Arthur D Little

The Belgian Telecom Landscape

Study on the Belgian Telecom Sector - 1st edition

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Telecom services are part of our daily life

By end 2013:

80% of Belgian households have a broadband internet connection and

61,5% have interactive digital TV

54% of Belgians use high-speed mobile data and

65% watch videos

52% of Belgians are active on social media

68% of the Belgian population uses the Internet on a daily basis

Around **97%** of companies in Belgium have Internet access

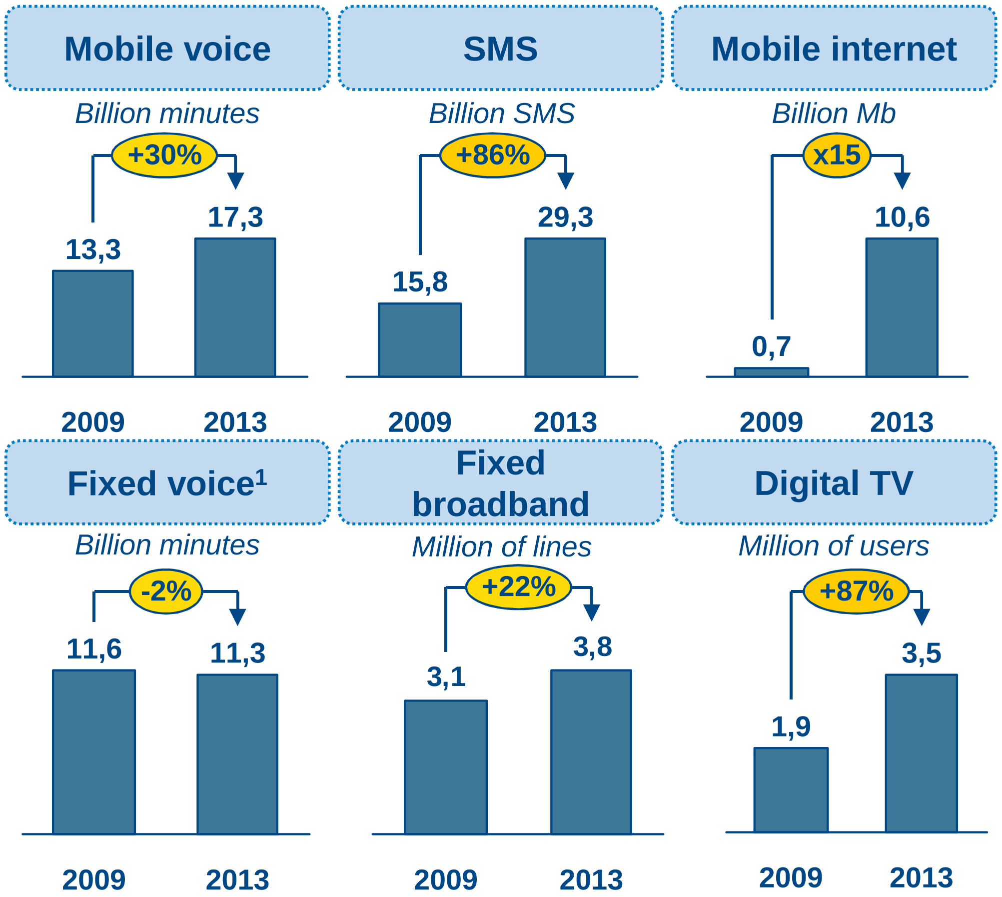
48% of people have bought something online last year while the e-Commerce revenues of Belgian companies account for **14%**

1) Population of 18+ persons living in Belgium

Source: SPF Economie, ICT barometer 2014; Our mobile planet report 2013 by Google; Global Digital Statistics 2014 by We are Social; Havas MMS 2014 report; Arthur D. Little analysis

Telecom services usage is strongly growing while prices are falling down

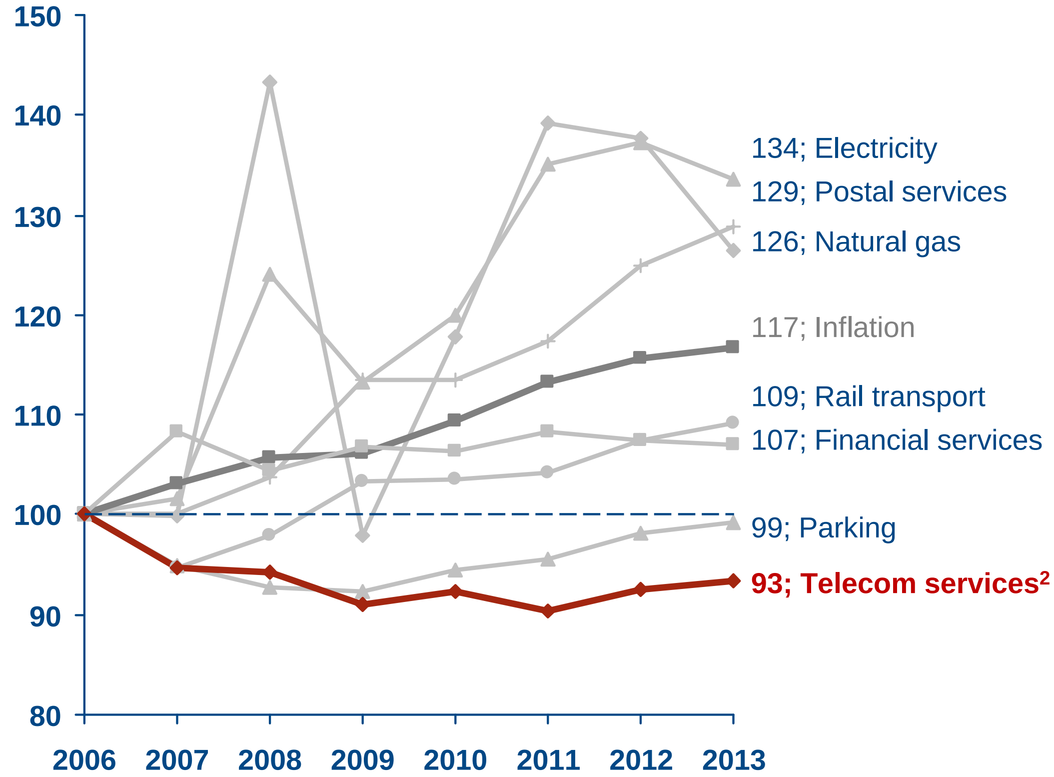
Telecom use strongly growing



Telecom's prices falling down

Base 100 in 2006, consumer price index evolution

Not including discounts on Telecom packs



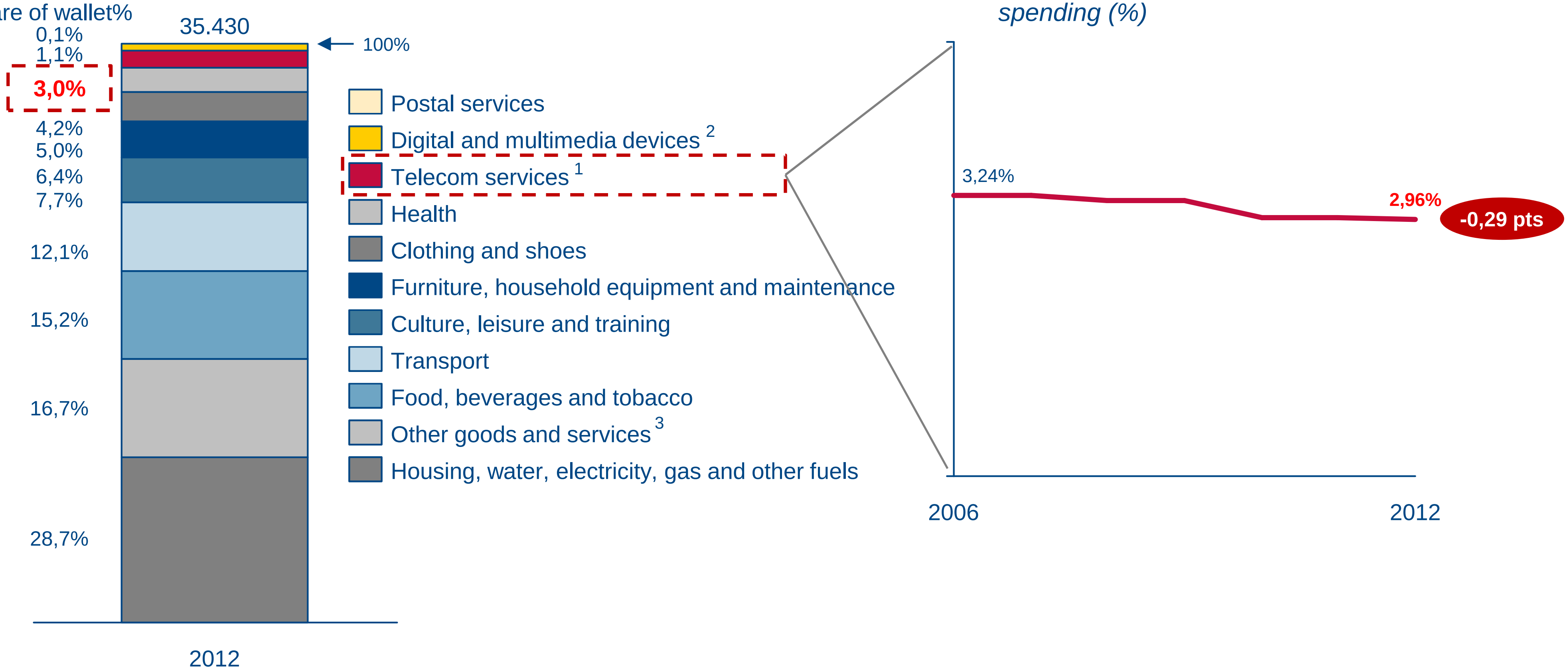
Source : Operators, IBPT, SPF Economie; Arthur D. Little analysis
1) Including VoIP, 2) Telecom services: Fixed telephony, mobile telephony, internet and undiscounted telecommunication packs

The share of Telecom services slightly decreased in Belgian households spending

Evolution of Belgian Households Spending

Average yearly spending per household, in €

Telecom Services Share of households spending (%)



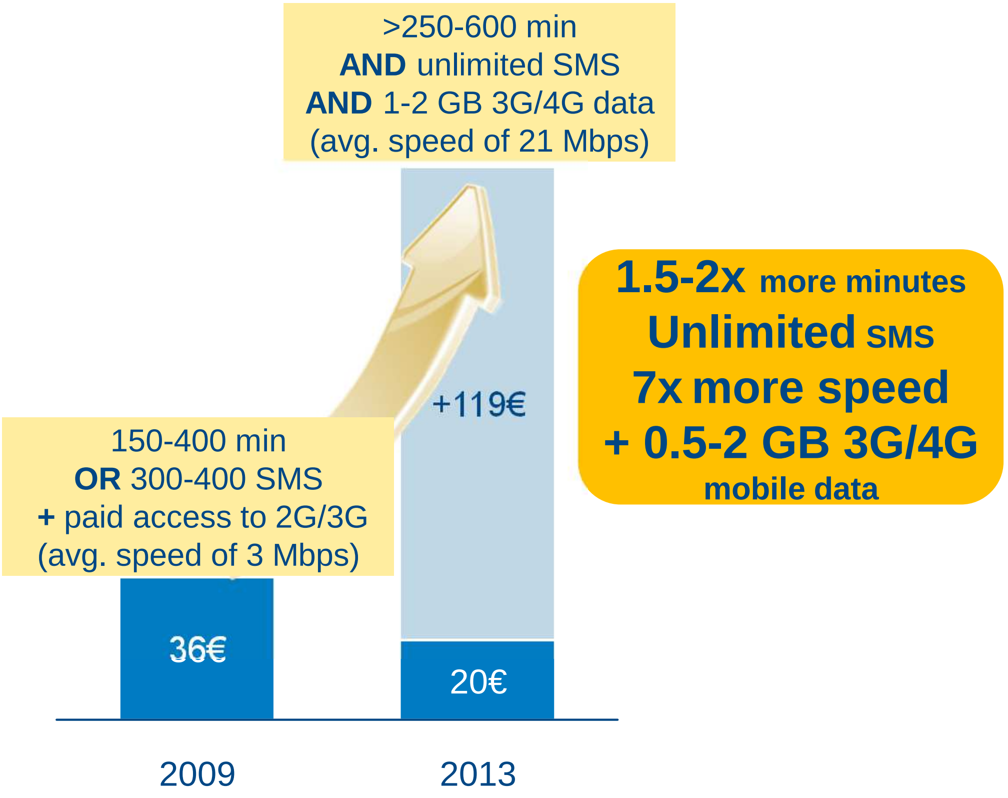
Source : SPF Economie, Arthur D. Little analysis

1) Excluding telecom devices
2) Including telecom devices, radios, televisions, computers and cameras
3) Including: traveling, body and personal care, hotel, restaurant and bar expenses, financial services…

Operators provide a substantially better offering that generates 4 to 7 times more value for money to the consumers

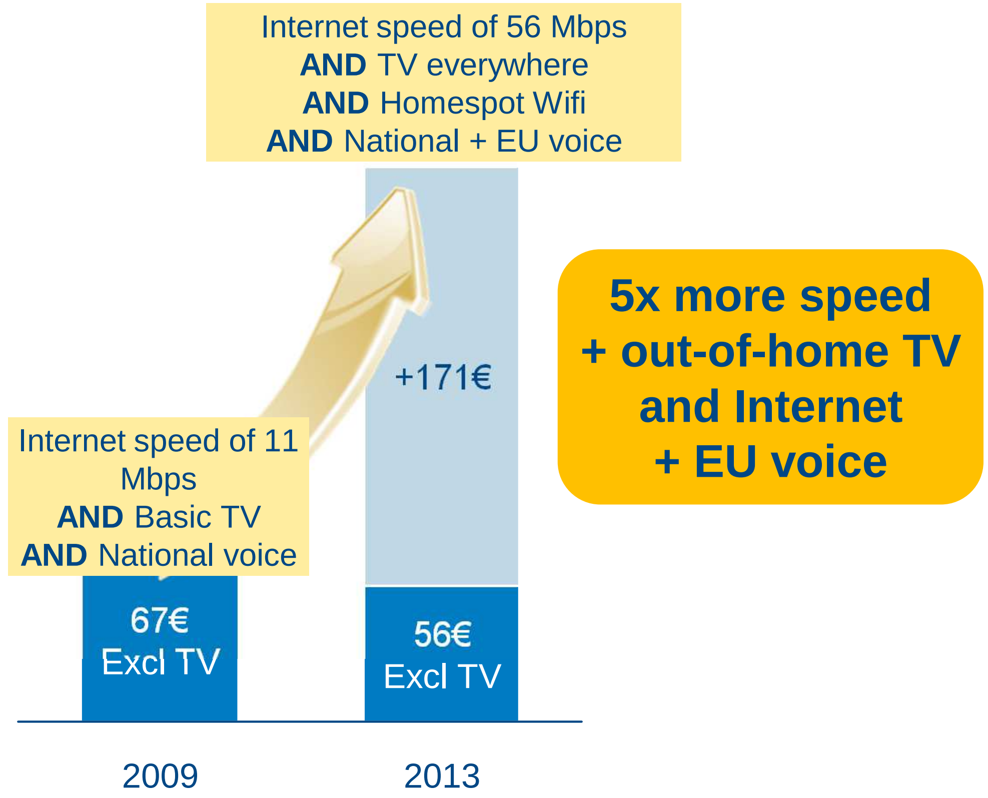
Mobile “Customer Surplus”

Comparison of mobile post-paid offerings 2009-2013



Fixed “Customer Surplus”

Comparison of fixed offerings 2009-2013



Monthly average invoiced amount per user[1]

“Customer surplus”: average 2013 telecom usage at 2009 prices, per user[1]

Source: Operators, Arthur D. Little analysis

(1) Based on actual revenues and usage

Business and administration productivity is supported by the telecoms industry

Improved productivity for businesses and employees

+15% **Profitability improvement for SMEs** due to telecoms:

- **+7%** due to **cost savings** (supply, marketing…)
- **+8%** **increase of revenues** (client segmentation, geographic zones)

-7% **Reduction in transport costs** thanks to telecommunication services (phone, mail, conferences…)

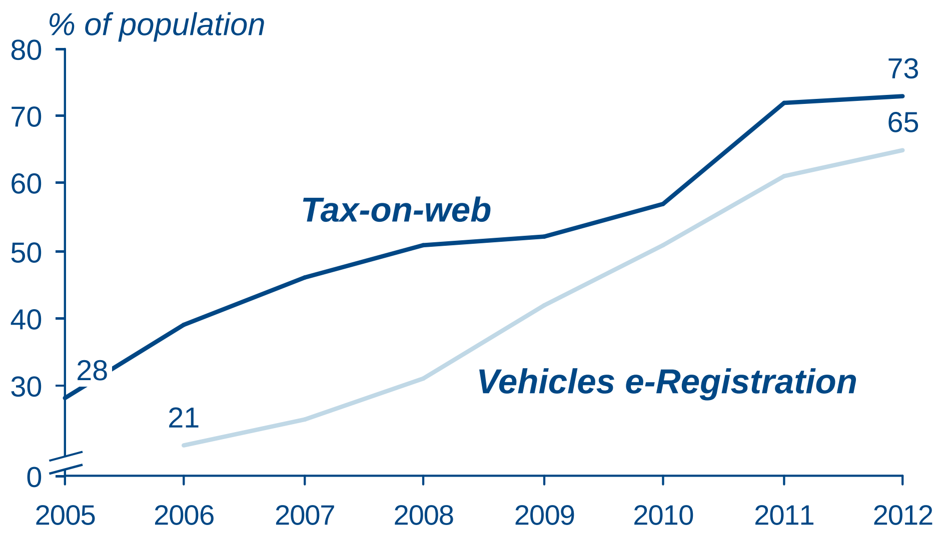
58% **of employees carry out 75% of their work with connected tools**

Source : Cisco, Google, IDC, Arthur D. Little analysis

Savings for the Belgian Administration

50% of the population was in contact with the public authority via internet over the past year

Over **65%** use Internet-based vehicle registration and over **73%** tax-on-web submission



Source : SPF Economie, ICT Barometer 2013; Arthur D. Little analysis

Continuously increasing average broadband speeds, with the addition of new services

Increasing bandwidths

Average bandwidth, 2009-2013

Fixed Broadband x5

Fixed broadband speed: average speed, weighted according to the number of subscribers that have a broadband connection with a certain bandwidth

Mobile Broadband x7

Mobile broadband speed: average speed for the 3 mobile operators according to Commsquare

Enriched Content Offering

- Up to 80 TV channels available
- Premium applications included
- Possibility to watch live and catch-up TV on mobile devices

- Transformation of the TV-box

Integrated **hard drive**

PVR: Personal video recording

Replay offer: TV on demand and catch-up TV

New Services

- **Smart Home**

- **Cloud storage services**

- **WiFi homespots and hotspots**

- **Multi SIM offers** with several complementary SIM cards for tablets included in the contract

Source : Commsquare; Arthur D. Little analysis

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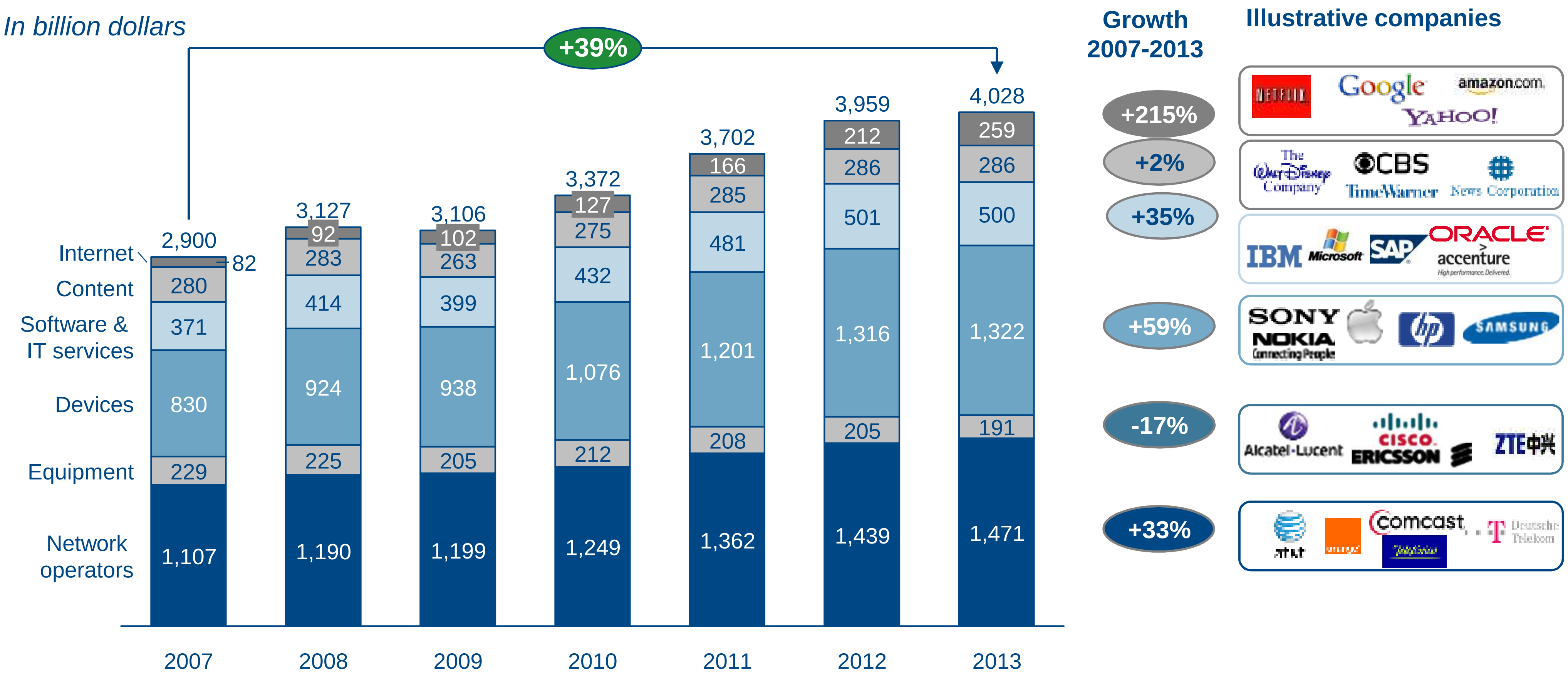
Globally, the digital sector is enjoying strong growth across all segments

Revenues of the digital ecosystem by sub-sector[1]

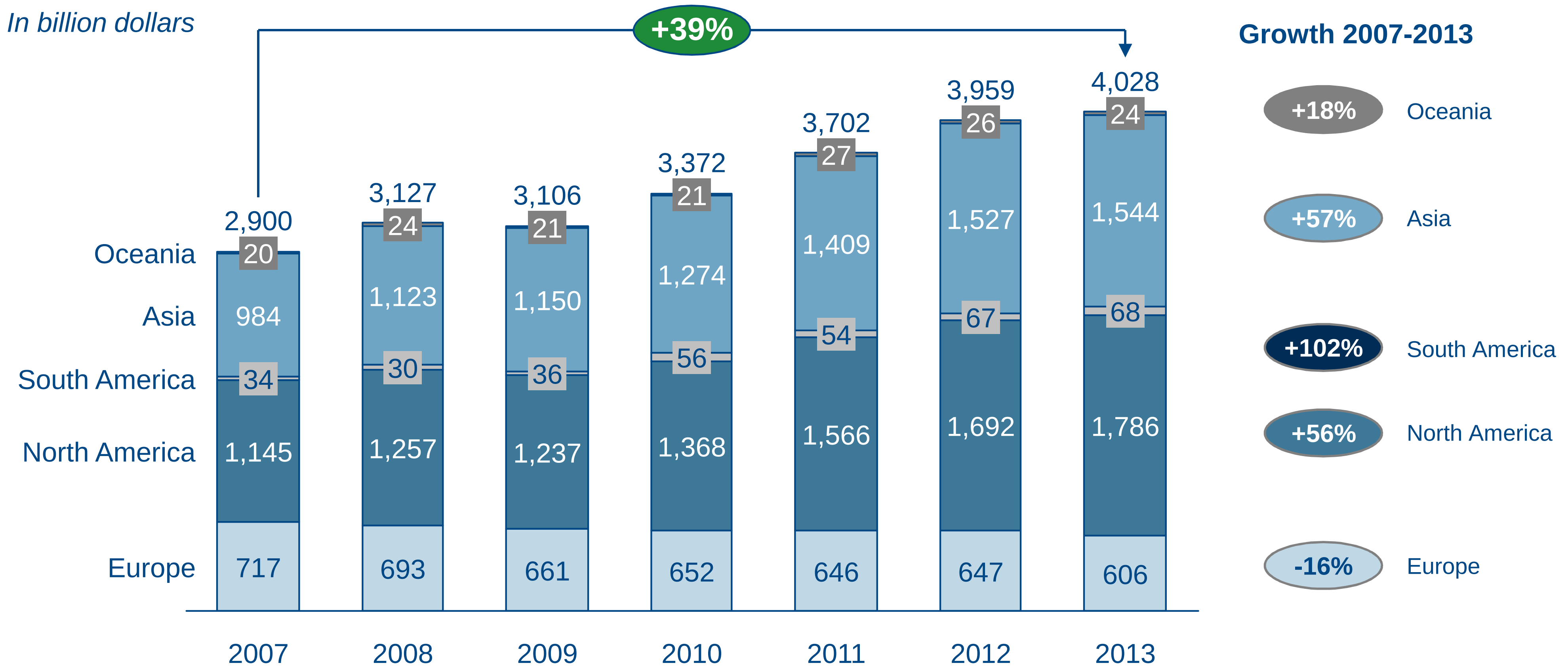


Source: Thomson Reuters, Arthur D. Little analysis

1) Top 30 per category by 2013 revenues

Growth is strong in all parts of the world except in Europe

Revenues of the digital ecosystem by region[1,2]



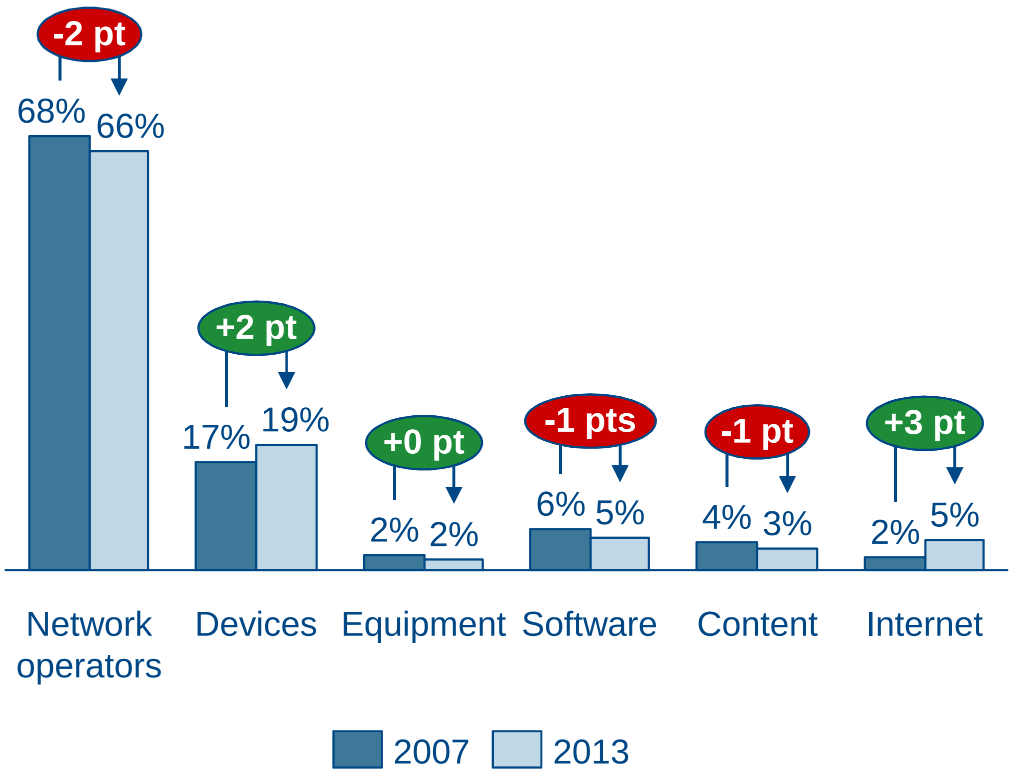
Source: Thomson Reuters, Arthur D. Little analysis

1) Top 30 per category by 2013 revenues
2) Nationality according to HQ location

Globally, telecom operators generate the vast majority of investment, while they benefit only from a third of the added-value

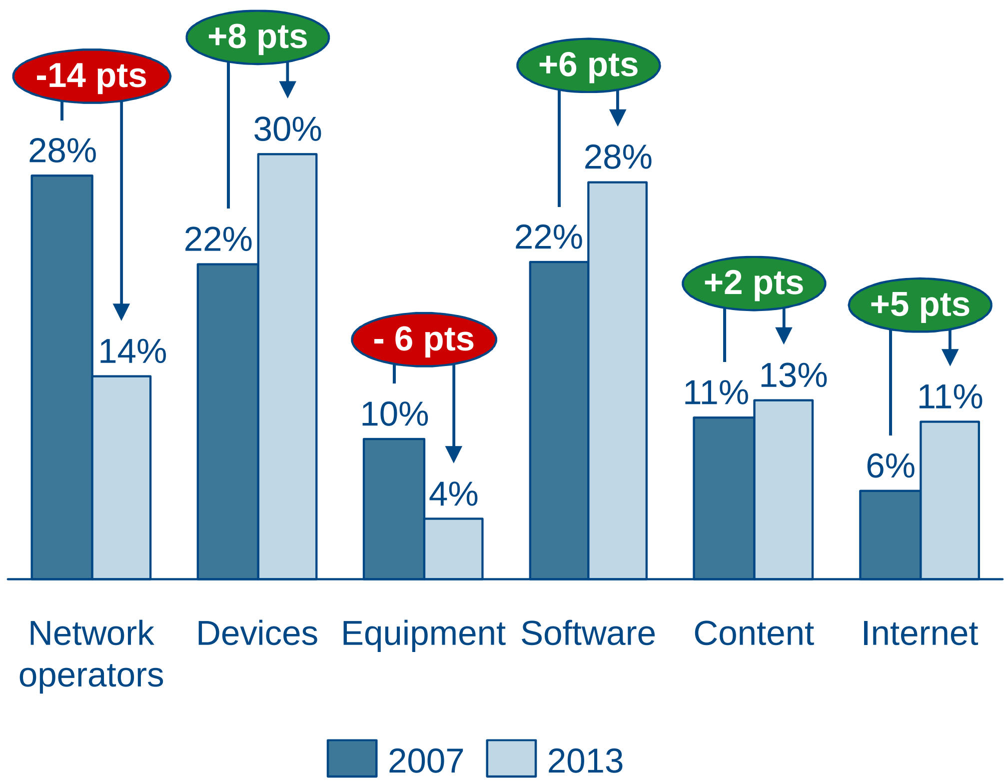
Investment by sub-sector[1]

% of total ecosystem investment



Free cash flows by sub-sector[1]

% of total ecosystem FCF

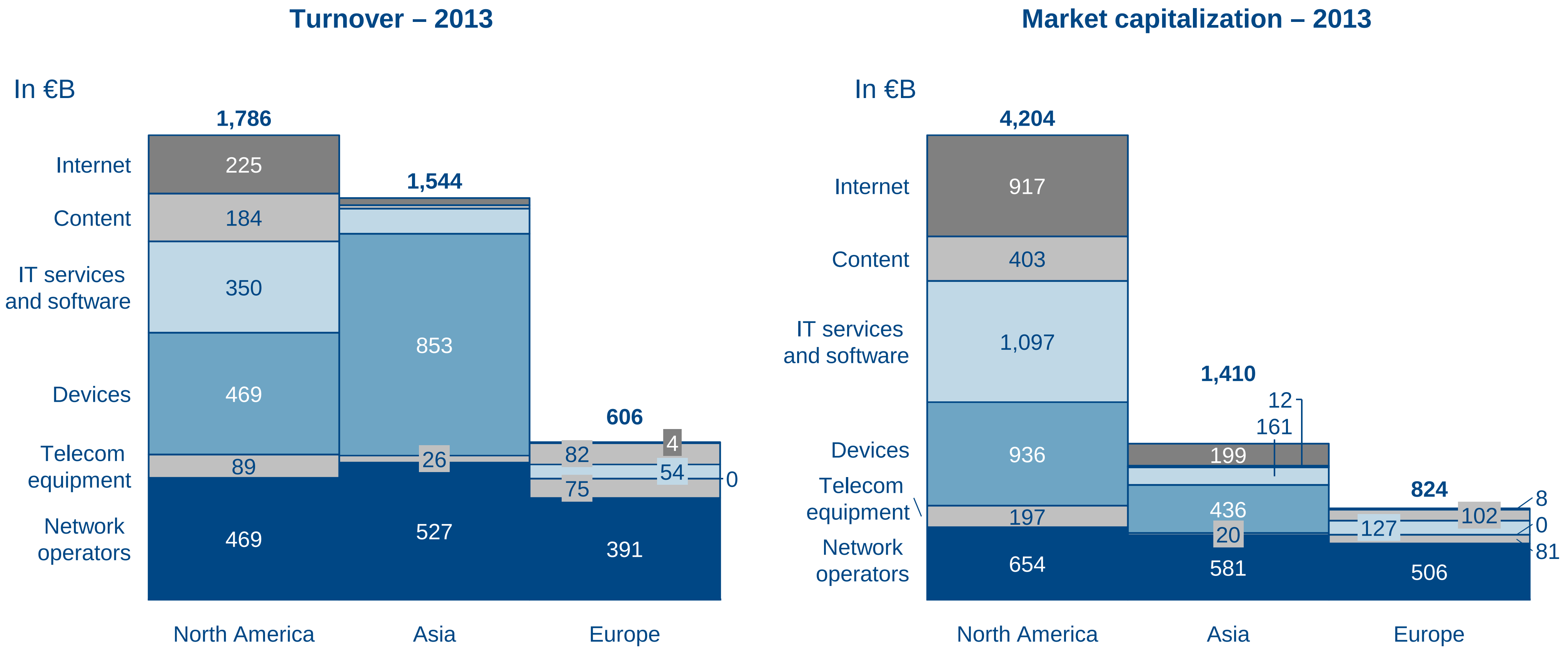


Source: Thomson Reuters, Arthur D. Little analysis

1) Top 30 per category by 2013 revenues

The relative share of telecoms in the digital ecosystem varies dramatically by region of the world; Europe is overweighed in telecoms (or underweighted in other segments…)

Turnover and market capitalization of top 30 players in each category by nationality[1]

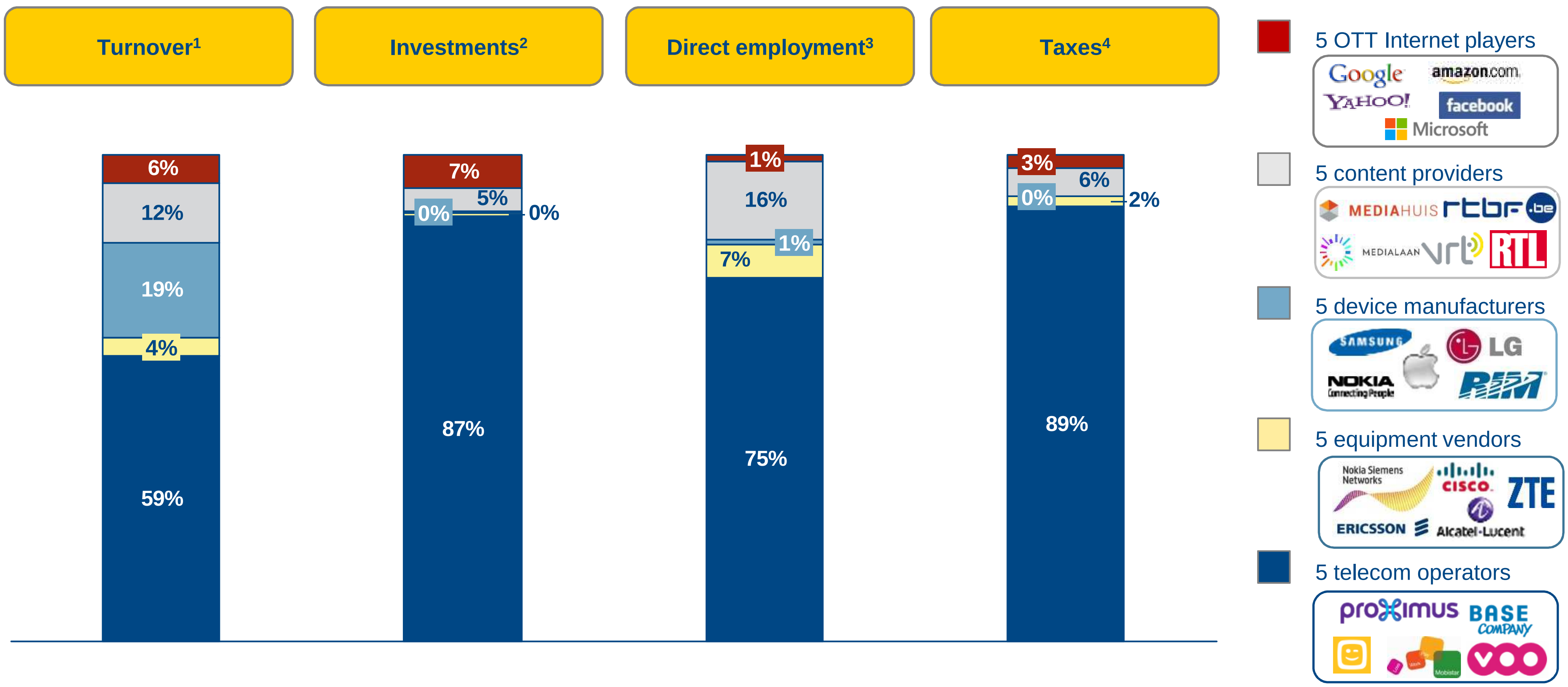


Source: Thomson Reuters, Arthur D. Little analysis

1) Top 30 players by 2013 revenues in each category, geographic breakdown according to headquarters location

In the Belgian digital ecosystem, telecom operators generated 59% of the revenues while accounting for 87% of investments, 75% jobs and 90% of taxes in 2013

2013 Digital Eco-system Turnover, Investment, Employment and Taxes



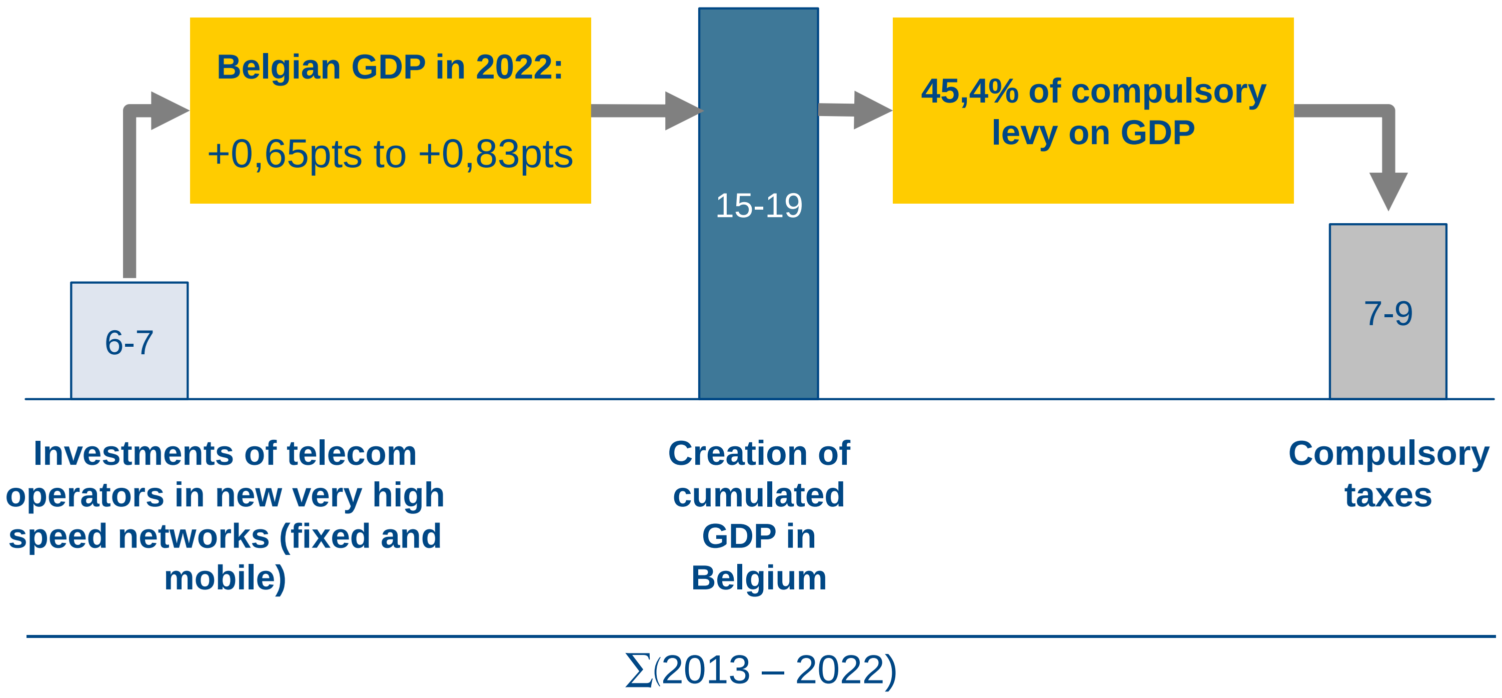
Source : Trends Top, BelFirst, Annual Reports, National Bank Central Balance Sheet Office Arthur D. Little analysis

1) For LG Electronics and Apple, Benelux turnover pro rata of the share of the Belgian population. Facebook revenue calculated on the basis of the EU ARPU. Amazon revenues calculated as a share of turnover in FR with respect to Belgian site visits. Google publicised revenue rescaled for reseller margin
2) Yearly average in terms of FTEs
3) Incl estimates for own content production, incl. estimate for Google Data Center expansion investment 2013-2014
4) Corporate taxes, excluding license fees for telecom players

1 euro invested in new high-speed broadband (fixed and mobile) networks creates 3 euros of GDP which represents 1,5 euros of revenue for the State

Multiplier effect of telecom investment on the economy and revenues for the Belgian State

In billion euros, cumulated from 2013 to 2022



Examples of induced effects on the economy

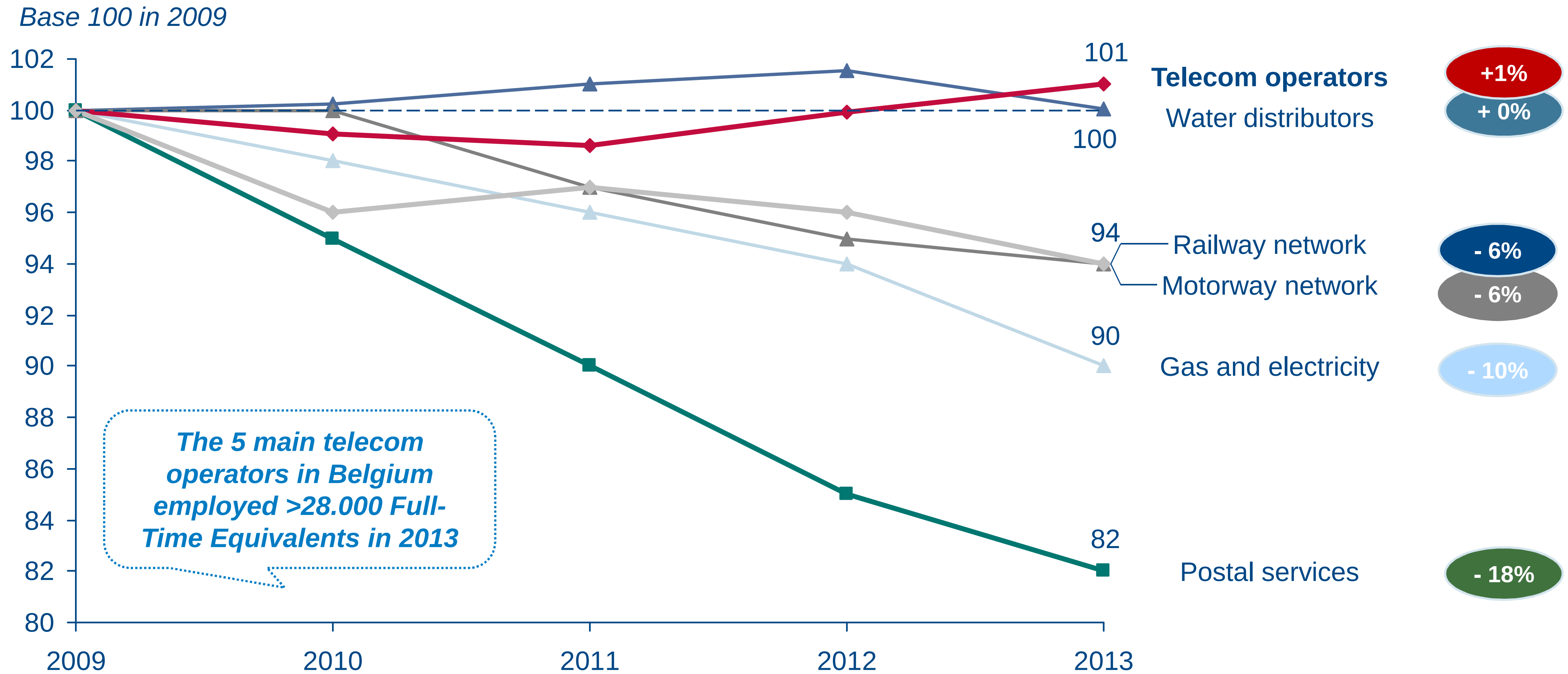
- Time and productivity gains for enterprises
- Time savings and customer experience improvement
- Emergence of new sectors of activities and new players

Next to this, operators will invest in the same time frame €13-14 billion in IT, services, the existing network… with a multiplier of 1,5 to 13

Source : Akamai, IDATE, Arthur D. Little Ericsson Chalmers university of technology « Socioeconomic effects of broadband speeds », Eurostat « Taxation trends in the European Union », Etno Agenda for Europe, Arthur D. Little analysis

Besides, Belgian operators kept their employment levels stable (the 5 main telecom operators employed >28.000 FTEs in 2013)

Employment Evolution in Belgium[1]



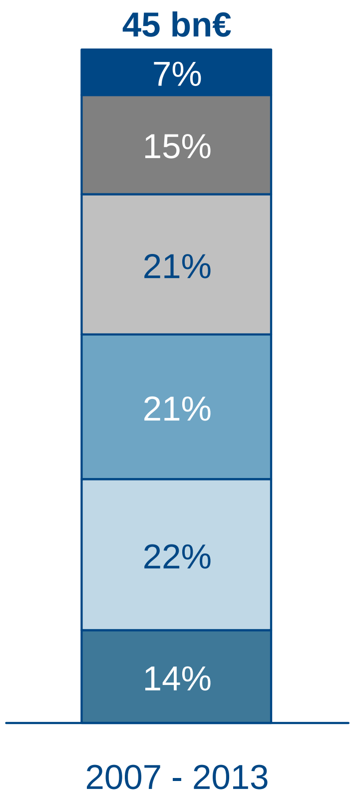
Source : NBB, Annual reports, Arthur D. Little analysis

1) Telecom operators: Base Company, Belgacom, Mobistar, Telenet and Voo; Water distribution: Watergroep, Société Wallonne des eaux, TMWV, Antwerpse waterwerken, Vivaque; Railway network: Infrabel; Motorway network: Wegen en Verkeer; Gas and electricity: Electrabel, Elia, EDF Luminus; Postal services: Bpost

Telecom operators contribute heavily to Belgium’s GDP growth, unlike the “GAFAM[1]”

Value injected by the telecoms into the economy

In billion euros



3 bn€ other expenses (marketing, distribution fees) to other suppliers

6,6 bn€ to private shareholders

9,5 bn€ in the deployment, enhancement and maintenance of the telecom networks

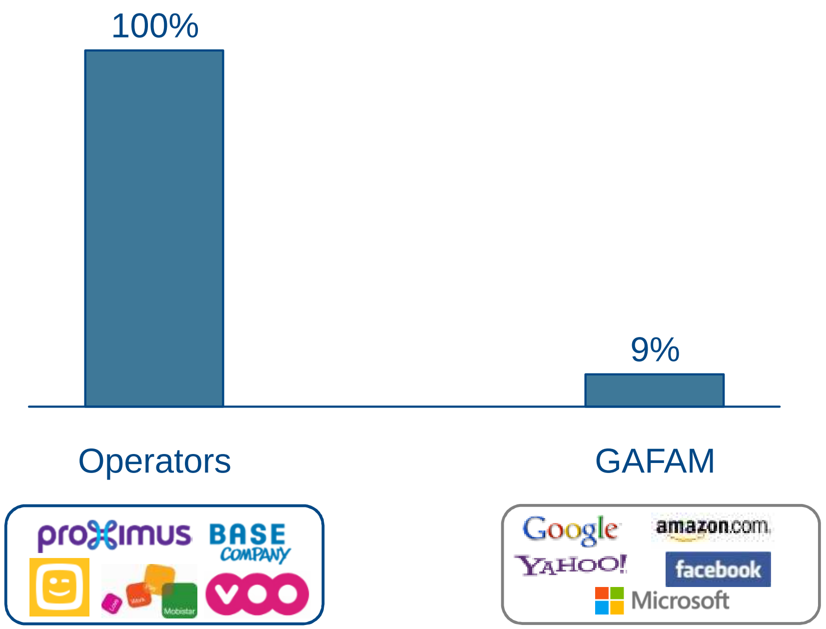
9,7 bn€ to the state in taxes (excluding VAT), licenses and dividends

10,2 bn€ direct land indirect labour costs and benefits

6,2 bn€ to the state in effective net value-added tax (VAT)

Source : Annual reports, TrendsTop, BelFirst, National Bank Central Balance Sheet Office, Arthur D. Little Analysis

Share of added value made in Belgium accounted for in the national GDP[2,3] - 2013



>90% of the added value realised in Belgium by the “GAFAM[(1)]” are not accounted in the Belgian GDP growth

1) Google, Apple, Facebook, Amazon, Microsoft
2) Publicised added value share of estimated added value. Estimated is the added value scaled for the effective revenues of internet players in Belgium
3) GDP is the sum of all publicized added value in Belgium

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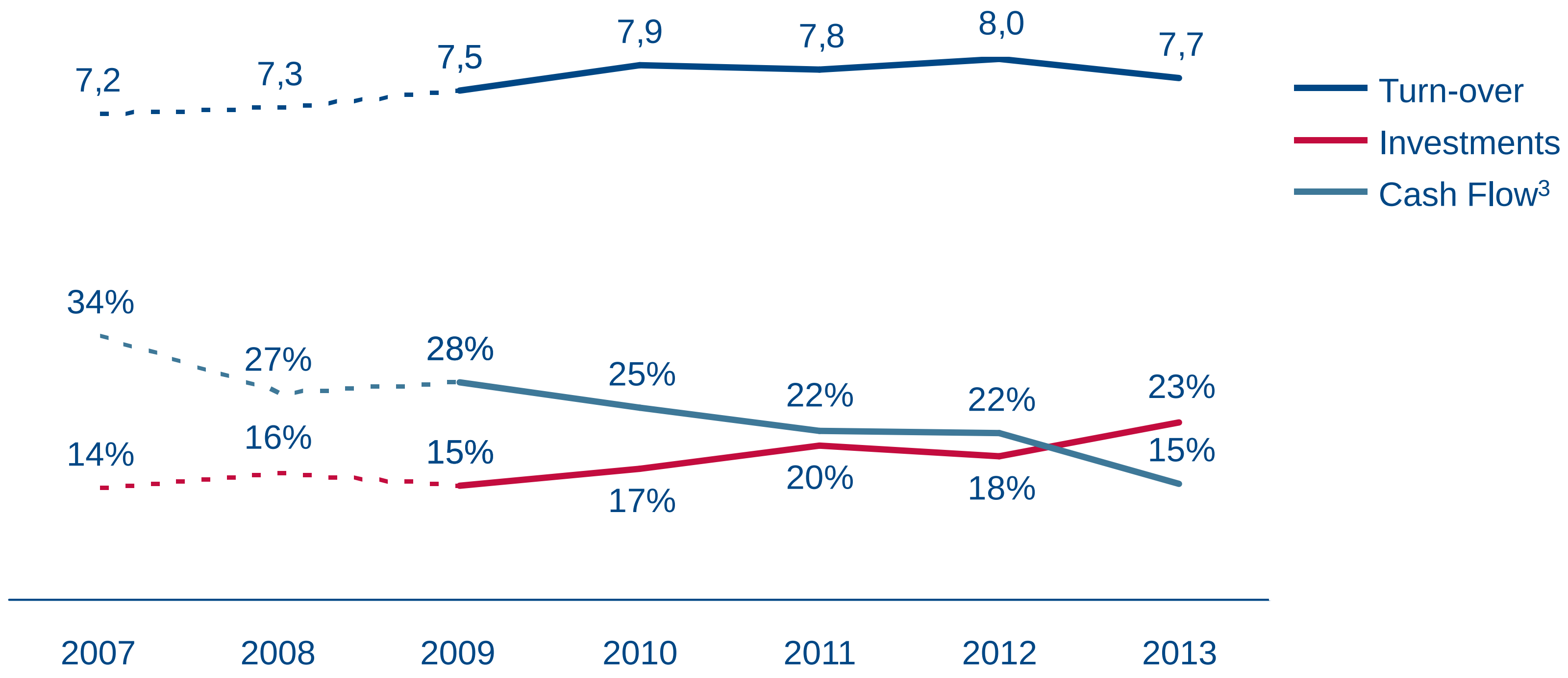
Despite decreasing margins in the industry, operators have continuously increased the level of investment, raising the question of medium-term sustainability

Evolution of Turnover, CAPEX and cash flows - telecom operators in Belgium[1,2]

In percentage of Turnover

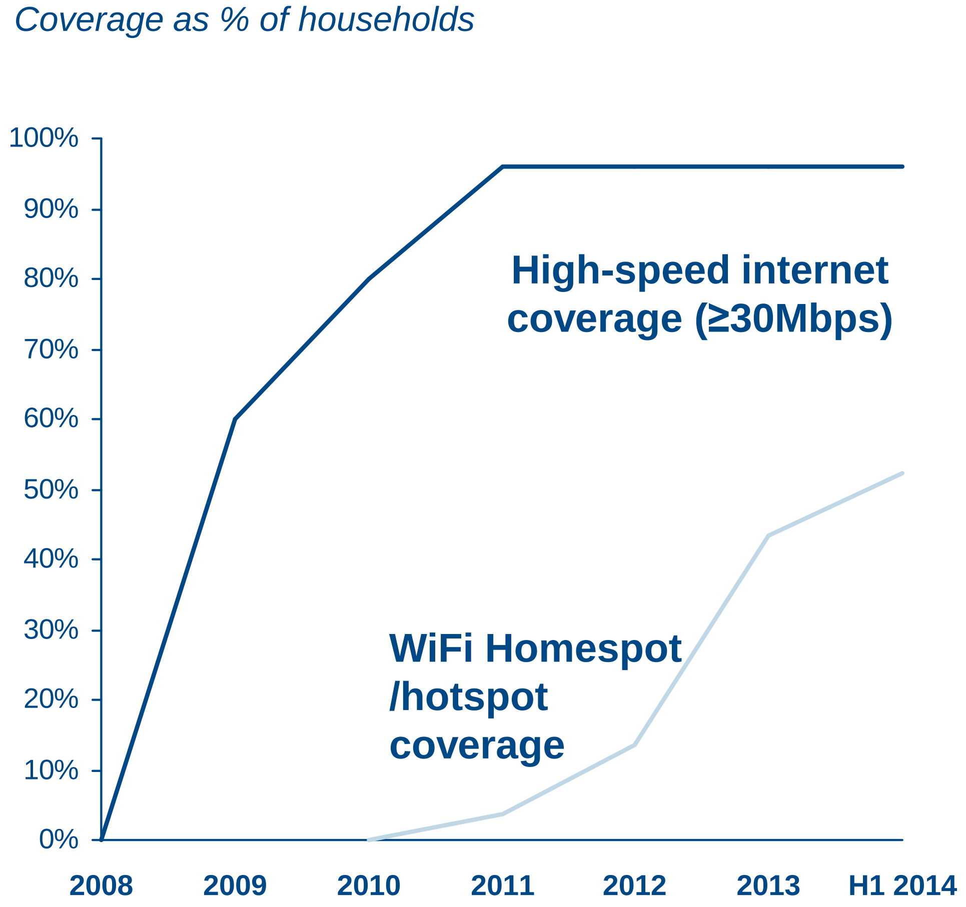


Source: Annual reports, Operators, Arthur D. Little analysis

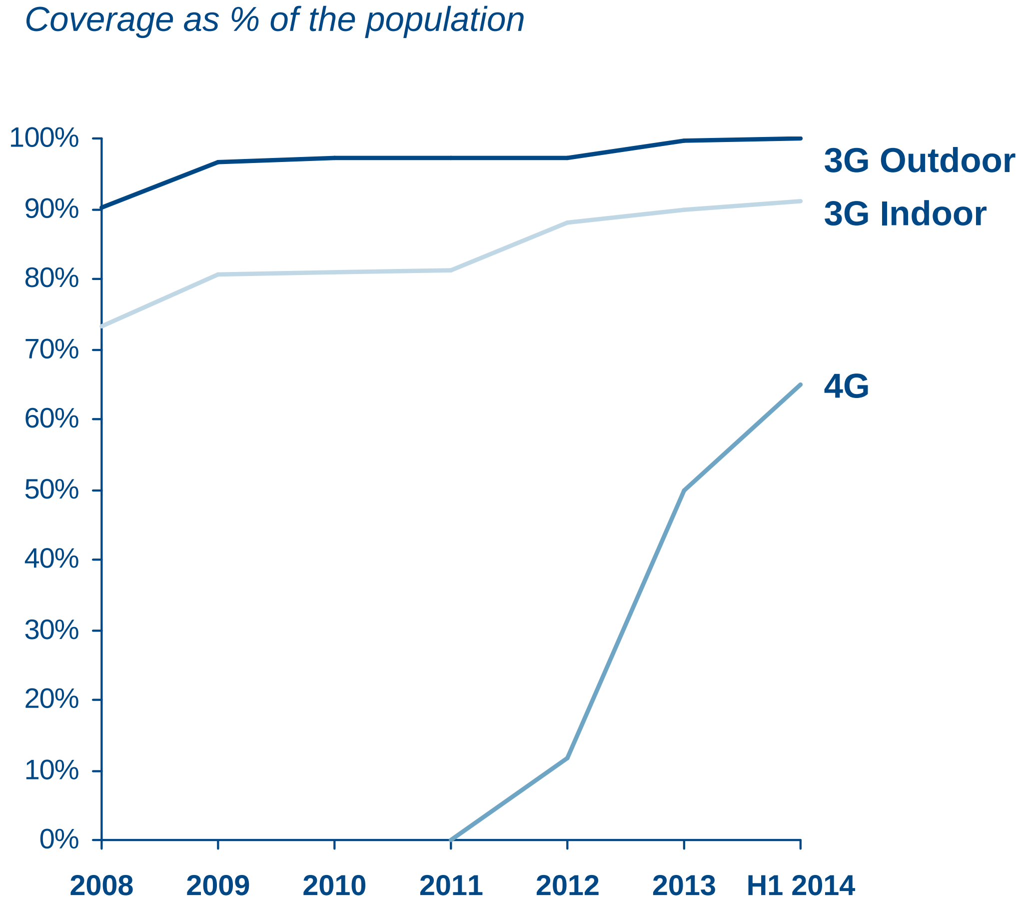
1) Base Company, Belgacom, Mobistar, Telenet and VOO
2) VOO is not included in 2007 and 2008 due to the unavailability of the data
3) Cash Flow = EBITDA - Investments

Telecom Operators have rolled out high-performance networks and are investing in the networks of tomorrow

Fixed High-speed Broadband Coverage



Mobile Broadband Coverage

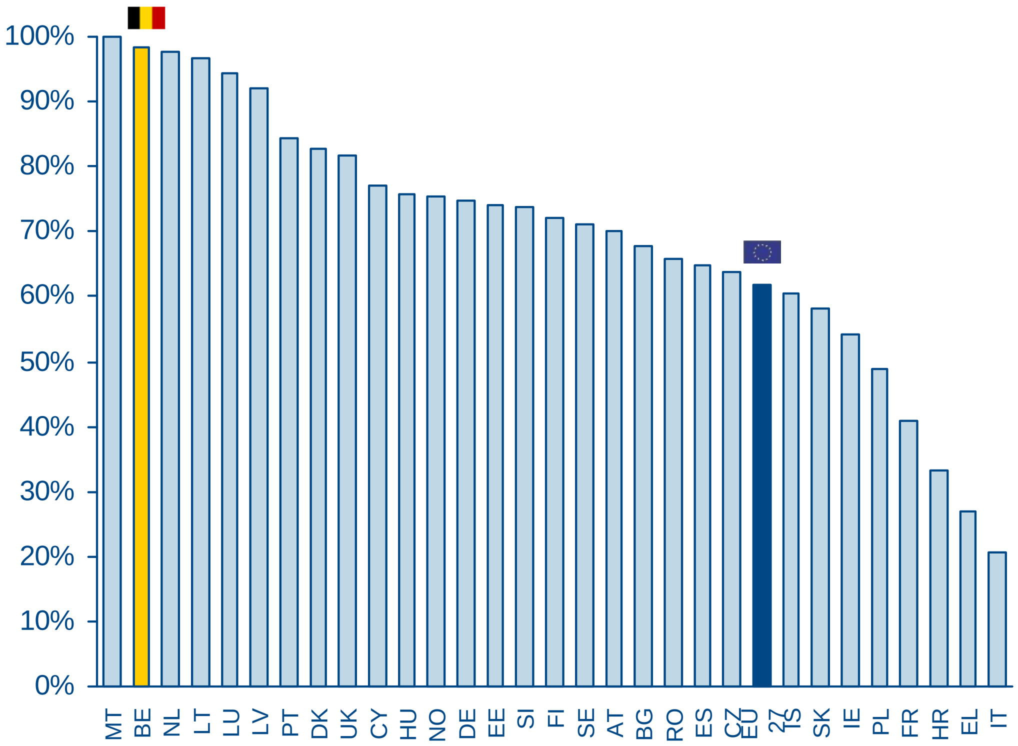


Source : Operators, IBPT, European Commission (Broadband coverage in Europe reports), Arthur D. Little analysis

Belgium is leading in fixed Next-Generation Access broadband coverage and catching-up on 4G

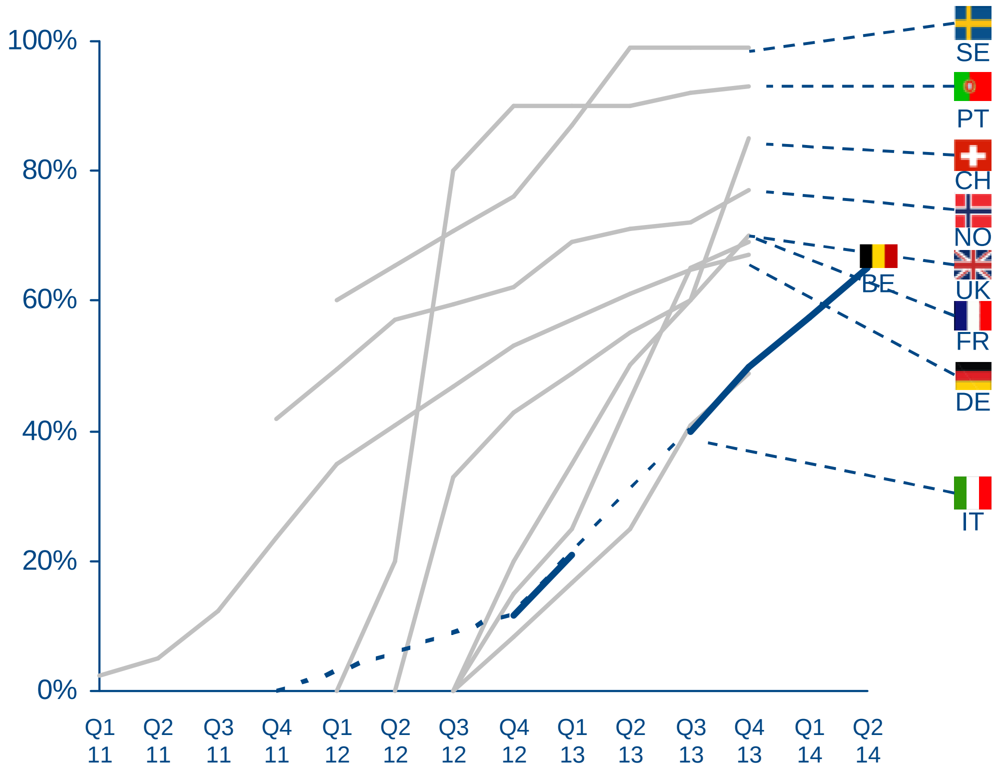
Fixed High-speed Broadband Coverage

Next-Generation Access broadband coverage/availability in 2013, as % of households



Mobile: 4G Coverage

Outdoor coverage as % of the population

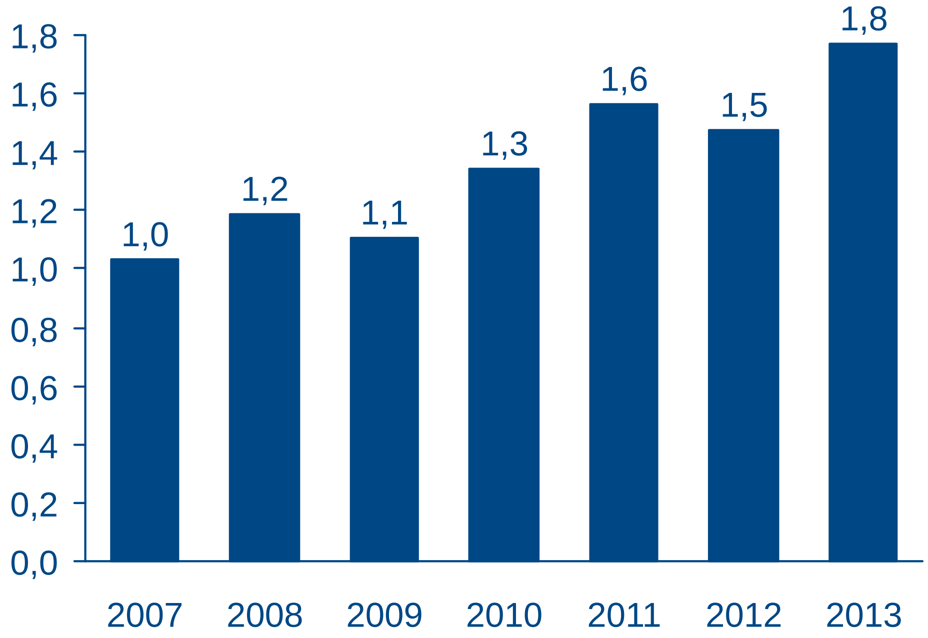


Source : European Commission digital agenda, Exane, Arthur D. Little analysis

Telecom’s investment level in Belgium has reached a new record in 2013, exceeding that of other network infrastructures

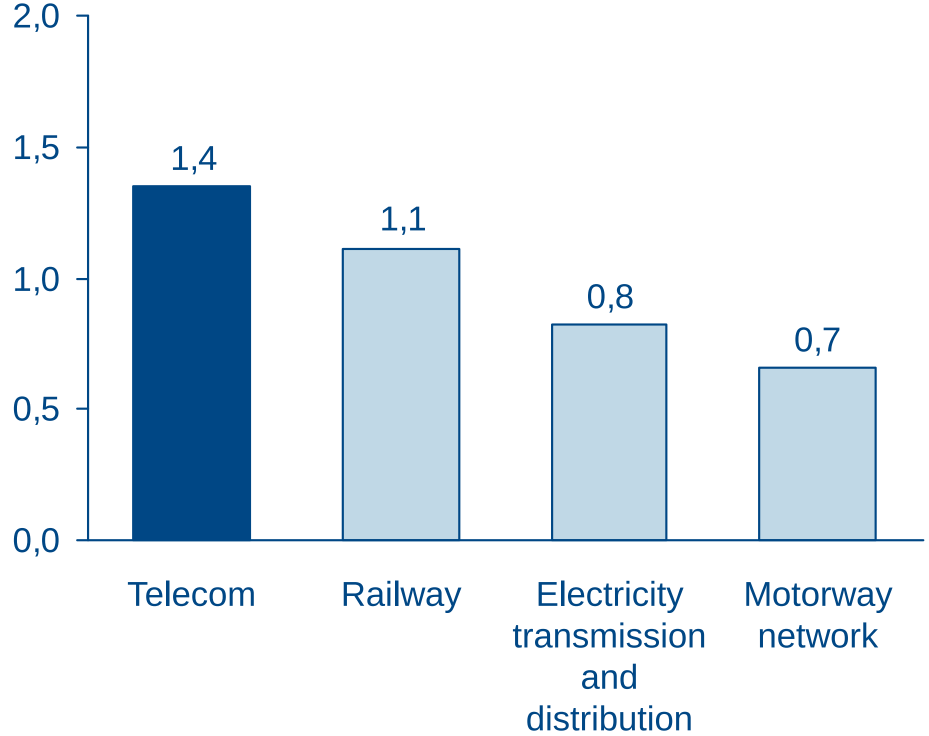
Telecom’s investment in Belgium

2007 – 2013, in billion euros[1]



Investment in network infrastructures in Belgium

Yearly average, 2009 – 2013, in billion euros[2]



Source : NBB, Annual reports, Operators, Arthur D. Little analysis

1) Excluding mobile license fees
2) Telecoms: Base Company, Belgacom, Mobistar, Telenet and Voo; Railway: Infrabel; Motorway network: Wegen en Verkeer and Direction générale routes et batiments; Electricity transmission and distribution: Elia, ORES, Tecteo, Régie de Wavre, AIESH, AIEG, Sibelga, Eandis and Infrax

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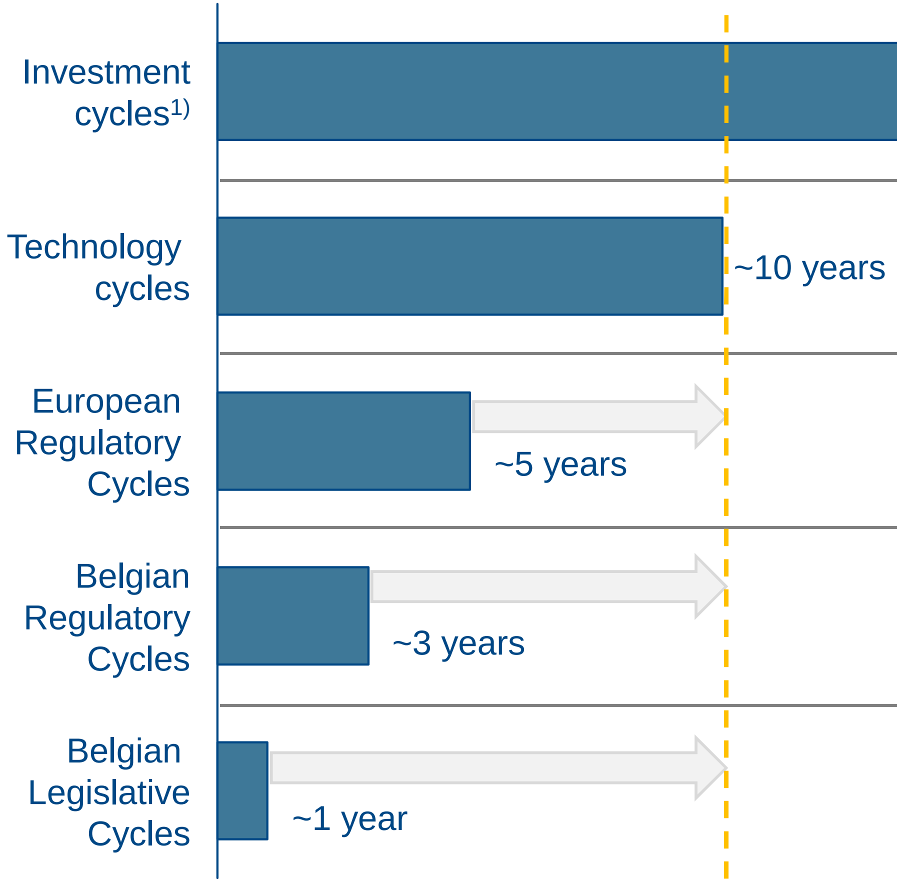
Given the strong growth in telecom services usage and the economic context, it is critical to support the investment effort of the telecommunication operators

Usage of telecom services is growing strongly	**x 15**	Mobile internet volume from 2009 to 2013
	x 10	Number of fixed fast broadband (>30Mbps) users from 2009 to 2013
Value received increases	**x 4-7**	Digital bonus: Operators provide a substantially better offering that generates 4 to 7 times more value for money to the consumers
Operators have nonetheless maintained their investment level in an uncertain environment	**24%**	Of the operators' turnover have been invested in 2013
The telecom sector has a major boosting effect on the Belgian economy	**15-19 bn€**	Of cumulated GDP will be created between 2013 and 2022 by the operators' investment in new super fast broadband networks

Source: BIPT, Operators, Arthur D. Little analysis

Legal and regulatory cycles are not in line with the long cycles of telecom investment

Misalignment between the length of economic, technology, regulatory and fiscal cycle



Technology cycles:
- 1994 : 2G
- 2004 : 3G
- 2012 : 4G

European Regulatory Cycles:
- 2002 : 1st Telecom Package
- 2007 : Roaming I, amended in ‘09
- 2007 : 2nd Telecom Package
- 2012 : Roaming II
- 2013: Projet de règlement CE
- 2014 : 3rd Telecom Package

Belgian Regulatory Cycles:
- Market analysis by regulators

Belgian Legislative Cycles:
- 2005-2014 : New telecom Act with yearly amendments
- 2012 : Telecom Law
- 2012 : VAT increase on digital TV
- 2013 : Walloon regional and municipal tax on GSM masts

Source : Operators, BIPT, European Commission, Thomson Reuters, Moniteur Belge, Arthur D. Little analysis

1) Average years needed to effectively amortize telecom assets. Calculated as being the inverse of the return on capital for Mobistar, Belgacom and Telenet as provided by ThomsonOne

NB: For technological cycles, licenses attribution in Belgium

For a digital New Deal that will foster telecommunication investment

1. Guarantee regulatory predictability to ensure necessary visibility for the telecom investments

2. Set-up fiscal and financial incentives (reduction of over-taxation) to stimulate private investment in high-speed networks

3. Set-up regulatory and fiscal level-playing field for all actors in the digital ecosystem

4. Build trust in the networks in this digital age

5. Public Authorities to stimulate the development of the digital economy

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Contact details

As the world's first consultancy, Arthur D. Little has been at the forefront of innovation for more than 125 years. We are acknowledged as a thought leader in linking strategy, technology and innovation. Our consultants consistently develop enduring next generation solutions to master our clients' business complexity and to deliver sustainable results suited to the economic reality of each of our clients.

Arthur D. Little has offices in the most important business cities around the world. We are proud to serve many of the Fortune 500 companies globally, in addition to other leading firms and public sector organizations.

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