EUROPEAN CASE STUDIES

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EUROPEAN MARKET
BDO 2016 SURVEY

Top three challenges for major telecoms providers within EMEA include :

EU Digital Single Market

Talent acquisition

Regulatory

EUROPE'S DIGITAL SINGLE MARKET

- Moving wireless policy from the national level to a single market

- Centralizing spectrum management functions

- Harmonizing regulations

- Allowing for industry consolidation to fit a single market.

EUROPE'S DIGITAL SINGLE MARKET

EU Commission's Digital Single Market initiative is a concern

- Fragmented market with many players makes consolidation difficult
- Regulations tied to the DSM initiative cause implications to
  - Spectrum Policy and Management
  - Roaming
  - Net neutrality

  - 44% of Top telecoms providers point to regulatory changes such as the EU's Digital Single Market as negatively impacting their future revenue streams

EUROPE'S DIGITAL SINGLE MARKET

Lack of a Single Market seen as an obstacle to consolidation

"Over time, as a genuine single market for electronic communications emerges, the geographical scope of markets will also need to evolve, for the purposes of both sector-specific regulation based on competition principles and the application of competition law itself. "

~ Commission Communication on the Telecommunications Single Market

SOLUTIONS NEEDED: THREE PRIORITY AREAS

1 Better access for consumers and businesses to digital goods and services across Europe

Unlocking e-commerce potential

15% of consumers bought online from other EU countries in 2014, while **44%** did so **domestically**

→ EU consumers could **save €11.7 billion** each year if they could choose from a full range of EU goods and services when shopping online

Only **7% of SMEs** in the EU sell cross-border

Small online businesses wishing to trade in another EU country face around **€9,000 extra costs** for having to adapt to national laws

→ If the same rules for e-commerce were applied in all EU Member States, **57% of companies** would either start or increase their online sales to other EU countries

Affordable parcel delivery costs

More than **90% of e-shoppers** consider **low delivery prices** and **convenient return options** as important when buying online

62% of companies that are willing to sell online say that too high delivery costs are a problem
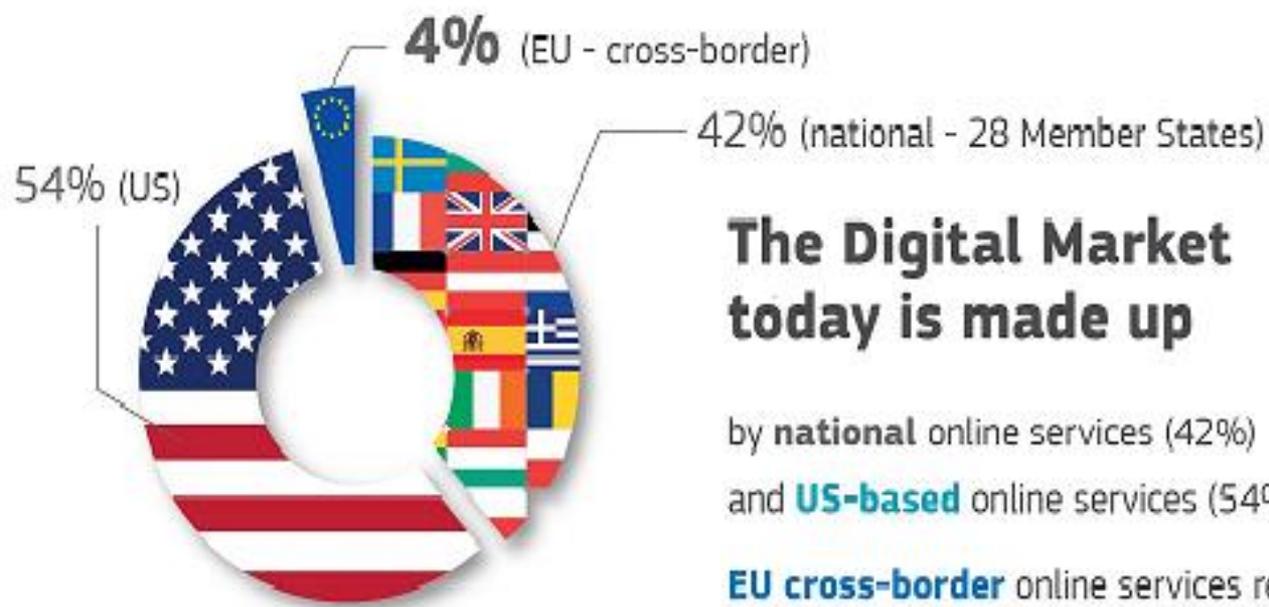
Tackling geo-blocking

In **52% of all attempts** at cross-border orders the seller does not serve the country of the consumer

→ less clients, less revenues for companies

GEO BLOCKED

But obstacles remain to unlock this potential...

4% (EU – cross-border)

42% (national – 28 Member States)

54% (US)

The Digital Market today is made up

by **national** online services (42%)

and **US-based** online services (54%)

EU cross-border online services represent only 4%

SPECTRUM-SPECIFIC
5 LESSONS LEARNED FROM THE US

1) Consolidated EU-wide spectrum management and harmonization of regulations

2) Permissive merger policy

3) Reallocation of broadcast spectrum for mobile broadband

SPECTRUM-SPECIFIC
5 LESSONS LEARNED FROM THE US

4) Technologically neutral, flexible licenses tradeable on a secondary market

5) Neutral spectrum policy to promote active market shaping

WHERE IS EC IN THE PROCESS?

Spectrum Policy –as related to Digital Single Market

Most recent Commission proposal (June 2016)

- Transition broadcast to mobile in 700 MHz band by 2020/ Harmonize by 2020

- Introduce downlink in sub-700 MHz

- Centralized Spectrum Usage Management- Analysis and harmonization

- **Regulators require any request for changes to spectrum allocations be linked to detailed usage-based data to substantiate request**

WHERE IS EC IN THE PROCESS?

- 2012-2013 undertook inventory

- Auctions still handled at local level (Member state level)

- 4G-> 5G (slowed because of lack of centralization)

- Spectrum Monitoring

- Industry Consolidation

- Fragmented Markets

SPECTRUM MONITORING

The allocation and management of radio spectrum in Europe are administered by national regulatory authorities. These authorities work together within a harmonised framework established by international and European policy initiatives.

There are three essential roles in radio spectrum management:

- Planning radio spectrum allocation

- Establishing technical conditions for radio spectrum usage

- Assigning radio spectrum to users

ALLOCATING AND ASSIGNING SPECTRUM

At a National and Member state level.

Planning and assigning radio spectrum to users is the responsibility of Member States

Via National authorities

Subject to common rules for the single market

Must adhere to International spectrum agreements

Lower bands have longer ranges

Higher bands carry more information

CASE STUDY 1:
ENIGMA- NEXT GEN WIRELESS NETWORKS

- Project started 2012, funded by EC

- Theoretical foundation, analysis and design

- Intent to design next generation Wireless Networks – hetergenous and complex networks to provide for applications for societal betterment (environment, energy, health)

- Contributions :

 1) Geometric Design and Analysis of Next Generation Wireless Heterogenous Networks

(2) Protocol and Algorithm Design for Next Generation Wireless Heterogenous Networks

3) Analysis of Distributed Processes Running on Complex Networks

CASE STUDY 2: SATELLITE-BASED M2M TECHNOLOGY

Sat4M2M, Germany- Internet of Things Everywhere on Earth: a satellite based M2M solution

- Global machine to machine communication

- Global coverage, lower cost, energy efficient from machine-side

- Goods tracking, global sensor, telemedicine, railway surveillance

Eureka, Germany - internet of Things Everywhere on Earth: a satellite based M2M solution

- networked mobile communication- machine to machine

- infotainment

- telematics systems in the automotive (intelligent systems – weight measurement to iphone or device- lessen dependency on weight stations)

CASE STUDY 3: LICENSE FREE SPECTRUM USAGE

SigFox

- Used license-free spectrum and simple radio chips
- Inexpensive, long range radio technology
- Covers countries with few antennae
- Backhauled with DSL
- Disrupts investment by mobile operators for mobile networks
- VC Funded
- Now in US market as well

CASE 4: SELF ORGANIZING NETWORKS

CellSON

Launching the next generation of Self Organising Networks for Telecoms

- CellSON-a collection of functions for automatic configuration, optimization, diagnostisation and healing of cellular networks.

- Because of complexity to configure, optimize and maintain, allows for cost savings and performance benefits from the very beginning of a network deployment

- Cost reduction (CAPEX, OPEX)

CASE 5: SMART TRAFFIC SOLUTION

Cellint Traffic Solutions

- Transforming Cellular Network Data Into the Next Generation of Mobility Management

Platform

- Small business innovation research for Transport and Smart Cities Mobility

- Use of Big Data Analytics on cellular network data to provide mobility solution for Smart Cities.

- Generates location measurements of the mobile handset by comparing the real time signaling messages from the mobile network of all active phones with pre-generated cellular maps of the roads, assigning GPS coordinates from the reference database to each such cellular message in real time, regardless if the phone has a GPS or not.

- The data is used to detect congestion in real time, root cause analysis, Origin Destination studies, improving transportation management

SPECTRUM MONITORING CASE - GERMANY

Terrestrial TV Broadcasting can be found in the UHF band (174 - 230 MHz) and in the VHF band (470 - 862 MHz). Many countries decided to switch-off Analogue TV (PAL, SECAM, NTSC) in favor of more efficient digital systems such as DVB-T, ISDB-T or ATSC (GE06 agreement).

WRC07 opened up a part of the digital dividend to IMT mobile services (790 - 862 MHz).

GERMANY

Germany was one of the first countries in Europe to tender the DD 800 MHz band in 2010. As a result, the spectrogram recorded in Munich shows the DVB-T signals next to the new 4G LTE carriers.

Both Vodafone D2 and Telefónica O2 launched a 10 MHz LTE service

GERMANY / UK

DVB-T tuners or set-top boxes may suffer from LTE interference and 4G low-pass filters are provided to the public e.g. by BNetzA in Germany or at800 in UK. Furthermore, Programme-Making and Special Events users (PMSE) may also need to move to avoid noise degradation.

REFERENCES

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Case study 3.4.5 EC Award Funded