1. STATE OF THE TELECOMS SERVICES SECTOR IN EUROPE

1.1. Introduction

The European telecoms sector experienced a decline in revenues of -1.1%[1] in 2012. While this decline is less than in 2011 (-2.2%), it contrasts with the trend in other regions such as the US and the rest of the world, where revenues for telecoms services experienced 5.1% and 5.8% year-on-year increases respectively in 2012.

Table 1: Revenues of the EU telecoms sector

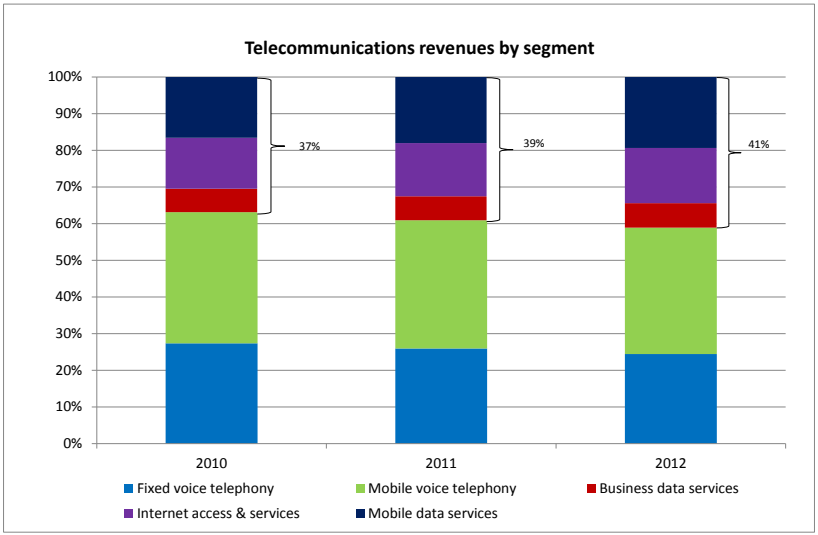
	Growth rate 2010/2011	Growth rate 2011/2012	Share in e-comms service revenue
Fixed voice and Internet access and services	-2.2%	-1.1%	39%
Fixed voice telephony	*-7.2%*	*-7%*	*24%*
Internet access and services	*2%*	*2.4%*	*15%*
Mobile voice telephony and mobile data services	-1%+	0.4%	54%
Mobile voice telephony	*-4.4%*	*-2.7%*	*34%*
Mobile data services	*6.3%*	*6.3%*	*19%*
Business data services	0.3%	1.1%	7%
Total telecom services (carrier services)	-2.2%	-1.1%	100%

Source: EC services based on EITO 2012

In absolute figures, carrier services revenues were estimated at EUR 234.6 billion in 2012. This compares to EUR 237.2 billion in 2011. Voice services (fixed and mobile) are still the main contributor, accounting for 59% of revenues of EU telecom operators, but their relative size continues to decrease (-7% growth in fixed voice telephony and -2.7% in mobile). Data revenues continue to grow, in particular revenues for mobile data services (6.3% growth compared to a 3.5% growth for fixed data). Data revenues account for 41% of the sector (Figure 1).

[1] EITO 2012. Figures on growth in the different segments are based on data for 13 Member States that represent around 85% of the EU market

Figure 1: Telecommunications revenues by segment



Source: EC services based on EITO 2012

1.2. Key developments in 2012

In 2012 telecoms operators struggled to reverse the declining trend in revenues and margins, focusing on retaining customers and increasing ARPU, amidst a combination of challenging elements:

- very high penetration of current generation of fixed and mobile telephony and of fixed-line broadband access[2] in several countries, with limited prospects for organic growth;
- downward pressure on telecoms pricing driven by a number of factors including competition and shrinking demand for services in several countries heavily affected by the financial and economic situation[3];
- rapidly growing demand for fixed and mobile data traffic driven by the fast spread of smartphones and tablets[4]. This brought about a further commoditization of voice, both in fixed and more and more in mobile services, that was not compensated by the steady increase of mobile data revenues.

1.2.1. Growth of mobile traffic

The gap between the impressive growth in traffic and the much lower growth in data revenues is having a clear impact on the sector. Between 2010 and 2012, revenues from data services increased by 8%. By contrast, the proportion of the European population using a mobile phone to access the Internet nearly doubled, going from 14% to 27% in 2012[5] and the demand in traffic has been doubling every year. The volume of mobile data traffic in Europe is expected to grow more than tenfold in the period from 2010 to 2015[6] and global growth

[2] See chapter on broadband.

[3] Especially in Greece, Spain and Ireland. The state of the economy deteriorated in 2012 at European level with a -0.6% GDP growth rate in the euro area and -0.3% in the EU27 compared to 2011.

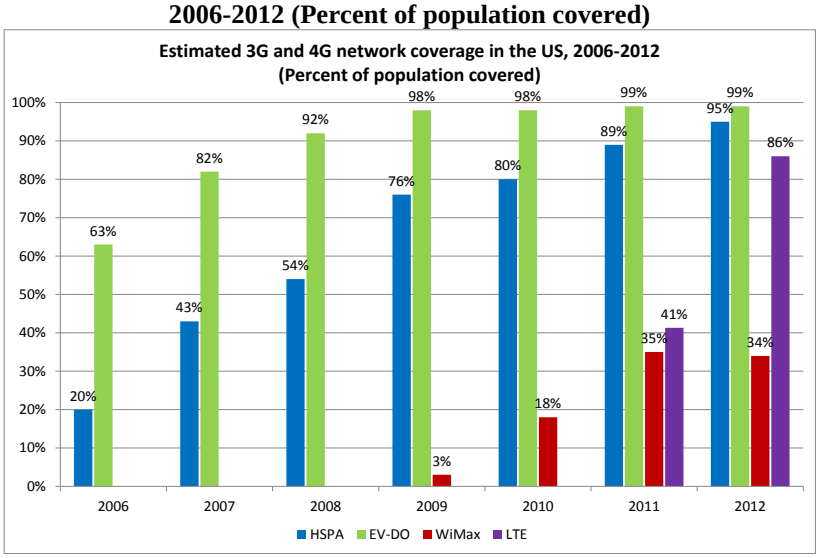
[4] In 2011, tablet shipment volume soared by more than 150% year-on-year in most Western European markets, with France and Italy both seeing shipment growth more than tripling and Switzerland and Austria seeing shipment volume almost tripling (EITO 2012). In 2012 the market for tablets was estimated at 117 million units (IDC, 19/09/12).

[5] Eurostat

[6] *Europe clears the way for 4G*, ScreenDigest, January 2012

surged by an estimated 350% between 2010 and 2012 (Figure 3). It is estimated that, in 2012 alone, mobile data traffic increased by 69%, with 3G data representing almost 50% of the total and with an acceleration of LTE traffic (+207% y-o-y growth)[7]. In 2012 a fourth-generation (4G) connection generated 19 times more traffic on average than a non-4G connection and although 4G connections represent only 0.9% of mobile connections they account for 14% of mobile data traffic. At the same time, the price of mobile data in the EU is amongst the lowest in the world, with some data plans being less expensive in the EU than in other regions of the world (Figure 4). Since achieving full coverage of 4G networks offering higher speed access may still take some years, rapid adoption of 4G services at higher prices is not expected. This compares badly to the rapid rise of LTE subscribers in South Korea, where it only took a few months to double the number of subscribers from ten to twenty million[8], or to the wide coverage of LTE networks in the US, which doubled from 41% to 86% of the population in one year[9].

Figure 2: Estimated 3G (HSPA and EV-DO) and 4G (WiMax and LTE) network coverage in the US, 2006-2012 (Percent of population covered)



Source: FCC

As in the fixed broadband markets, mobile operators need to find the right pricing strategies to convince mobile users of the benefits of adopting more expensive 4G services thereby increasing mobile ARPU[10].

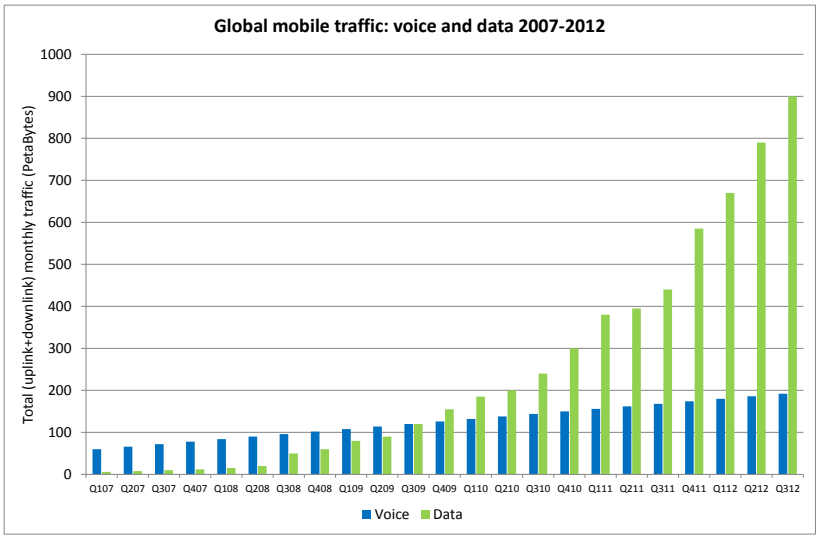
[7] ABI Research, March 2012

[8] *LTE subscriptions in South Korea top 20 million*, TeleGeography, April 2013

[9] *16th wireless service competition report*, FCC, March 2013

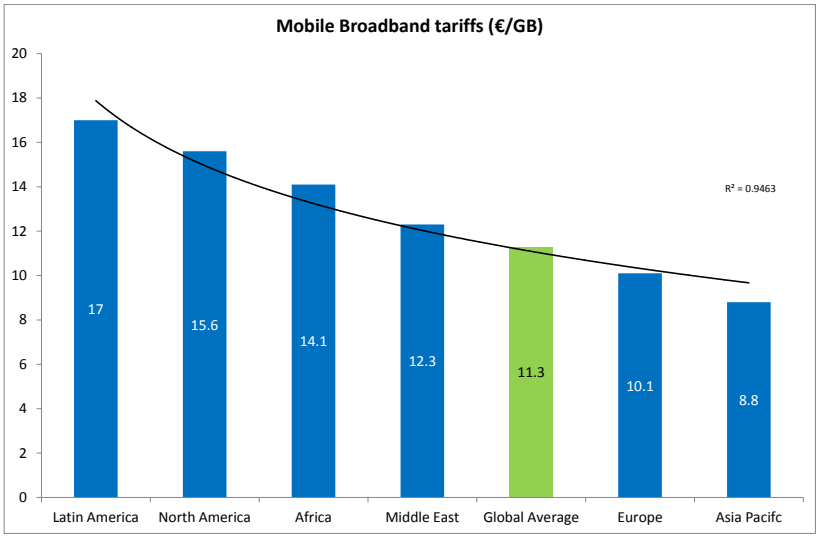
[10] *4G - going faster, but where?* Arthur D. Little - Exane BNP Paribas report 2013, April 2013. Chapter four provides additional data on the perceived barriers to the use of the mobile internet by consumers

Figure 3: Global mobile traffic: voice and data 2007-2012



Source: Ericsson

Figure 4: Price of mobile broadband



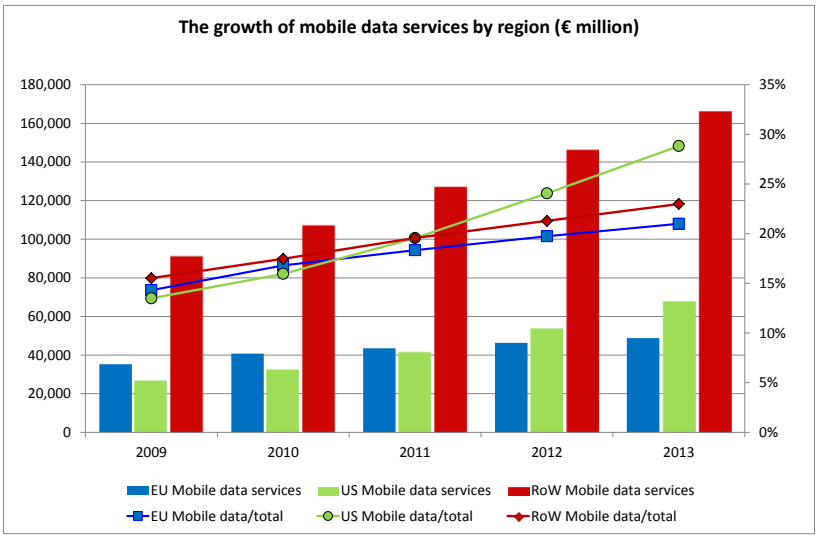
Source: Quantum Web

Compared to other regions, the EU market is lagging behind both in terms of mobile broadband revenue growth as well as with regards to the overall size of the market (Figure 5). According to some estimates[11], the average U.S. mobile subscriber used 450 MB per month in the first quarter of 2012, and this figure could have increased up to 750 MB per month at the end of the year. This compares for instance with an average 250 MB[12] per month in the UK. It is true though that mobile data consumption in the EU is very much determined by the dominance of limited data plans, and susbscribers to operators with unlimited or generous data plans tend to show comsumption patterns similar to the US. The relative size of the EU mobile market shrank in 2012 compared to the US or China (Figure 6).

[11] Nielsen, July 2012

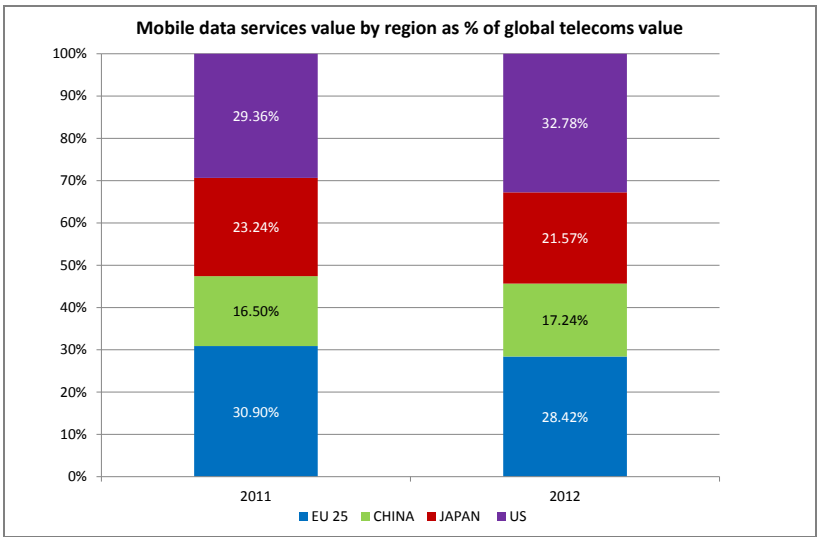
[12] Ofcom's Infrastructure Report - 2012 Update. http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/infrastructure-report-2012/

Figure 5: Growth of mobile data revenues by region



Source: EC services based on EITO 2012

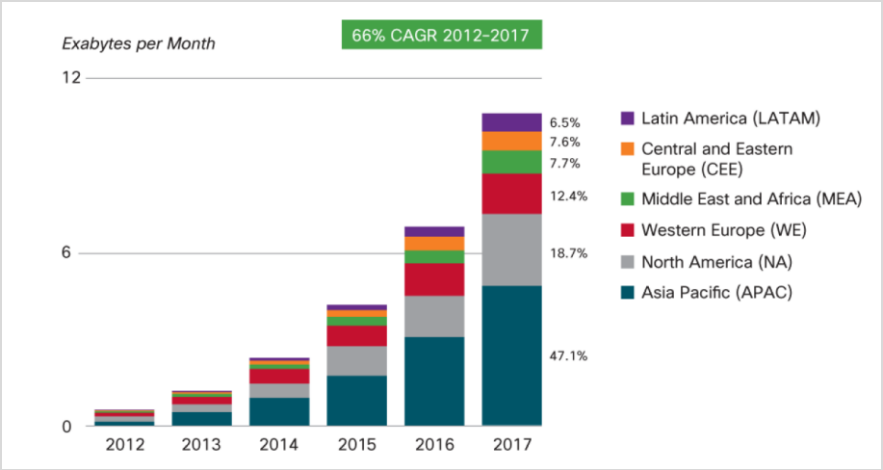
Figure 6: Mobile data services value by region as % of global telecoms value



Source: EC services based on EITO 2012

In terms of traffic, it is estimated that the EU market will not even take a fifth of the global mobile traffic in 2017, with Asia Pacific and North America accounting for almost two-thirds of global mobile traffic (Figure 7).

Figure 7: Global Mobile Data Traffic Forecast by Region



Source: Cisco

1.2.2. Fixed traffic

Despite the extraordinary growth in mobile, in 2012 fixed traffic still represented the largest share of total internet traffic. In contrast with the growth in mobile data, some operators have expressed concerns about the sluggish demand for faster fixed broadband products and the lack of incentives to invest in this segment. They argue that there is a gap between current and projected availability and the actual take-up of high-speed broadband access, combined with the still significant level of revenues coming from traditional voice services. This reduces operators' capacity to price up new high-speed broadband products. To oppose this view, some analysts point to market signs indicating that demand for faster fixed broadband products is on the rise, as in the UK, for instance[13]. At EU level, fixed broadband access lines providing speeds equal or higher than 10 Mbps experienced a very high increase (+ 10 percentage points), accounting for almost 60% of all EU lines at the end of 2012, and the take up of broadband subscriptions above 30 Mbps went up from 2.5% to 4.1% in one year. Next Generation Access lines capable of providing much faster speeds account for 20% of all fixed broadband lines as opposed to 12% of one year ago. It is significant that the number of xDSL connections at global level decreased for the first time in the fourth quarter of 2012 to 366.66 million from 366.95 million in the previous quarter, trumpeting the arrival of faster access technologies[14]. Arguably, the arrival of the connected TV to the market, along with an ever increasing number of other connected devices per households (computers, smartphones, tablets, video players, game consoles, DVD players and set top boxes) triggers the demand for more capacity (Figure 8). Some analysts also argue that a surge of fixed internet traffic can be expected in the next five years: the absence of cost constraints, the faster speeds offered by fixed technologies and the proliferation of connected devices[15] are some of the reasons put forward for such renewed growth. Indeed traffic offloading to fixed and Wi-Fi networks and the use of femtocells as enablers of mobile broadband access was a very recurrent topic

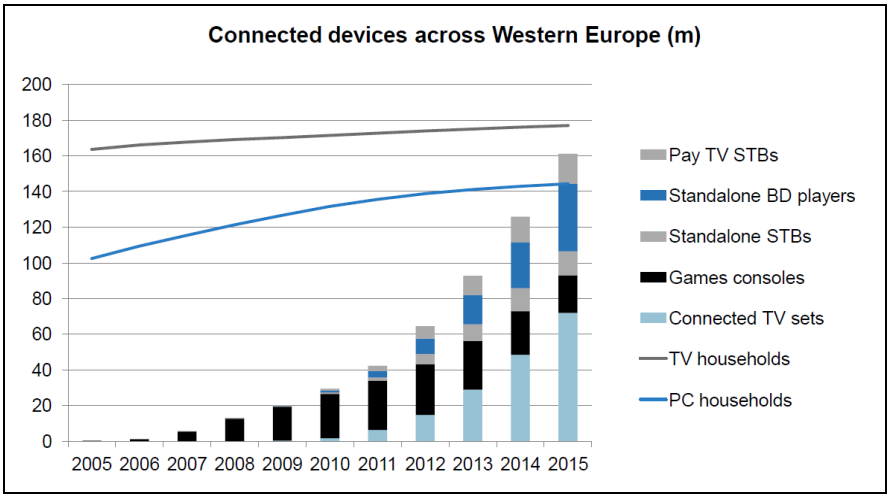
[13] *BT Q3 2012/13 results: Fibre take-up accelerates, but sports costs loom*, Enders Analysis, February 2013; OFCOM: Ofcom's latest report into fixed-line residential broadband speeds shows that the average actual UK speed has risen by a third (3.1Mbit/s or 34%) in the six months from May to November 2012, as take-up of 'superfast' services increased; In January 2012 Virgin Media announced an increase in broadband speeds to meet consumers demand.

[14] *The DSL king is dead long live the VDSL king*, Point Topic, April 2013. See the chapter on the broadband market for more information on the take up of NGAs.

[15] *Surging fixed Internet traffic should make operators and policymakers consider the effectiveness of rural LTE*, Informa, February 2013

throughout 2012[16]; 33% of total mobile data traffic was offloaded in 2012 and this figure is projected to increase to 46% in 2017[17]. The deployment of femtocell units at global level is expected to multiply by 20 times between 2011 and 2016[18].

Figure 8: Connected devices by type in Western Europe



Source: ScreenDigest

1.2.3. The platform battle

The blurring of the boundaries between three market segments that were once very well delimitated (internet service providers; broadcasters and providers of online content and/services; manufacturers of consumer electronics and IT components[19]) has seriously affected telecom operators. Revenues in the global IT industry (manufacturers of servers, PCs, handsets and tablets, software, IT services) were estimated to have increased by 1.2% in 2012, although the actual figure could change depending on the performance of some economies.

New market actors are providing communications, content and value added services on top of the communications channels provided by network operators. While the provision of such services benefits telecom operators as it stimulates network effects, thereby increasing the value of being connected and driving demand by consumers for further and better connectivity, it also erodes the main source of revenues of network operators. The traditional voice service, which still contributes a quarter of overall telecommunications revenues, is fading away very quickly, replaced by voice applications provided by the OTTs (Skype, GTalk or even Facebook voicemails). Substitution of SMS text messaging by IP-based messaging services was another reason for margin erosion in several telecom operators[20], and this prompted many operators to develop new, more aggressive pricing structures as well as

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[16] *Mobile Data Offload & Onload,* Juniper Research, April 2013: The amount of mobile data generated by mobile devices (smartphones, featurephones and tablets will exceed 90.000 petabytes in 2017, but only 40% of data generated by these devices will travel through mobile neworks with the largest part of data sent through WIFI networks and small cells.

[17] Cisco Visual Networking Index Forecast, February 2013. http://newsroom.cisco.com/release/1135354

[18] Informa, *Small-cell deployments to be dominated by consumer-driven femtocells*, May 2012.

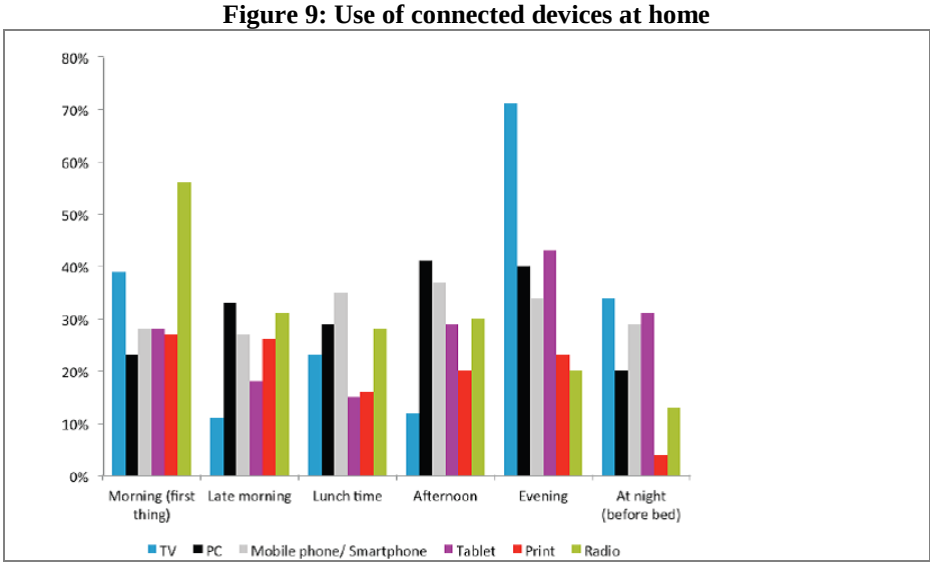
[19] Intel, a semiconductor manufacturer, was rumoured to be preparing the launch of a virtual cable TV service and set top box and. Smart Tv manufacturers also deploy their own Connected TV platforms.

[20] Daily OTT messaging traffic has overtaken daily P2P SMS traffic in terms of volume, with an average of 19.1 billion OTT messages sent per day in 2012, compared with an average of 17.6 billion P2P SMS messages, Informa, *OTT messaging traffic will be twice the volume of P2P SMS traffic by end-2013*, April 2013. According to recent estimates, the use of texting applications would have taken away $23 billion in revenue from carriers as of the end of 2012. (Ovum, http://ovum.com/press_releases/ovum-forecasts-social-messaging-will-cost-telcos-over-23-billion-in-sms-revenue-in-2012/). Whatsapp has more users than Twitter and the platform handles about 8 billion incoming and 12 billion outgoing messages per day.

their own IP messaging products[21]. Finally, voice revenues were also affected by reductions in mobile termination rates in 2012 (in nine EU countries average MTR were slashed by more than 50%), mobile number portability and, in some countries, by the competitive pressure of network challengers[22] and MVNOs.

Manufacturers of mobile devices and operating systems have also entered the picture by providing content and applications platforms linked to their devices, Apple's "app store" and Google's "Play store" being the typical examples; the arrival to the market of smartphones has been the main driver of the explosion of mobile broadband traffic, and this has certainly benefitted operators (newest versions of smartphones may consume twice as much data as the previous models[23]). Also more and more broadcasters are launching online TV services in an effort to attract larger audiences and generate more revenues from advertising[24] amidst a growing trend to switch from the traditional TV sets to other fixed and mobile devices[25], and this also spurs demand for more broadband capacity.

Figure 9: Use of connected devices at home



Source: Deloitte/GfK, February 2013

[21] At the 2012 Mobile World Congress the five largest EU mobile operators (Vodafone, DT, TI, Telefonica and France Telecom unveiled an application called Joyn under the Rich Communication Services programme created by the GSM Association. This application would in principle be free and not include advertising, and additional services (VoIP and IP video calls) would be added. France Telecoms has been selling its own OTT messaging app named *Libon*, Telefonica announced the preloading of its *TuMe* app in its smartphones and Vodafone introduced its *Red Package*, which may include unlimited calls and text messages for free.

[22] Iliad's Free Mobile managed to attract 2.6 million subscribers in 82 days. Informa Telcoms and Media. *Case study: Iliad's Free Mobile signs up 2.6 million subscribers in just 82 days*, June 2012.

[23] *Arieso reveals latest trends in smartphone data use*, Arieso, January 2012.

[24] 20% of all advertising budgets in Europe were dedicated to online in 2011. ADEX BENCHMARK 2011, July 2012. In 2012 mobile advertising revenues jumped by 111% to $3.4 billion. IAB *Internet Advertising Revenue Report*, April 2013. See also "White Smoke: The new era for video news", Associated Press, April 2013.

[25] *Zero-TV Doesn't Mean Zero Video*, Nielsen Research, March 2013. In Sweden owners of computers or tablets now have to pay television license fees and Finland will start collecting the public service broadcasting tax from general taxes. A 2011 survey by Google amongst 1 400 tablet users in the US showed that more than 1 in 3 respondents used their tablet more than they watched TV.

Here again there is a similar network effect: consumers that have several mobile devices value online content more than those with just one device[26]. But, the rapid adoption of smartphones and tablets, with their associated content and applications platforms, has had an impact in the commercial strategies of operators, which did not succeed in making their own content and services platforms profitable[27]. By subsidizing smartphones in an effort to gain new mobile data subscribers, network operators have indirectly supported the competing online platforms of the largest manufacturers, driving consumers away from their own content platforms. There are many different figures on the mobile applications market, the value of which could have reached 11 billion euros in 2012, with more than 50 billion downloads and 41 applications per user on average, which represents a 32% increase over 2011, when the average was 32 applications[28]. Other sources estimate a smaller market size with around 44 billion downloads for an estimated value of 4.15 billion euros[29]. While Android is the dominant operating system in the world, equipping up to 70 per cent of the smartphone market, App Store is estimated to be earning on average about 2.6x the app revenue of Google Play[30]. Consumption patterns are also very different from one country to another. In the US, Apple devices are very popular (35% of the smartphone market) and they generate twice as much mobile data traffic as Android based devices, which dominate the market with more than 50% of it[31]. The situation in Finland is the reverse: here Android owners consumed 2.07 GB of mobile data – nearly twice the 1.05 GB of iPhone owners. Telecom operators also need to be aware of these trends in their commercial and pricing strategies.

This battle to gain control of the platform is confirmed by the fact that some device manufacturers are willing to sell their devices at cost, with the objective of having more and more consumers buying content (music, films, application and books) from their online platforms[32] ,or by the new way to access Microsoft Office 2013, which would be based on a subscription model that would include some free minutes of VoIP per month. Operators are therefore understandably willing to support the emergence of alternative ecosystems that would put pressure on the dominant ones[33] and enter into alliances with providers of online content and services, bundling access to this content in their data plans[34]. Mobile payments is also another market segment where operators are exploring several strategies. In September

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[26] "There is a 41 percent increase in perceived media value when consumers add a second mobile device to their collection, another 40 percent increase when they add a third, and a 30 percent increase when they add a fourth". *Through the Mobile Looking Glass*, The Boston Consulting Group, April, 2013

[27] Operator platforms would account for just 6% of content downloads worldwide, with Google Play and Apple's App Store concentrating 70% of this market. Juniper Research, March 2013. Samsung, the number one manufacturer of Android-based smartphones, has announced partnerships with several publishers of games, travel tips, books and music and will be providing access to these applications through its hub. IDC estimates that games on smartphones are expected to outpace hand-held devices by the end of 2013. *Worldwide Gaming-Optimized Handheld, Smartphone, and Tablet Gaming 2013–2017 Forecast*, IDC, April 2013.

[28] *Survey Report: Mobile Apps - What Consumers Really Need and Want, Compuware*, March 2013, quoting data from Nielsen. http://www.compuware.com/about/release/747433/mobile-apps-vs-mobile-websites--and-the-winner-is

[29] HIS Screen Digest. Downloads for all smartphone and feature phone application stores excluding tablets.

[30] App Annie Index, Market Report Q1 2013 – *iOS App Store revenue 2.6x that of Google Play*, http://blog.appannie.com/app-annie-index-market-q1-2013/

[31] *16th wireless service competition report*, FCC, March 2013; Investing Analytics for Piper Jaffray, http://www.jailbreakauthority.com/apple-ios-devices-generate-double-the-web-traffic-than-android/; Big differences between Finnish Android smartphone and iPhone owners, Alekstra,

[32] AmazonMP3, had 22 percent of the market for music downloads in the United States in l2012 up from 7 percent in 2008. *Amazon gains against Apple's iTunes in music downloads*, Reuters, April 2013.

[33] At the last World Mobile Congress 18 large mobile operators announced their support to Mozilla as a third mobile operating system/platform. These were América Móvil, China Unicom, Deutsche Telekom, Etisalat, Hutchison Three Group, KDDI, Korea Telecom, MegaFon, Portugal Telecom, Qtel, SingTel, Smart, Sprint, Telecom Italia Group, Telefónica, Telenor, Telstra, and VimpelCom

[34] The latest example of such trend is the agreement between Deutsche Telekom and Evernote under which DT subscribers will get free access to the $45-a-year premium version of Evernote for one year. Other examples include Deutsche Telekom's deal with Spotify and Orange's deal with Deezer.

2012 the European Commission cleared the creation of a mobile commerce joint venture in the UK between Telefonica, Vodafone and Everything Everywhere.

1.3. Operators' strategies

Telecom operators are trying to find their way through this transition period from legacy PSTN to IP broadband networks where pricing for core and strategic telecom services proved to be either flat or in decline. Consequently, European telecom operators are adopting strategies, both short and long-term, in order to improve their ARPU and secure their revenues. More specifically, telecom operators are considering some of the following strategies:

- Geographic diversification of their businesses in emerging markets: Domestic revenue growth for some European carriers was negative in 2012 and some operators were able to experience some growth in overall revenue thanks only to international operations.

- Increasing line rental fees and developing more aggressive bundled products including services provided by OTTs. Replacing mobile handset subsidies policies with leasing and financing plans and the introduction of multi-device plans and shared-data schemes, which enables operators to retain customers while reducing the significantly high investments in acquiring new handsets. In a few cases, mobile and fixed data plans could be subject to price increases or the end of unlimited data plans, as in the UK or more recently in Germany[35].

- Creating ad-hoc tailor-made service at wholesale and business segments. Several studies developed by NRAs analysed business communications market and proved that incumbent operators, which are the largest telecom operators in Europe in their domestic markets, had a higher market share in this segment that one would expect when comparing to the retail market. On top of IT corporate services, there is an increasing trend for operators to bundle personal cloud storage and data management in their higher-end service packages. Examples include Vodafone Cloud, Orange's My Content Online and Deutsche Telekom's Telekom Cloud.

- Developing policies to retain existing consumers and attract new ones, which include diversified portfolios, better understanding of the changing consumer behaviour and strengthening customer care services, customer profiling and customization of products using big data. Price differentiation enables users to choose the option which best fits their needs; both in terms of usage and monthly expenditure. In these ways, European telecom operators look to diversify their product portfolio and to be able to build loyalty within their customers; by meeting their specific needs and offering value-added services - for instance operators may leverage on their billing relationship with customers[36]. Going beyond the telecom market, Magyar Telekom can be mentioned as an operator that has widely diversified its portfolio selling electricity and gas to its fixed line subscribers; by end-3Q12, 45% of its triple-play users had also bought its energy offerings[37].

[35] *Neue Spielregeln für DSL?,* Deutsche Telekom, April 2013

[36] *Mobile Content Business Models*, Juniper Research, March 2013

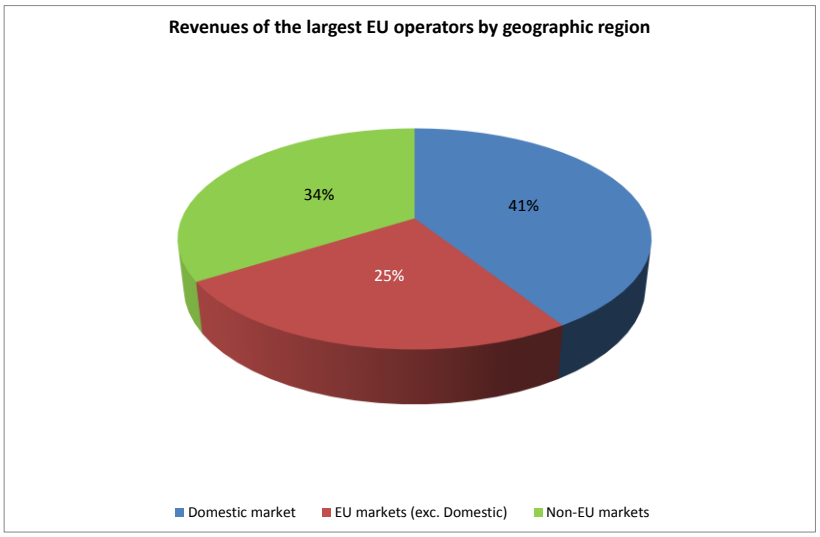
[37] Informa Telecoms and Media. *Case study: Magyar Telekom resells energy to diversify revenue portfolio,* April 2013

- A longer term approach refers to the Internet of Things. The number of machine-to-machine (M2M) device connections worldwide is expected to increase from 124 million in 2012 to 2.1 billion in 2021[38] and mobile operators are positioning themselves to compete in this emerging market. According to the mobile industry, mobile operator data revenues will overtake voice revenues globally by 2018 and much of the demand in data traffic will be spurred by connected devices and M2M traffic[39]. In 2012 there was a 42% rise in shipments of SIMs designed for M2M applications, according to the SIM alliance members[40].

1.3.1. Geographic diversification

Several European telecom operators were able to experience growth at group consolidated basis due to business diversification in emerging markets; the non-EU operations of several operators gave them some breath in terms of revenues growth and increased their contribution to the overall group revenues[41]. On average[42], domestic operations accounted for around 41% of overall revenues, 25% originated in other EU countries and 34% in non-EU operations (Figure 10). Portugal Telecom, Telenor and Telefonica already source more than half of their revenues from non-EU countries and Vodafone, DT, Telecom Italia, Tele2 and BT also obtain between 30 and 40% of their revenues from non EU markets (Table 2).

Figure 10: Revenues of the largest EU operators by geographic region



Source: EC services based on a sample of eighteen European operators

[38] Analysys Mason.

[39] *GSMA-Connected Living*, http://www.gsma.com/connectedliving/. In March 2013 ComReg, the Irish regulator, launched a public consultation to investigate the possibility of a more targeted long term numbering resource for the exclusive use of M2M applications and services to satisfy the demand for numbers arising from the emerging M2M services. http://www.comreg.ie/_fileupload/publications/ComReg1333.pdf

[40] *Global SIM shipments rise 6% due to increased NFC, LTE and M2M demand*, Mobile Europe, April 2012

[41] "*Emerging markets were not that popular after the previous financial crisis in 2008, but under the current crisis, which has its origin in Europe, the case is different - Asia being beautiful*. Telenor sees Asian growth as antidote to Europe's woes, http://uk.reuters.com/article/2012/01/05/telenor-idUKL6E8C53PU20120105

[42] Based on a sample of eighteen European operators: Telefonica, Deutsche Telekom, Telecom Italia, Vodafone, France Telecom, KPN, Mobistar, TPSA, Tele2,Telia Sonera, Telekom Austria, Belgacom, TDC, Portugal Telecom, Elisa, BT, OTE and Telenor. Third quarter 2012- Third quarter 2011 data analysis.

Table 2: Revenues of the largest EU operators by geographic region

TELECOM OPERATOR	COUNTRY	Other markets EU+	Other markets (world)	Domestic market	EU markets (exc. domestic)	EU markets (inc. domestic)	Non-EU markets
Vodafone	UK	Germany, Italy, Spain, UK, , Malta, Netherlands	Albania, Turkey, India, South Africa, Mozambique, Tanzania, Australia, New Zealand, Egypt, Qatar, Ghana, Kenya, US	11%	58%	69%	31%
Telefonica	SPAIN	UK, Germany, Czech Republic,	Brazil, Argentina, Venezuela, Chile, Peru, Colombia, Mexico	24%	24%	48%	52%
Telenor	NORWAY	Sweden, Denmark, Hungary, Serbia, Montenegro	Thailand, Malaysia, Bangladesh, Pakistan, India	25%	20%	45%	55%
Tele2	SWEDEN	Norway, Netherlands, Germany, Austria, Estonia, Latvia, Lithuania, Croatia,	Kazakhstan, Russia	29%	28%	57%	43%
Telia Sonera	SWEDEN	Finland, Norway, Denmark, Lithuania, Latvia, Estonia, Spain	Kazhakhstan, Azerbajian, Uzbekistan, Tajikistan, Georgia, Moldova, Nepal	36%	47%	82%	18%
Deutsche Telekom	GERMANY	Greece, Hungary, Netherlands, Poland, Czech Republic, Croatia, Austria, Slovakia	USA	44%	28%	72%	28%
Portugal Telecom	PORTUGAL	Hungary	Brazil, Angola, Macao, Namibia, Cape Verde, East Timor, Sao Tome and Principe, Kenya, Mozambique	41%		41%	59%
France Telecom	FRANCE	Spain, Poland, Romania	Egypt, Mali, Senegal, Ivory Coast, Cameroon, Guinea, Congo	49%	33%	82%	18%
KPN	NETHERLANDS	Germany, Belgium,	Mexico, US,	58%	34%	92%	8%
Telecom Italia	ITALY		Brazil, Argentina	61%		61%	39%
British Telecom	UK	Ireland, Spain, France, Germany, Italy, Netherlands	Australia, Brazil, US, India, Singapore	41%		41%	59%
Telekom Austria	AUSTRIA	Bulgaria, Croatia, Slovenia	Belarus	64%	28%	92%	3%
OTE	GREECE	Cyprus, Romania, Bulgaria,		69%	12%	80%	20%
Belgacom	BELGIUM	Luxembourg	Morocco	77%	23%	100%	
TDC	DENMARK	Sweden, Norway, Finland		84%	16%	100%	
Elisa	FINLAND	Estonia		93%	7%	100%	
Mobistar	BELGIUM	Luxembourg		95%	5%	100%	
TPSA	POLAND			100%		100%	
TOTAL (18 operators)				41%	25%	65%	33%

As indicated in Table 1, as much as 24% of sector revenues still originate from fixed voice services, a segment led by national operators, many of which do not operate outside their home markets. But it is estimated that no less than 45% of the EU fixed broadband lines are served by telecom operators with presence in several EU countries and this figure is even higher in mobile telephony, where around 80% of the market is in the hands of the five largest mobile providers. Two trends characterise European operators:

- Operators with a significant international footprint performed better than pure national players, due to stagnation of organic growth in EU markets and more demanding and budget concerned consumers in the EU;

- This also had an impact on investment trends, with operators active in Eurasia or Latin America having a slightly higher CAPEX percentage than EU only operators.

1.3.2. More aggressive bundled products

Major operators now value retaining current customers as much as gaining new ones. Thus, they have created strategies based on different types of bundled offers in order to include data services, SMS and voice minutes[43]. The popularity of these products is increasing. By contrast, broadband standalone services are fading away, representing around 34 percent of all offerings in 2013, down from 64 percent six years ago.

There exist many different types of bundled services, which can include either a combination of fixed-line telephony and broadband access or fixed broadband access and television (double play), products combining fixed voice, broadband access and television (triple-play) and more recently quadruple play products, which offer mobile voice and data on top of triple play offerings. Some EU operators added quadruple play products to their portfolio with the aim to provide customers all telecom needed package in a row and reduce churn ratio. The number of quad play services doubled between 2011 and 2012[44]. There are still many differences in the retail offerings across EU Member States, and the market in France, for instance, is very different in this respect compared to Germany[45].

Bundles may reduce churn but have to be carefully designed so as to minimise loses in revenues. The configuration of the bundled products and their price depend very much on the kind of technologies most used by consumers and operators need to adapt their offer profile to better meet the requirements of consumers. A recent Commission market study[46] revealed that consumer survey respondents who had switched their internet provider in the last three years were more likely to have had standalone access with their previous connection than with their current connection (22% compared with 12%). This was mainly the result of an increase in packages including both fixed telephony and TV (with or without other services such as mobile telephony or mobile Internet).

1.4. European telecom operators investment overview

Capital expenditure (CAPEX) in 2012 was estimated at around 45 billion in 2012, representing on average 15% of group consolidated figures for the major European telecom operators, up from the 14% of total revenues in 2011[47] (Figure 11). This ratio was slightly lower for operators with a smaller size, which could be due to the fact that some of these operators have already supported and developed before and are now in a mature phase of their business development. Larger European operators with overseas activities had higher investment needs driven by the demand from these markets, including spectrum investment

[43] Spanish fixed line telecoms providers are gaining a bigger share of the country's shrinking mobile market as cash-strapped consumers switch to bundled packages offering mobile, internet and other services (...) In the UK cable-based Virgin Media, which has focused on selling mobile as part of bundled packages, has a contract customer base of 1.7 million compared with under 500,000 clients five years ago and is Britain's no.5 player with 3 million mobile clients overall. Reuters, *Spain's Jazztel, ONO make headway in shifting mobile market*, April 2013

[44] *Study on Broadband Internet Access Cost*, Van Dijk, September 2012

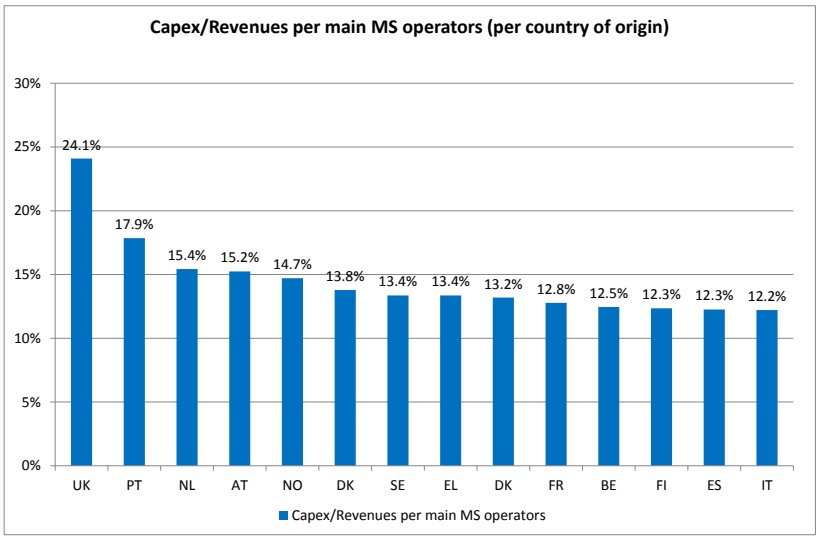
[45] *Vodafone, KDG and quad play in Europe*, Enders Analysis, March 2013.

[46] Consumer market study on the functioning of the market for internet access and provision from a consumer perspective (or else the 2012 ISP study, to be published in July 2013)

[47] Source: Commission services based on a sample of eighteen European operators – ETNO - ECTA

needs. Figures on investment in network equipment hide the fact that prices of network gear went down in the period; so in real terms the investment effort may have been higher.

Figure 11: Capex/Revenues ratio per main operators (per country of origin)



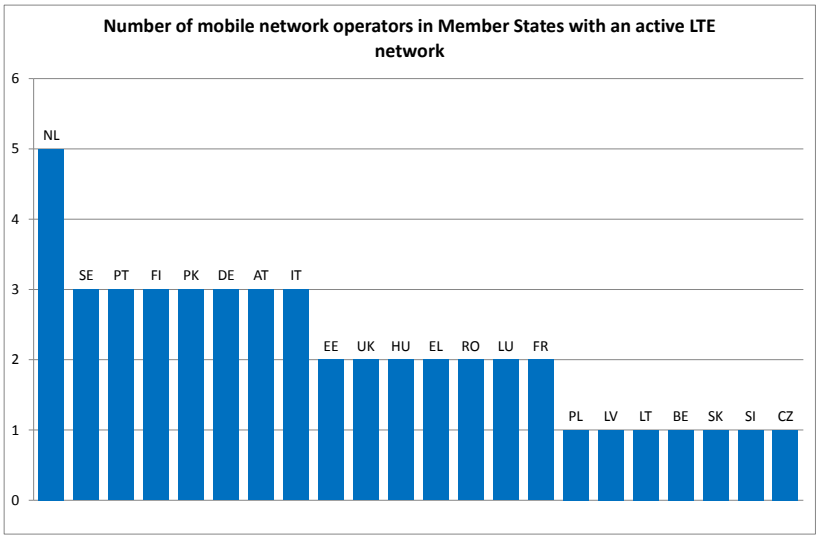
Source: EC services based on a sample of eighteen European operators

When it comes to mobile infrastructure, investment focused on HSPA and LTE roll-out, including expanding backhaul capacity. Many mobile operators continued their network sharing strategies in order to rationalize investments and achieve greater coverage more rapidly. Some operators estimate that the radio access network-sharing model is the best option for cost savings and enables savings of 40 to 60% on opex and capex.

According to latest figures[48] while 47 European operators offered an active LTE network (Figure 12), there were only 5 Member States[49] where no LTE network was offered. The first LTE launch was in Sweden in December 2009. LTE networks were mainly located in Western European countries, with HSPA and HSPA+ being the major technology investment for Central and Eastern European countries. Yet EU LTE subscribers only represent a small percentage of global LTE subscribers, with the large majority of these located in North America and Japan[50].

[48] European Commission Services based on GSMA data (GSA Confirms 156 Commercial LTE Networks Launched and Increasing Global Reach), March 2013. Figures include wholesale and retail services.
[49] Bulgaria, Ireland, Spain, Italy, Cyprus, Malta
[50] EITO 2012

Figure 12: Number of mobile network operators in Member States with an active LTE network



Source: EC services based on GSMA data

Regarding investment in fixed broadband, most EU operators have planned significant investments in the coming years to expand the coverage of next generation fixed access networks, combining VDSL and Fibre to the Home (FTTH) technologies. VDSL appears to be the technology choice of large operators, accounting for around 60% of population coverage in the long term, followed by FTTH. The situation may however be significantly different in countries where cable modem and local area networks are strong competitors[51].

At the end of 2012 the coverage of NGA fixed networks in the EU was very uneven, with extensive NGA coverage in Belgium (97% of the population) and the Netherlands (98%). Other countries were much less advanced, with just 14% in Italy or 24% in France.

Announcements of NGA investment plans increased at the end of 2012. DT announced details in December 2012 of a plan to double its VDSL footprint in four years, with 65% "fiber" coverage targeted by 2016 and an option towards 80%, alongside a 85% LTE coverage. KPN plans to achieve 21% FTTH + 55% VDSL coverage by 2013; Telefonica 45% VDSL by 2013 and 3mln FTTH until Aug 2014. Belgacom has 80% VDSL coverage and Portugal Telecom 40% based on FTTH.

[51] *Market Functioning in Network Industries – Electronic Communications, Energy and Transport*, DG ECFIN, Occasional Papers 129, February 2013

Table 3: Investment plans European operators

Company	Coverage 2012		Target	
	VDSL	FTTH	VDSL	FTTH
Belgacom	83%	0%	83%	20%
BT Group	37%	12%	50%	20%
Deutsche Telekom	30%	1%	60%	30%
France Telecom	0%	8%	60%	20%
KPN	70%	16%	80%	40%
Portugal Telecom	0%	40%	20%	40%
TDC		4%	60%	20%
Telecom Italia	0%	0%	60%	10%
Telefonica	35%	12%	60%	20%
Telekom Austria	46%	6%	60%	10%
Telenor	30%	1%	60%	20%
TeliaSonera	11%	13%	60%	13%

Source: Nomura. The timeframe of planned investments varies from one operator to another

As indicated above, telecoms operators have yet to find the right balance between growth-enhancing investment and setting the right price premium to engage consumers in moving to faster access products.

1.5. The EU telecoms sector versus other regions

In 2012, the global telecommunications carrier services market was expected to grow by 4.2%. However, large regional differences exist in performance. While the EU telecoms sector is waning, in terms of traffic, revenues and users, in other regions of the world, where uptake of mobile broadband is much faster, there is significant growth.

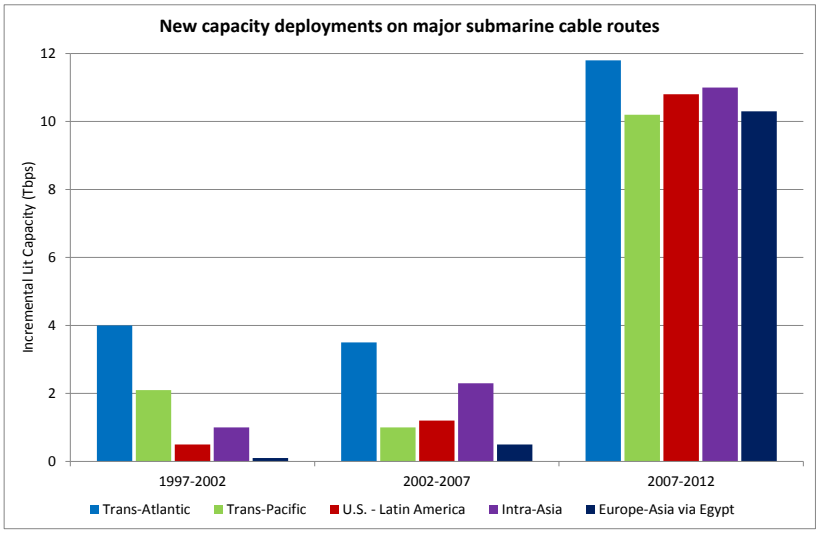
There are differences as well in the global ICT industry, with North America, Asia Pacific and some emerging economies experiencing much higher demand for software and ICT services than in Europe[52].

In the US, the ICT market was expected to increase by 6% in 2012, with positive figures in all segments - especially in mobile data. With regards to emerging economies, data show that their share of global ICT spending has increased in 2012 to account for an estimated 27% of worldwide ICT expenditure. The Asia Pacific region remains dynamic despite some

[52] EITO 2012

indications that regional economic growth is slowing. In 2012, ICT market growth in China and the BRIC countries was also dynamic, with spending in the latter also on the rise thanks again to mobile traffic. As a consequence of this growth, Brazil already has the world's fourth-largest telecommunications market. Data on demand for international bandwidth reflect this shift. Bandwidth demand on the trans-Atlantic route, which has long been the world's highest-capacity route, increased at a rate of 36% annually between 2007 and 2012. In the same period, demand for bandwidth on the Europe-Asia route via Egypt grew 87% per year and 70% from the US to Latin America.[53]

Figure 13: Demand for international bandwidth: New capacity deployments on major submarine cable routes

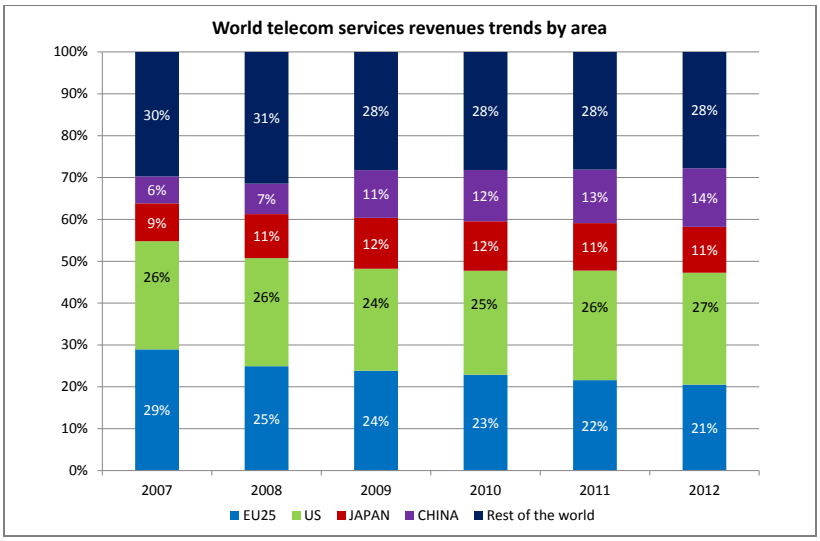


Source: TeleGeography

China is another example of the rebalancing of the international telecoms market. In 6 years, China doubled its weight in terms of telecom services revenues - from 6% to 14%. On the other hand, the EU25 market lost eight percentage points of world revenues - going down from 29% to 21% of World telecom services. US represented more than one quarter of the total market and Japan (11%) was half the size of the EU25 (Figure 14).

[53] *International bandwidth demand is decentralising*, TeleGeography, April 2013

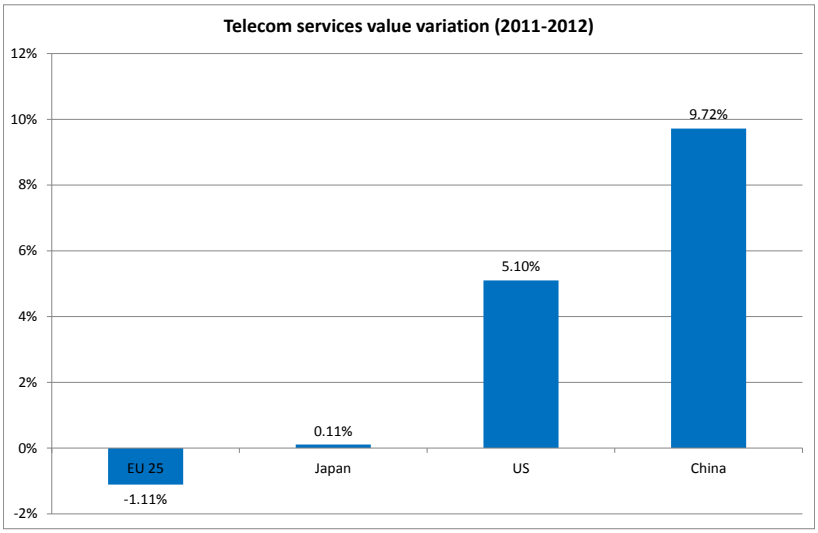
Figure 14: World telecom services revenues trends by area



Source: EC services based on EITO 2012

In 2012 the telecom services market in China was estimated to have grown by 9.72%, almost double the growth rate of the US (5.1%) and in stark contrast to the decline witnessed in the EU (-1.11%) (Figure 15).

Figure 15: Telecoms services value variation (2011-2012)



Source: EC services based on EITO 2012