heterogeneous** conditions exist from the demand side due to the **different sociodemographic conditions** and the population density throughout the country

Distribution  
of telecom  
switches  
taking in  
account the  
economic  
and  
sociodemographic  
conditions



These variables are responsible for a **different return on investment** and hence the level of development of new infrastructure, so it's logical for operators to **deploy infrastructure according to return maximization criteria** so that, the deployment is not uniform across the country.

## Introduction: *Description of the market*



The evolution of the broadband market in Spain could be motivated primarily by the evolution of **urban areas characterized by broadband penetration** significantly higher and where, therefore, **market saturation is more evident**.



## 2. When regulate?

# When regulate?

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- The existing level playing field competition in the broadband market shows that there is no homogeneous conditions across the country, so that, **there are specific areas with** different competition level due to the existence of **alternative infrastructure** which provokes the appearance of **new product and services** with specific offers.
- Therefore, it makes sense to analyse the **market competition in markets where the geographic scope is not national**. By doing so:
  - o The **regulatory policy** could be **better adjusted** to the competition level across the different areas of the country.
  - o The appearance of **new commercial offers better adjusted to the customers requirements** would be possible.
  - o **No ex ante obligations** would be imposed in those areas where a infrastructure based competition exists so that, is the market itself the one who regulates.
  - o It would be **encouraged the efficiency in the production processes** so that more investment and a variety of product and services as well as an increasing price competition would be expected.

# When regulate?

## Market included in the “old” Recommendation (February 2003)

1. Access to the public telephone network at a fixed location for residential customers
2. Access to the public telephone network at a fixed location for non residential customers
3. Publicly available local and/or national telephone services at a fixed location for residential
4. Publicly international telephone services available at a fixed location for residential users
5. Publicly available local and/or national telephone services at a fixed location for non-resid.
6. International telephone services publicly available at a fixed location for non-residential
7. Minimum set of leased lines
8. Call origination in the public telephone network at a fixed location
9. Call termination in individual public telephone networks at a fixed location
10. Transit services in the public fixed telephone network
11. Wholesale provision of unbundled access to provide broadband and voice services
12. Wholesale provision of broadband access
13. Wholesale market for leased line terminal segments
14. Wholesale market for leased line transit segments
15. Call access and origination in public mobile telephone networks
16. Voice call termination in individual mobile networks
17. Roaming
18. Broadcasting services for the delivery of content transmitted to final users

## Markets considered in the “new” Recommendation (December 2007)

1. Access to the public telephone network at a fixed location for residential and non residential customers

### Three criteria test:

1. Presence of high and non transitory barriers to entry.
2. market structure which does not tend towards effective competition within the relevant time horizon .
3. insufficiency of competition law alone to adequately address the market failure(s) concerned.

2. Call origination in the public telephone network at a fixed location
3. Call termination in individual public telephone networks at a fixed location

### Three criteria test

4. Wholesale network infrastructure access at a fixed location
5. Wholesale broadband access
6. Wholesale market for leased line terminal segments

NGaN

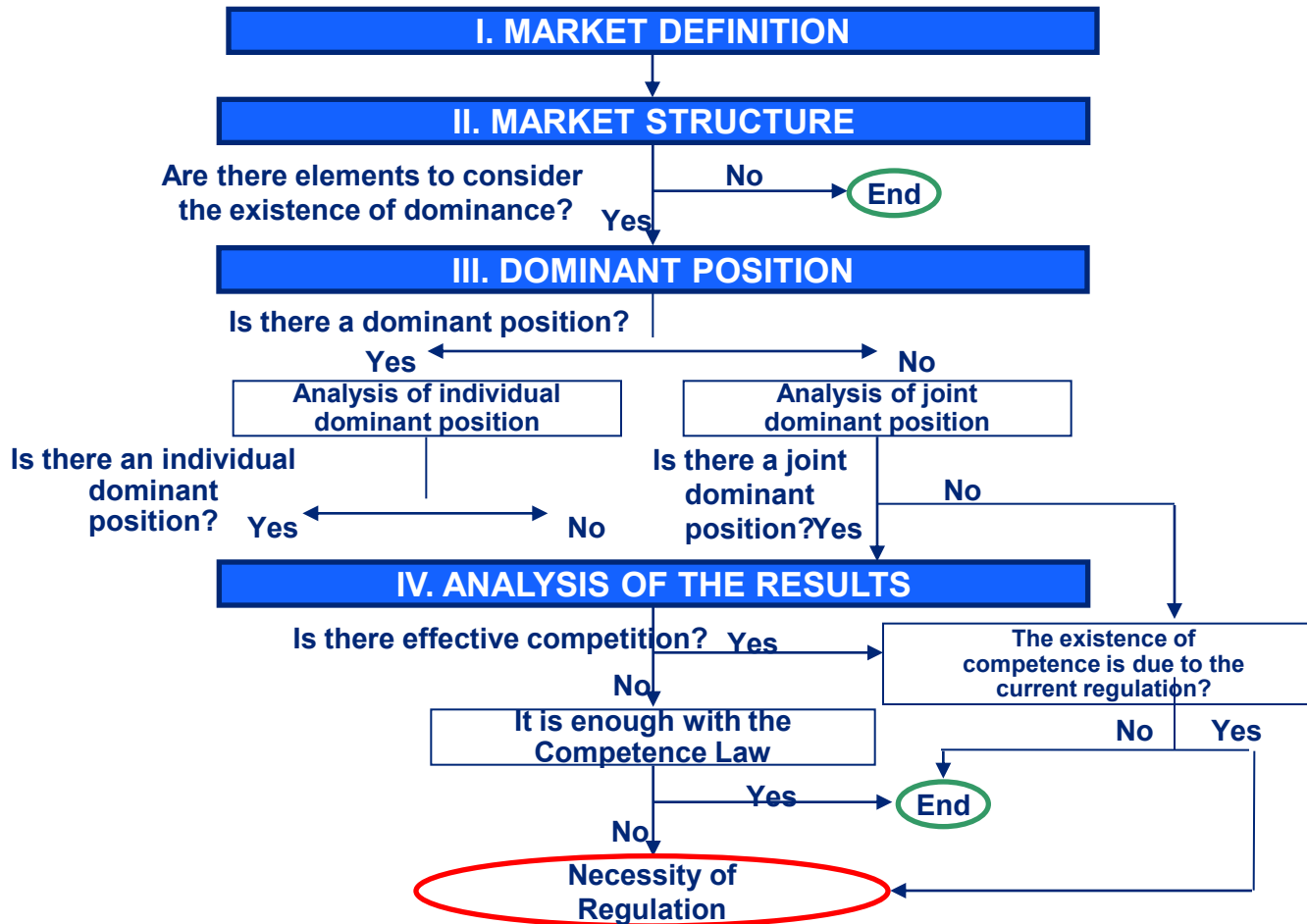
### Three criteria test

7. Voice call termination in individual mobile networks

### EC Regulation

### Three criteria test

# When regulate?



## Typology of ex ante remedies:

- Price control: Cost based vs reasonable prices
- Accounting separation
- Carrier selection and preselection
- Guarantee the access to the network
- Non discrimination and transparency
- Functional separation

# When Regulate?

Indirect effect which depends on the importance of effects 1 and 2

Introduction of the  
regulatory policy

Effect 1

Impact on the  
wholesale market

Effect 2 (+)

Impact on the  
retail market

(=)

Impact on the revenues

% of incomes used for  
investment

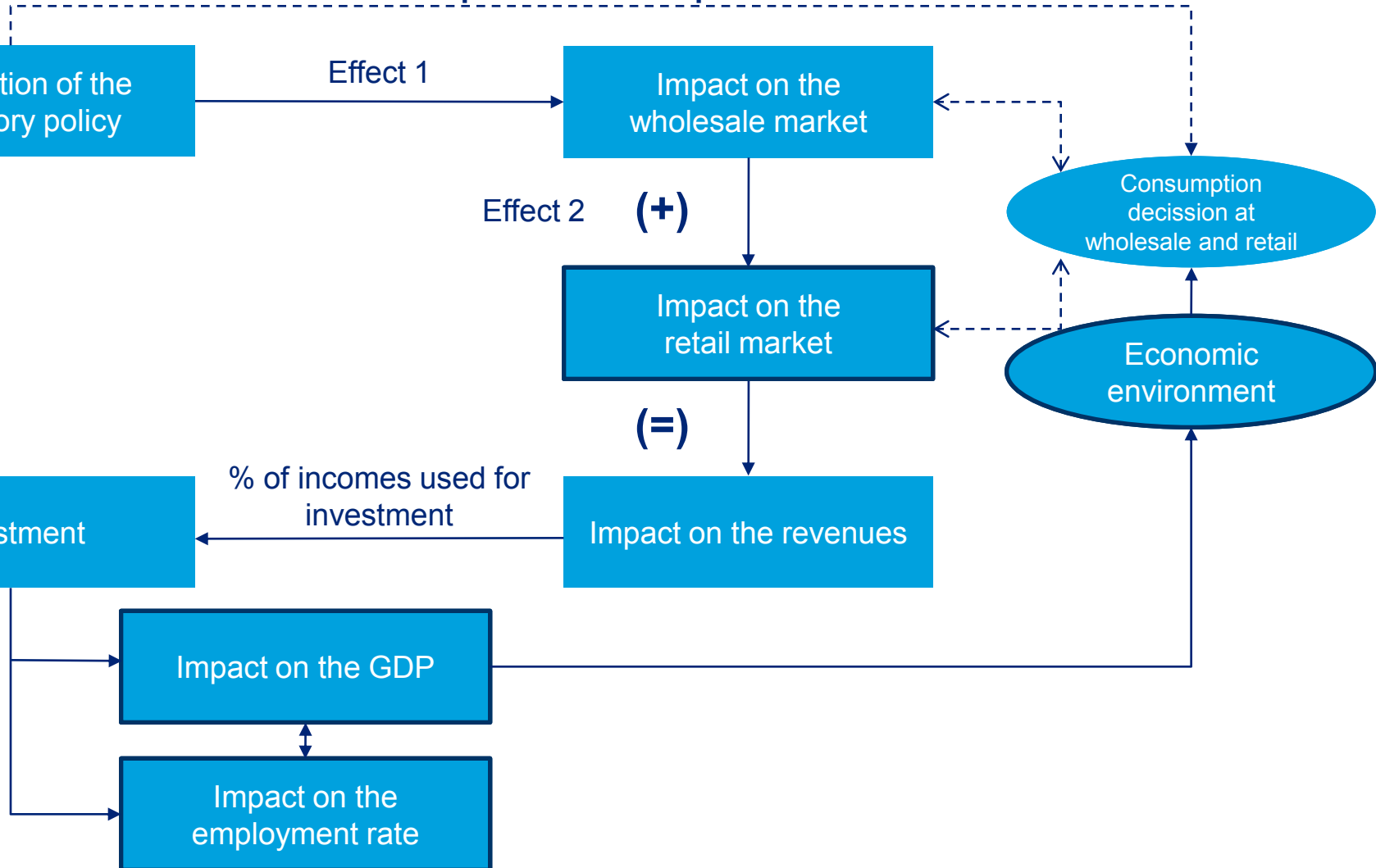
Investment

Impact on the GDP

Impact on the  
employment rate

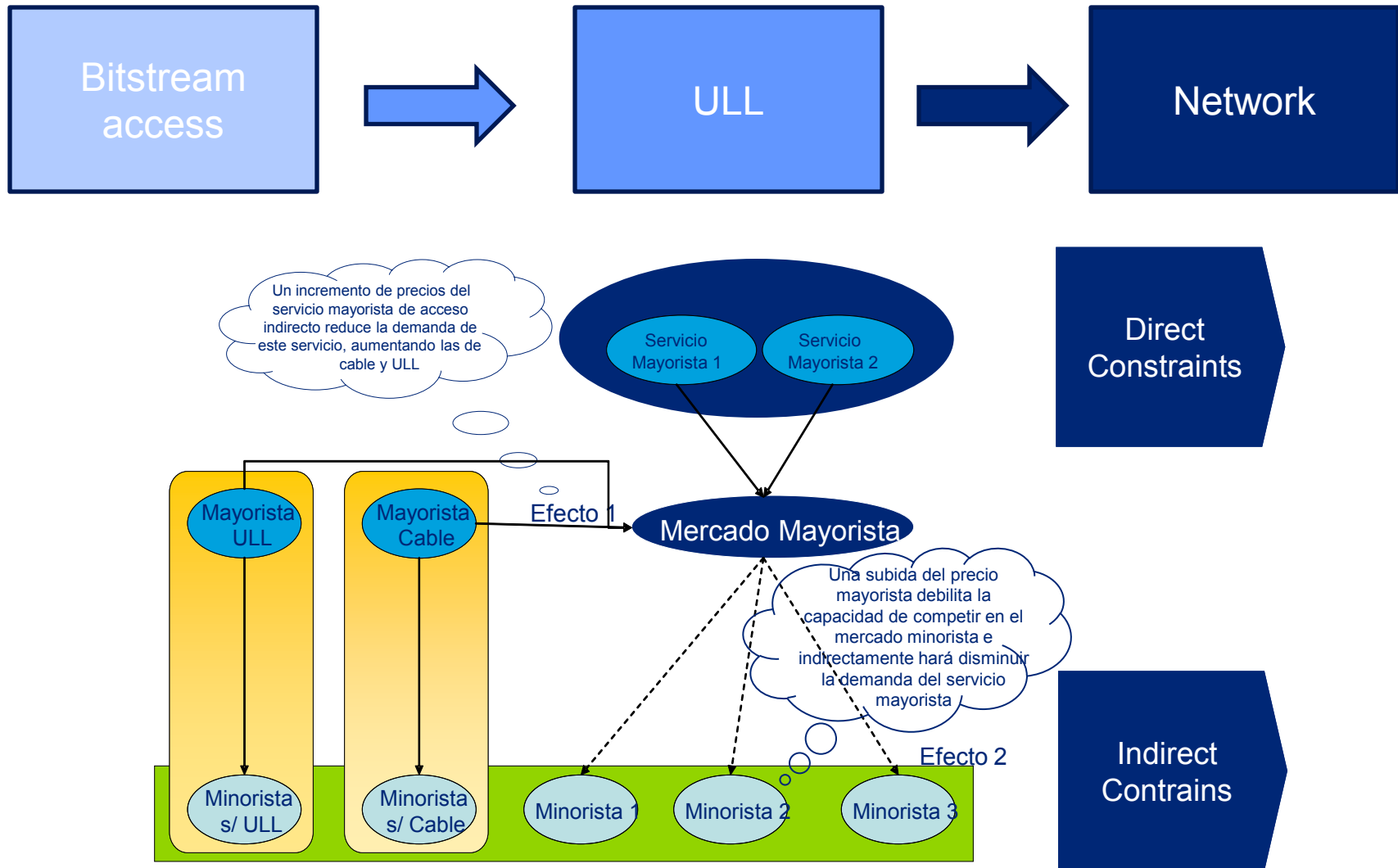
Consumption  
decision at  
wholesale and retail

Economic  
environment



# 3. The ladder of investment

# The ladder of investment



(\*) Fuente: "Market Analysis in the presence of indirect constraints and captive sales",  
*Journal of Competition Law and Economics*, 1-29

## Wholesale Market

- The **availability of wholesale access alternatives** for the commercialization of retail broadband services **makes the incumbent facing a direct restriction** on their prices of bitstream and have little incentive to increase them, for two reasons:

- Due to the **impact on revenues** from the migration to other wholesale alternatives as for instance ULL.
- Due to the **loss of market share** in the wholesale market in favor of the vertically integrated operator

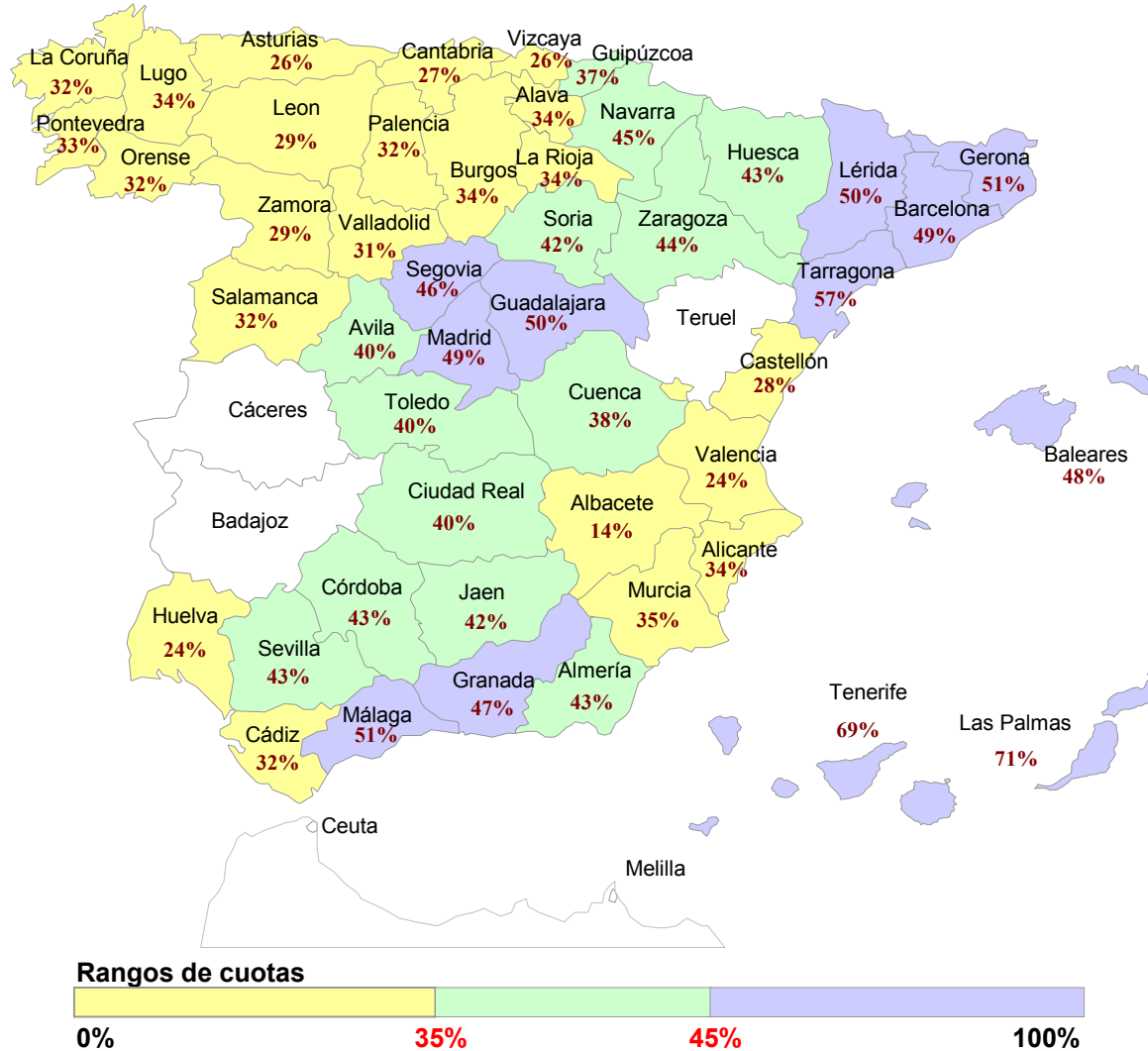
The existence of **vertically integrated operators (cable/ULL)** introduces an **indirect constraint at wholesale price level**:

## Retail Market

- The **demand** of those ISP's who use the bitstream **could decrease** in favor of the wholesale services provided by the operators who own infrastructure.
- The **SMP** Operator so that, would **not be able to retain the market share** of these ISP's due to the access alternatives available at the marketplace.



# The ladder of investment



# 4. The regulation of broadband in Next Generation Networks

# The regulation of broadband in Next Generation Networks

Principle of minimum intervention/regulation

Regulate at wholesale level rather than at retail

Encourage investment and innovation

Regulation applied to emerging markets?

Analyse the competition level at retail market

Regulation should have a minimum impact on the market conditions

Principle of harmonization across EU Countries

The ex ante remedies should be moderated and be adjusted to the competition problem

RETAIL

Access to BA

Effective competition

Without ex ante obligations?

Yes

No regulation

NO

WHOLESALE

4. ULL

5. Bitstream mayor

Effective competition taking in account the ULL obligations?

Yes

•Regulation of ULL

•No regulation of bitstream

NO

•Regulation of ULL

•Regulation of bitstream

Should the services  
provided under a NGN  
infrastructure be regulated?

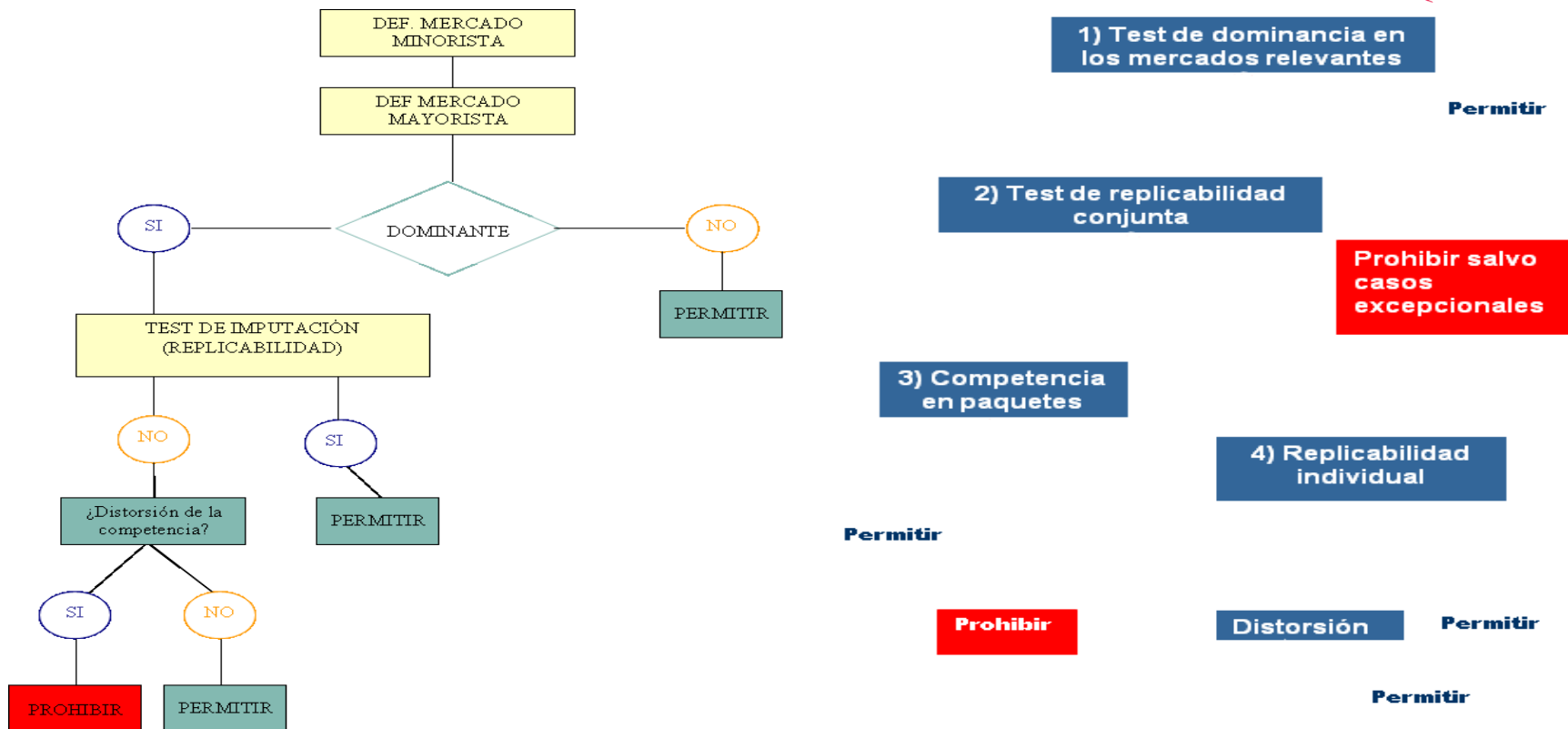
Can they be considered as  
innovative services?

**Which  
regulation?**

- Cost Based
- Reasonable prices

?

# The regulation of broadband in Next Generation Networks



The imputation test requires the fulfillment of the following expression:

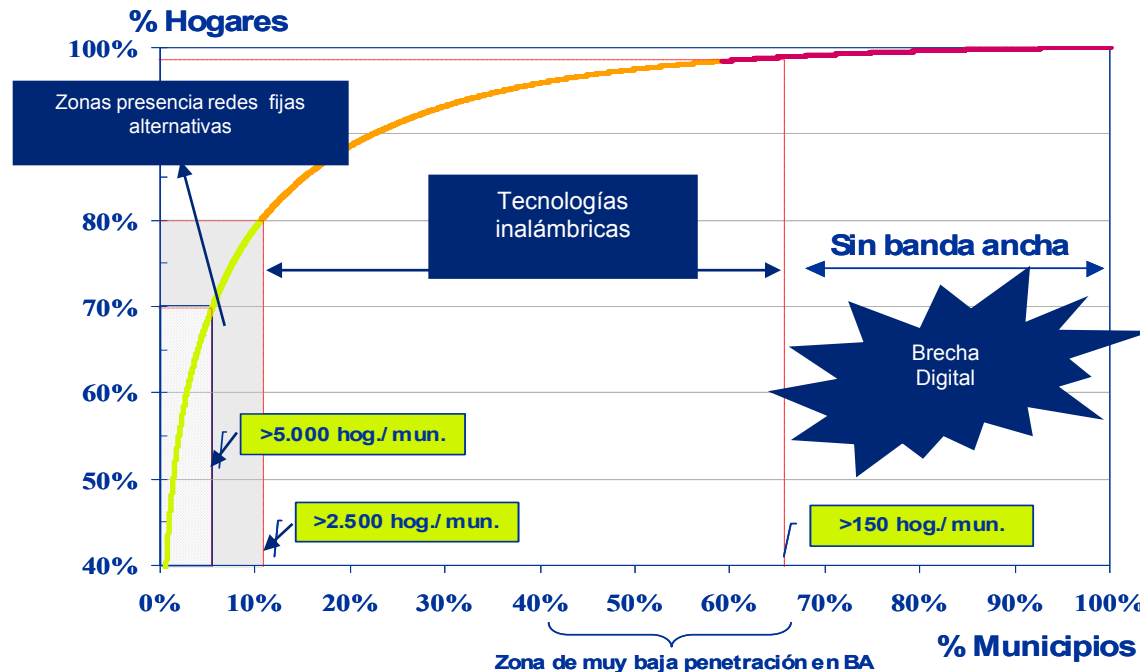
$$p \geq w + C_{net} + C_{retail}$$

Other aspects to consider:

- Difference between offer and promotion
- Specification of a methodology of analysis and information requirements to periodically check the possibility for other operators to retort the SMP offers/promotions

# 5. Alternative access technologies: *Costs comparison*

# Alternative access technologies: Cost comparison

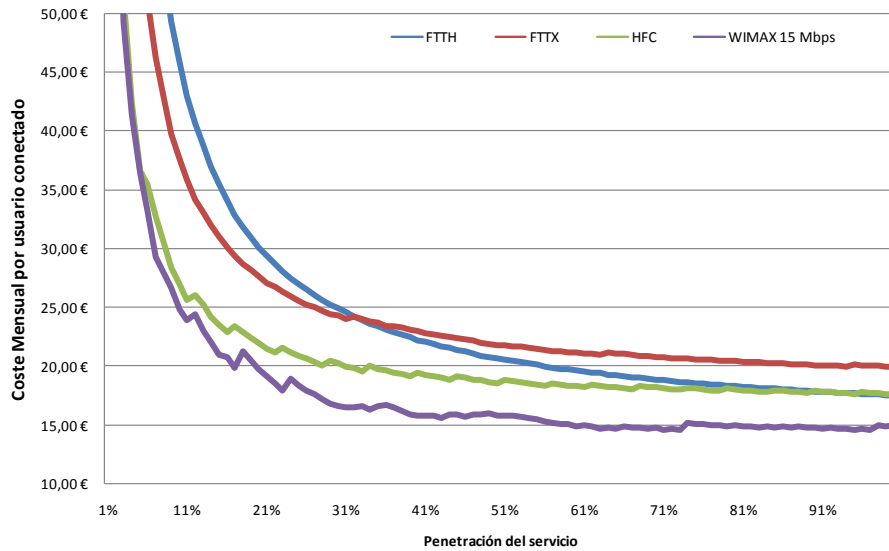


The decision on applying a infrastructure based competition vs a service based competition will depend on the possibility of having alternative networks.

In this regard, the economic as well as the socio-demographic conditions will be key for guaranteeing a co existence of fixed and mobile infraestructures which eventually will contribute to increase the playing field competition according to the customers' consumption decisions

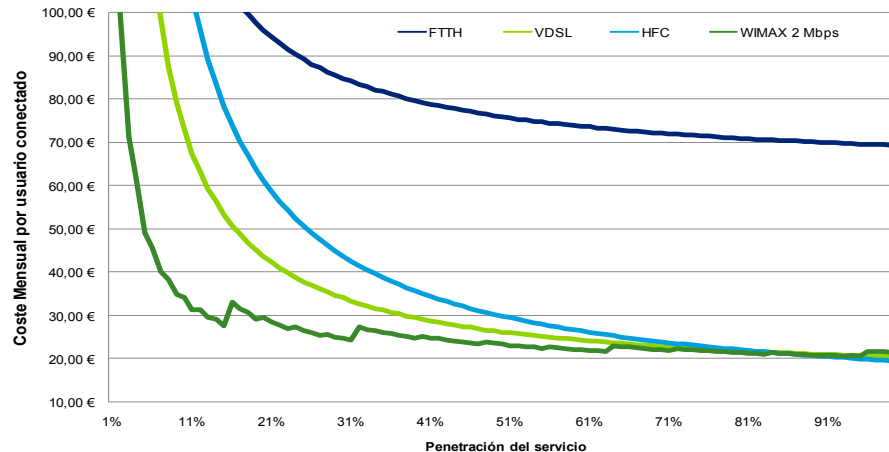
# Alternative access technologies: Cost comparison

## Comparativa de tecnología para espacio urbano



It can be observed that when deploying NGNs in urban areas with high penetration rates, the FTTH solution is the most suitable. Nevertheless, when the speed is < 20 Mbps, the results show that WiMAX is much profitable than FTTx solution

## Comparativa de tecnología para espacio rural



In the case of rural areas, it can be observed that the provision of BA services with WiMAX is more inexpensive access technology. In this regard it is important to point out that nowadays there is an increasing debate in Europe concerning the public vs the private investment.



## 6. Benchmark: *UK, Spain and Austria*

## Análisis del mercado de acceso mayorista a Banda Ancha

Propuesta UK

Propuesta Austria

Propuesta CMT

¿Identificación  
de mercado  
subnacional?



Definición de  
4 mercados



Mercado  
nacional



Mercado  
nacional

¿Levantamiento  
de obligaciones  
en zonas  
competitivas?



Desregulación  
(porcentaje  
cobertura)



Separación  
contable  
(porcentaje)



Precios  
razonables...  
(porcentaje)

¿No regulación  
del acceso  
indirecto sobre  
fibra?



Al sobre 30  
MB

# 7. Recommendations

1. The reality proves that **no homogeneous conditions exists in the broadband market** across the country. In fact, NRAs could identify particular areas where a infrastructure based competition exists due to the existence of cable and mobile operators.
2. **The existence of indirect constraints** at the wholesale level, constitutes by itself a mechanism to **guarantee that the incumbent operator is not willing to increase the prices** of the wholesale service (specially bitstream) because of the effects that it might have on the market share at both, the retail and the wholesale level.
3. An **SSNIP** due to the effect that it might have on the demand of ISPs could have an **impact on the revenues**.
4. The **existence of access alternatives as ULL and mobile** executes a direct constraint which disciplines the behavior of the SMP Operator.
5. The **investment associated to the NGN** deployment is leading the European Commission to open the debate on how the risk premium should be captured in the regulated wholesale prices (**real option theory**).
6. Since there is not homogeneous conditions across the country, the NRAs in the market analysis might consider a geographic scope smaller to national.



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- Telecommunications
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- PDD IESE business School
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- Bachelor degree in Business Organization at Universidad de Salamanca

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Antonio García Zaballos is PhD in Economics at Universidad Carlos III de Madrid. Currently he is senior advisor to the Global ICT Department of the World Bank and expert to the International Telecommunications Union (ITU).

Dr. García Zaballos was Head of the Cabinet for Economic Studies and Regulation (GEER) at Telefónica España, and was also Deputy Director at CMT, the Spanish telecoms regulator, where among others he was responsible for market analysis and economic issues applied to the estimation of the cost of Universal Service Obligations (USO), Fixed-Mobile convergence, regulatory policy applied to bundling, regulatory policy applied to retail and wholesale services and auditing of cost accounting models. He has a broad experience in economic consulting applied to the telecom sector in countries as: Saudi Arabia, Dominican Republic, Guatemala, Costa Rica, Argentina, Latvia, Bulgaria, Poland and Albania.

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