

## Chapter 5

# Transatlantic Telecom Services: The Pros and Cons of Convergence

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*Advocates of an open transatlantic economy often put emphasis on the need to eliminate barriers to entry and FDI in the communication services sector. However, despite broadly similar industry trends and a common need to encourage investment in Next Generation Networks, regulators on the two sides of the Atlantic are evidently dancing to “different drummers.” In the U.S., industry consolidation at the infrastructure level was favored by ‘access holidays’ granted to firms investing in FTTx, DSL and BPL technologies, as well as the classification of VoIP as information service. In Europe, regulation is focused on facilitating wholesale access by new entrants at the infrastructure level. This chapter surveys industry and regulatory trends in the two regions and discusses the pros and cons of fully opening up the transatlantic market. It concludes that the main prospects lie in coordination of spectrum policy and frequencies allocation, cooperation on net neutrality issues and the removal of existing barriers to inward FDI. However, fully opening the market by restoring network sharing obligations would not contribute to a more prosperous transatlantic economy.*

## Introduction

The second half of 2006 saw growing interest in an intensification of transatlantic trade and regulatory cooperation: both the European Parliament’s Mann Report, adopted on June 1, 2006, and a U.S. Senate Resolution of December 8, 2006, advocated for further opening of the transatlantic economy.<sup>1</sup> Such views were echoed also by industry players and by German Chancellor Angela Merkel, who made liberalization of transatlantic markets a key theme of Germany’s EU Presidency

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<sup>1</sup> See Senate Resolution n. 632, December 9, 2006.

in the spring of 2007.<sup>2</sup> The April 2007 EU-U.S. Summit unveiled a new initiative in this regard, with a specific emphasis on liberalizing services, including communication services. The Mann Report noted that the transatlantic telecommunications market is still hampered by “regulatory barriers and incompatible standards which translate into a situation whereby, despite the fact that nine out of the ten biggest telecom companies in the world are based in the EU or the U.S., no U.S. or European company is operating on both continents to any significant extent.”<sup>3</sup> On the other hand, both the European Commission and the U.S. Trade Representative have listed a remarkable number of obstacles to transatlantic investment in communication services. Removing these obstacles would allegedly contribute to more competitive and integrated markets, thus benefiting end users and society as a whole. Strengthening transatlantic trade and investment would help the U.S. and EU face the growing competitive pressure exerted from the rest of the world; the transition to the knowledge economy exhibited a remarkable slowdown after the Internet bubble, leading the U.S. to surrender its leadership in the ICT sector to the benefit of China and other Asian countries.<sup>4</sup> 2005 was indeed the year in which China, after overtaking Japan and the EU in 2003, also surpassed the U.S. as global leader in the export of ICT goods.<sup>5</sup>

Few other sectors—if any—are facing a disruptive and breathtaking transformation as the one observed in this market. In many developed countries, the transition to all-IP networks will soon blur the boundaries between telecommunications and the Internet. This, in turn is creating unprecedented prospects for the proliferation of access platforms based on different technologies—including FTTx, 3G, WiMax, Broadband over Power Lines etc.—and for infrastructure-based competition to the full benefit of end users. Digital convergence is changing the way in which consumers gain access to applica-

<sup>2</sup> See Daniel Hamilton and Joseph Quinlan, “Merkel has posed right question in search for an Atlantic bridge,” *Financial Times*, January 10, 2007. On the U.S.-EU Summit, see [http://useu.usmission.gov/Dossiers/US\\_EU\\_Summits/Apr3007\\_Washington\\_Summit.asp](http://useu.usmission.gov/Dossiers/US_EU_Summits/Apr3007_Washington_Summit.asp).

<sup>3</sup> See European Parliament, *Resolution on EU-US transatlantic economic relations*, P6\_TA(2006) 0239, June 1, 2006.

<sup>4</sup> See, e.g., Marcus, S. (2005), *Is the US Dancing to a Different Drummer?*, Communications & Strategies, no. 60, 4th quarter 2005, p. 39; and also Prestowitz, C. (2006), *America's Technology Future at Risk*, Economic Strategy Institute, March 2006.

<sup>5</sup> See OECD IT Outlook 2006. Japanese firm NTT DoCoMo is the largest provider of telecommunication services worldwide.

tions and content on broadband platforms, and operators are in turn changing their business models to match this transition in consumer preferences, engaging in the so-called ‘competition for eyeballs’ over a common information superhighway. Traditionally prominent services —e.g. PSTN telephony and broadcast TV— are increasingly being commoditized, and industry players seek to recover their margins by speeding up the launch of new value-added applications (such as VoIP and IPTV) that promise to revolutionise the customer’s experience.

Would industry evolution and market competition be facilitated by an open transatlantic market for communications services? As a preliminary remark, there are several reasons to support this view. First, new digital services and applications need more scale, spectrum, technical standardization and high-speed connectivity than any legacy service ever required, leading to an increasingly global nature of the industry, especially as far as applications and content are concerned. An example is the WiMax technology, which promises high-speed wireless internet access over a range of 70 miles, but requires massive investment and the availability of suitable spectrum bands in the largest world markets to justify its deployment.

Secondly, persistence of incompatible standards hampers the maximization of network effects in many sectors, including 3G mobile telephony, digital terrestrial and satellite TV. Here too, the need to develop applications and services for more than one standard jeopardizes the business case for new risky investment in mobile platforms. Future 4G telephony will arguably be based on a single standard, but this requires cooperation between players and regulators.

Thirdly, strengthening the transatlantic market for communication services would have indirect virtuous effects on all ICT-enabled services, including financial services. The availability of suitable infrastructure and bandwidth for transatlantic exchanges would boost trade and growth in many other sectors: as “it takes two to tango,” both sides of the Atlantic would have to improve their infrastructure endowment, by securing a smooth migration towards Next Generation Networks, protection of IPRs, interoperability of digital platforms and technology/service neutrality in spectrum allocation.

Finally, “legal rules do matter.” As a matter of fact, faced with these unprecedented challenges, both the U.S. and EU are working to mod-

**Table 5.1 Top 10 Telecommunications Firms, 2000 and 2005 USD Millions, current prices**

Firm	Country	Revenue 2000	Revenue 2005	Employees 2000	Employees 2005	Net income 2000	Net income 2005
NTT	Japan	92,679	99,880	224,000	201,500	-603	6,563
Verizon	U.S.	64,707	73,217	263,552	210,000	11,797	8,705
Deutsche Telekom	Germany	37,559	71,911	205,000	244,277	5,437	4,822
France Telecom	France	30,894	58,519	188,866	206,525	4,707	8,395
Vodafone	UK	11,929	54,249	29,465	57,378	838	-25,058
Telefonica	Spain	27,306	42,864	145,730	173,554	1,693	4,531
SBC	U.S.	51,374	41,183	220,000	162,700	7,800	3,819
TI/Olivetti	Italy	27,516	36,277	107,171	82,397	3,231	5,380
BT	UK	28,356	33,860	132,000	102,100	2,111	3,309
Sprint/Nextel	U.S.	17,220	27,901	64,900	59,900	1,964	-401
Total		389,540	539,860	1,580,684	1,500,331	38,974	20,065

Source: OECD, IT Outlook 2006, at 54.

ernize their regulatory frameworks. The degree of market openness and the prospects for a more integrated transatlantic market for telecom services heavily depend on the results of such modernization efforts. As a preliminary remark, industry and regulatory developments seem to suggest that both the U.S. and Europe have made significant steps towards liberalization, thus facilitating entry by new players in their national markets; at the same time, however, remaining barriers to inward FDI and industry consolidation on both sides of the Atlantic may invert the trend in the next few years, further jeopardizing integration between the two markets.

This chapter illustrates the main industry developments and describes the main features of the regulatory models adopted in the two regions; it then assesses the prospects and the impact of achieving further integration between the two markets. Section one illustrates industry trends in the U.S. and EU, whereas section two describes the current regulatory challenges faced and the solutions identified by regulators in the U.S. and the EU. Section three contains an overview of existing data on barriers to trade and inward FDI from a transat-

lantic perspective, and comments on the potential for an open transatlantic market. Section four concludes.

## **1. Industry Trends: Technologies, Markets and Strategies**

The market for communications services represented 44.5 percent of the total world ICT market in 2005, reaching a value of \$1.2 trillion.<sup>6</sup> Europe and the U.S. hold a 55 percent share of this market, and—as shown in Table 5.1 below—nine of the top 10 firms worldwide belong to the “Sleeping Giant.”<sup>7</sup> As shown in the table, many of the top 10 firms have reduced their number of employees since 2000, and the majority also had a lower net income in 2005.

Against this background, data on investment, productivity and trade patterns show a remarkable gap between most advanced countries—such as the Asian Tigers, but also the U.S. and some Northern European countries—and laggard countries that hardly keep the pace of technological innovation and services liberalization. The latter include also some Southern and most Eastern European countries. According to recent data by IDATE, large emerging markets such as new-entrant Romania exhibited a very high growth rate in telecom services in 2006 (over 20 percent), whereas countries where mobile telephony is still not fully mature—such as Greece, Spain, and most CEE countries—have reached growth rates between seven and 10 percent. On the contrary, a sharp decline in landline telephony has led to slower growth in Italy, Austria, Hungary and the Czech Republic; whereas most of Western European countries and Poland have exhibited growth rates below three percent due to market maturity, and Finland even showed a negative growth rate in 2006.<sup>8</sup>

Recent research in this field has shown that the percentage contribution of ICT to EU productivity growth—reaching 50 percent in 2006—increased mostly because productivity as a whole decreased overtime during the past five years; against this background, the largest single component of the U.S.-EU productivity growth differential is

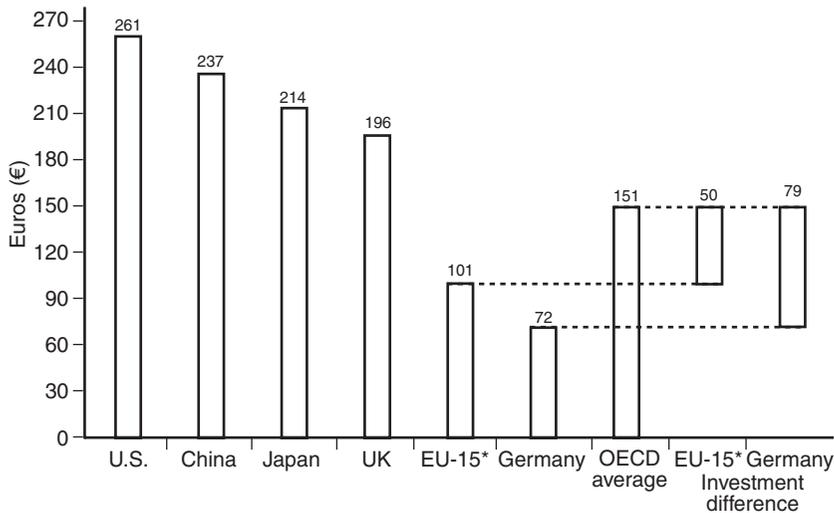
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<sup>6</sup> Sources: EITO Annual Report 2006, and Infonetics (2005).

<sup>7</sup> OECD IT Outlook, 2006, at 54.

<sup>8</sup> Gassot, Y. (2006), presentation at the Transatlantic Telecom Dialogue, Columbia University, New York, October 20, 2006.

**Figure 5.1 Average annual per capita investments in telecommunications infrastructure, 1997-2003 (EUR per capita per year)**



\*Excluding UK. Source: OECD, McKinsey

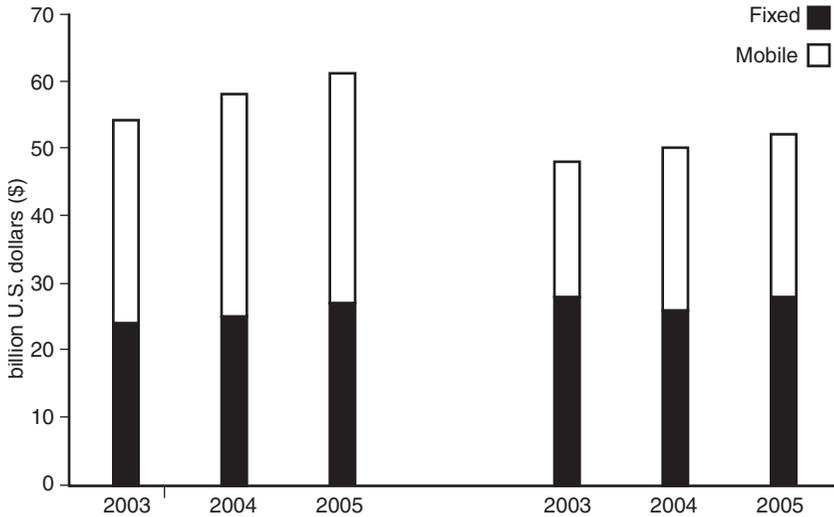
the faster productivity growth rate in ICT-intensive industries in the U.S., where ICT accounts for 80 percent of productivity growth.<sup>9</sup>

### *1.1 Investment in Infrastructure: a Mixed Picture*

These trends are evident also when it comes to investment in telecom infrastructure. As shown below, in Figure 5.1, in the period 1997-2003 average annual per capita investment in telecommunications infrastructure in the EU15 (excluding the UK) totalled €101, well below the OECD average (€151). In Germany, the largest EU country, only €72 per capita was spent on telecoms infrastructure, less than half of the OECD average.<sup>10</sup> Against this backdrop, European ICT is projected to grow by 2.2 percent in 2006 and to slow down to 1.7 per-

<sup>9</sup> See Van Ark, B. and O. Mahony (2003), *EU Productivity and Competitiveness: An Industry Perspective. Can Europe Resume the Catching-up Process?* Office for Official Publications of the European Union, Luxembourg.

<sup>10</sup> Presentation by Luis Enriquez (McKinsey) at the CEPS Task Force on electronic communications, May 3, 2006.

**Figure 5.2 Telco's CAPEX, 2003-2005, billion USD**

Source: IDATE

cent growth in 2007, whereas the U.S. will grow by 2.6 and 2.8 percent in 2006 and 2007, respectively.<sup>11</sup>

These figures hide a very different evolution, when broken down on a yearly basis: in 2003, after the bubble burst, the per capita investment in telecommunication infrastructure in the U.S. had fallen to €143.1, whereas Denmark was investing €157.6, Japan €170, the UK €184.1 and Switzerland €216.7. The OECD average was approximately €111.8 per capita by then.<sup>12</sup> Unfortunately, OECD figures only cover the 1997-2003 timeframe, and as such do not take adequate account of the huge investment in broadband technologies in the U.S. and in some EU member states (e.g. the UK).<sup>13</sup>

Against this background, data reported by Infonetics (2005), the European Commission (2006) and by IDATE (2006, shown in Figure 5.2) show that between 2003 and 2005 Europe outperformed the U.S. and even closed the gap with Far Eastern countries in terms of invest-

<sup>11</sup> EITO Report 2006.

<sup>12</sup> Source: OECD STAN Database. I owe this comment to Martin Wörter from Konjunkturforschungsstelle (KOF), Zurich.

<sup>13</sup> An example is Verizon's \$18 billion investment in the FiOS network (see below, Section 2.1.1).

ment in telecommunications. Investments in the mobile sub-sector have overcome those in the fixed telephone sub-sector, and appear to have been the major element in the 2004 investment recovery observed in Europe. On the other hand, EU investment in the cable TV and broadcasting sub-sectors represent on average a combined 10 percent share of the total investment in e-communications. In addition, although incumbent firms still invest more than new entrants, the latter are investing more relative to their turnover.<sup>14</sup>

These data have been reported by the Commission as evidence that the 2002 regulatory framework for e-communications is actually achieving its goal of stimulating investment and growth in Europe.<sup>15</sup> However, contrasting signals were launched by the Commission in its recent First Annual Report on the implementation of the i2010 strategy.<sup>16</sup> There, Commission services reported that, although the ICT sector represented 5.6 percent of EU GDP between 2000 and 2003 and generated approximately 45 percent of EU productivity gains in the 2000-2004 timeframe, Europe's investment in R&D is still as low as 1.9 percent of GDP, and the contribution of ICT to productivity has remained about half that in the U.S. According to the UK Department of Trade and Industry, corporate R&D spending in Europe rose only 5.8 percent between 2005 and 2006, compared with 8.2 percent in the U.S., 10.7 percent in China and 25.1 percent in India.<sup>17</sup> As stated by the Commission, “[o]verall no indicator points to a change in the trend or an acceleration in ICT developments which would put the EU onto a sustainable path of growth and competitiveness.... The EU needs to shift up a gear if we are not to see a slowdown in the transition to the knowledge economy.”<sup>18</sup>

Investment data in the U.S. also present a mixed picture. According to some commentators, the FCC decisions to lift regulatory obliga-

<sup>14</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on the review of the EU Regulatory Framework for electronic communications networks and services (SEC(2006) 816) (SEC(2006) 817), June 29, 2006.

<sup>15</sup> See the Staff Working Document SEC(2006)816, June 29, 2006.

<sup>16</sup> See the Commission's First Annual Report of the i2010 Strategy, COM(2006)215, May 19, 2006; and the Second Annual Report, COM(2007)146, March 30, 2007.

<sup>17</sup> See the DTI R&D Scoreboard 2006 at [http://www.innovation.gov.uk/rd\\_scoreboard/](http://www.innovation.gov.uk/rd_scoreboard/) (visited on April 25, 2007).

<sup>18</sup> COM(2006)215, May 19, 2006, at 4.

tions on new FTTx and DSL infrastructure have boosted investment by RBOCs between 2003 and 2005. On the other hand, available figures still do not show any significant change in the declining trend of investment that characterised the U.S. ICT sector after the Internet bubble. A study by Tom Hazlett (2005) concluded that access holidays led DSL subscribers to increase at a greater pace, and both SBC and Verizon have increased their investments in FTTH after regulatory obligations were lifted.<sup>19</sup> But to date, no convincing relation has been found between the U.S. regulatory approach and incentives to invest in new infrastructure in the U.S.

In summary, it is quite hard to draw any clear-cut conclusion on the relative performance of the U.S. and EU in the telecommunication sector. To be sure, some EU member states apparently outperformed the U.S. in many respects: these include Denmark, the Netherlands, Scandinavian countries and, to a certain extent, the UK. These trends must however be observed in light of the ongoing transformation of the industry, as well as differentiating per sub-sector.

## ***1.2 Consolidation and Expansion***

The last two years have been characterized by a remarkable phase of consolidation and a resurgence of M&A activities both in the United States and in Europe. This trend was fuelled by declining wireline revenue growth, ongoing technological convergence, increased competitive pressure and the need to provide end users with multi-play offerings. Notable examples of “mammoth mergers” in the United States include, of course, the Verizon/MCI and SBC/AT&T mergers, cleared by U.S. authorities after the imposition of net neutrality conditions at the end of 2005. More recently, AT&T’s \$86 billion acquisition of BellSouth was approved by the FCC, although it will create a prominent player in the telecoms field, holding more than 50 percent of telephone and internet access lines in the U.S. Complementarities between the two firms’ networks are expected to generate benefits as regards the deployment of broadband, increased competition in the market for advanced (IP-based) pay TV services,

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<sup>19</sup> See Hazlett, T. (2005) *Rivalrous Telecommunications Networks With and Without Mandatory Sharing*, AEI-Brookings Joint Center for Regulatory Studies Working Paper No. 05-07, Washington, D.C.; and Wallsten, S. J. (2006), *Broadband and Unbundling Regulations in OECD Countries*, AEI-Brookings Joint Center Working Paper No. 06-16, Washington, D.C.

improvements in wireless products, services and reliability through the merged entity's unified management of Cingular Wireless; and even enhanced national security.<sup>20</sup> As a consequence, the communications infrastructure is now dominated by less than ten players in the U.S., with six major cable operators and three local phone companies. Together, these companies hold roughly 90 percent of the market.

In Europe, the situation is radically different. In line with the approach adopted already during the Open Network Provision (ONP) era, as improved and updated with the 1999 Communications review and the 2002 regulatory framework, competition policy tools have been embedded in the regulatory approach, and the role of *ex post* competition policy was maintained as a safeguard in case *ex ante* regulation failed to tackle a competitive problem.<sup>21</sup> The regulatory framework focuses mostly on ensuring new entrants' access at the wholesale level, and national regulators have broadly adopted the so-called "investment ladder" approach, which echoes the "stepping stones" model discarded long ago in the U.S., which puts strong emphasis on the gradual entry of new players in the many relevant markets that compose the telecoms sector.<sup>22</sup> As a result, as many as 2,000 operators are reportedly operating in Europe at different rungs of the 'ladder'. In many European countries, the share held by incumbents has fallen below 60 percent in broadband, whereas mobile markets are characterized by oligopolies, with three to seven players for each member state. Since 2005, M&A activity has resurged, and cross-border transactions—driven by the search for economies of scale and the implementation of pan-European strategies—were conservatively estimated by the European Commission at approximately €70 billion in both 2005 and 2006.<sup>23</sup> The list of recent mergers includes the following:

<sup>20</sup> See the FCC's Press Release, November 29, 2006, available at [http://www.fcc.gov/ATT-BellSouth\\_Press\\_Release.pdf](http://www.fcc.gov/ATT-BellSouth_Press_Release.pdf) (visited on April 25, 2007).

<sup>21</sup> Where *ex ante* regulation under the 2002 framework failed to address a specific problem, in some cases further regulatory initiatives were undertaken. This is the case of international wholesale roaming charges, a market that was found to be competitive by regulators under the 2002 framework, but subject to a Commission proposed regulation, currently being debated at the European Parliament.

<sup>22</sup> See Cave, M., Majumdar, S., Rood, H., Valletti, T. and I. Vogelsang (2001), *The Relationship between Access Pricing and Infrastructure Competition*, Brunel University.

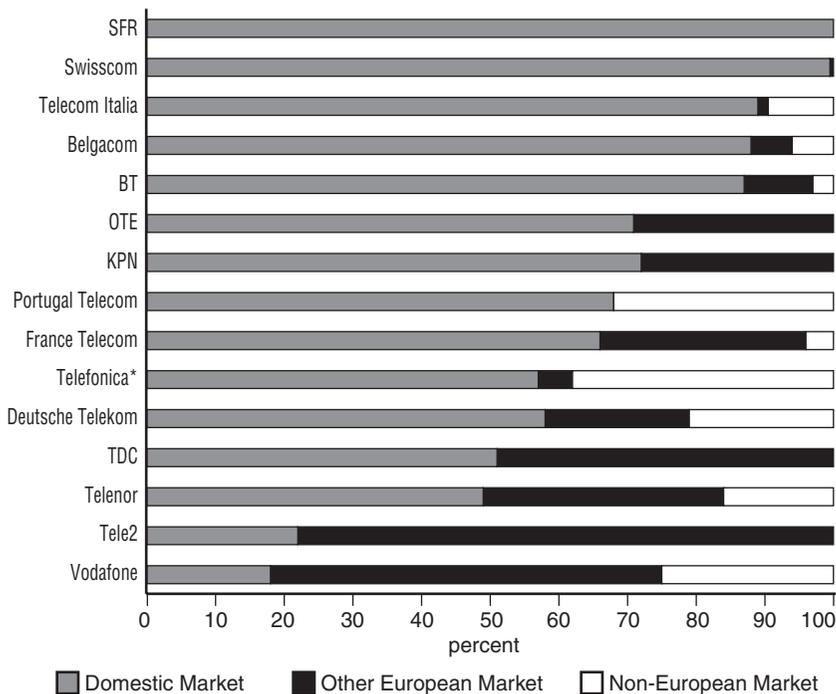
<sup>23</sup> According to an April 20 report from Standard & Poor's Equity Research, in the first quarter of 2006, M&A deals where the value was disclosed totaled €380 billion—almost triple the amount in the comparable period of 2005. See also European Commission, *European Electronic Communications Regulation and Markets*, 12th Report, COM(2007)155, March 29, 2007, Vol. 1, at 10.

- Spanish Telefonica acquired UK mobile operator O2 for €24 billion;
- Wind (Italy) was acquired by Orascom (Egypt) for 12.1 billion euros;
- TDC, the Danish incumbent, was acquired by the U.S./UK firm NTC for 8.2 billion euros;
- France Telecom acquired the Spanish mobile operator Amena for €6.4 billion;
- In the UK, NTL acquired both Telewest (€5 billion) and Virgin Mobile (€1.3 billion);
- Cesky Telecom (Czech Republic) was acquired by Vodafone for €3.7 billion;
- The U.S.-based Blackstone Group invested 2.7 billion euros to buy a 4.5 percent stake of the German incumbent Deutsche Telekom;
- Deutsche Telekom, in turn, acquired Austrian Tele-ring for €1.3 billion.

On top of this, European players have started investing more heavily in non-EU operations. As shown in Figure 5.3 below, players such as Vodafone, Telefonica, Telenor, Portugal Telecom and Deutsche Telekom are very active outside the European borders. In addition, most of the larger players are now present in other national markets, and there has been a notable trend in investment in the new Member States by some of the more established players as well as by pan-European and local new entrants. In 2006, for example, France Telecom expanded its mobile phone network operations (under the Orange brand) in as many as ten EU member states, and challenges the position of truly global operators such as Vodafone.

As a matter of fact, European players are consolidating across platforms and attacking each other's market to an unprecedented extent. For such reason, the international exposure of EU players appears much greater than that of U.S. players, as shown in Figure 5.4 below. This has also led the European Commission to realize that a suitable future for EU telecoms would pass through the creation of a Euro-

**Figure 5.3 Geographical Breakdown of Sales for Leading EU Telcos in 2005**



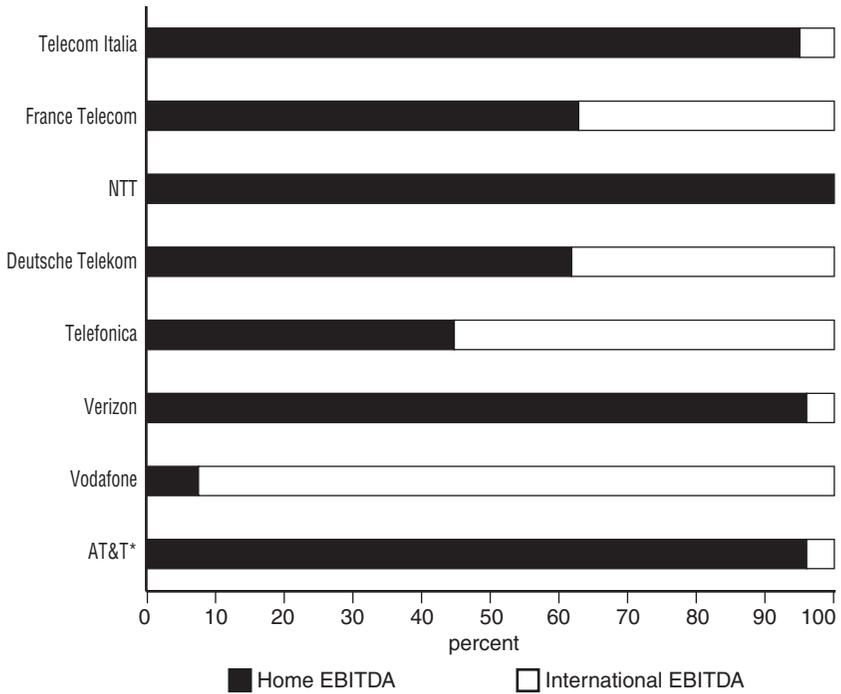
\*Sales of O2 not consolidated with those of Telefonica at the end of 2005

Source: IDATE (2006)

pean single market in which large incumbents act as new entrants in a number of member states. This trend is also welcome as many of the new interactive services that should develop over future digital platforms need a pan-European scale, in order to ensure that investments are recovered. So to say, pan-European services also need, to a certain extent, pan-European players.

Investment, of course, is also spurred by current earnings. Players on both sides of the Atlantic are increasing recovering from the remarkable decrease observed in wireline revenues. In the U.S., in the second quarter of 2006 only BellSouth had increased revenues (+1 percent) in its wireline operations, whereas AT&T had a five percent decrease in revenues, and Verizon experienced a 6.2 percent fall. At the same time, however, the EBITDA/sales ratio decreased signifi-

**Figure 5.4 International Exposure of Selected Leading Telcos in the U.S. and EU**



Estimate pro-forma by FT research for BellSouth  
 Source: FT (2006)

cantly for almost all major transatlantic players from 2005 to 2006 (with the exception of Cingular in the U.S.), showing an increased pressure on margins due to greater competition and—in the EU—also increased price regulation.<sup>24</sup>

### **1.3 Broadband Access and Penetration: Wireline and Wireless**

Broadband penetration is key to the ICT strategy both in the United States and in Europe. In the U.S., President George W. Bush launched the new U.S. broadband strategy already in March 2004, with the aim to achieve universal, affordable broadband availability not later

<sup>24</sup> Source: IDATE (2006).

than 2007. In Europe, broadband penetration is one of the pillars of the Lisbon strategy and of the more ICT-specific i2010 strategy launched in June 2005, which aims at realizing the “information society for all” by 2010. Such strategy heavily relies on the emergence of new digital platforms as a response to a strong demand for innovative interactive services by end users in the whole territory of the Union.

To be sure, over the past few years broadband penetration has been growing in all OECD countries. The OECD recently reported that broadband subscribers in its member countries increased 26 percent from 157 million in December 2005 to 197 million in December 2006. This growth increased broadband penetration rates in the OECD from 13.5 in December 2005 to 16.9 subscriptions per 100 inhabitants one year later.<sup>25</sup> Of these, subscribers in the U.S. totalled 56.5 million, whereas Commissioner Reding reported that Europe had “exceeded almost 70 million lines” in 2006.<sup>26</sup> With an average broadband density of 14.8 percent, Europe has now closed the gap with the U.S. and is close to Japan.<sup>27</sup> As shown in Figure 5.5 below, the leading countries in broadband penetration are northern European member states such as Denmark, the Netherlands and Scandinavian countries, and only Korea and Switzerland exhibit a similar penetration rate.

The United States lags behind these countries—due also to geographic features—whereas Southern European countries (e.g. Spain, Italy) remain below the OECD average. However, the OECD data reported above do not adequately take into account the degree of penetration in the business services market. In particular, as the price of special access (leased lines) in the U.S. is lower than in most of the EU-27, many U.S. businesses prefer to rely on leased lines to obtain their high-speed internet connection. But OECD data fail to capture this difference, and thus potentially underestimate the actual level of broadband penetration in the U.S. Finally, a recent studies show that, when compared with data expressed “by population”, data “by household” lead to a higher ranking of the U.S. in terms of broadband penetration (42 percent) as opposed to the EU (23 percent). More in detail, the top

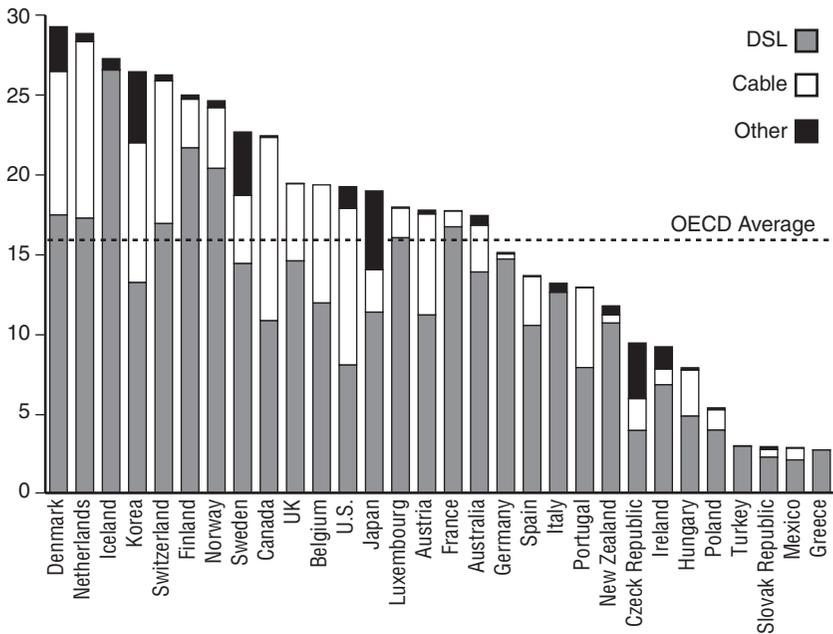
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<sup>25</sup> See OECD Broadband Statistics to December 2006, available at [www.oecd.org/sti/ict/broadband](http://www.oecd.org/sti/ict/broadband).

<sup>26</sup> Speech by Commissioner Viviane Reding at ECTA Conference, SPEECH/06/697, November 16, 2006.

<sup>27</sup> Source: IDATE (2006).

**Figure 5.5 OECD Broadband Subscribers per 100 Inhabitants, by Technology, June 2006**



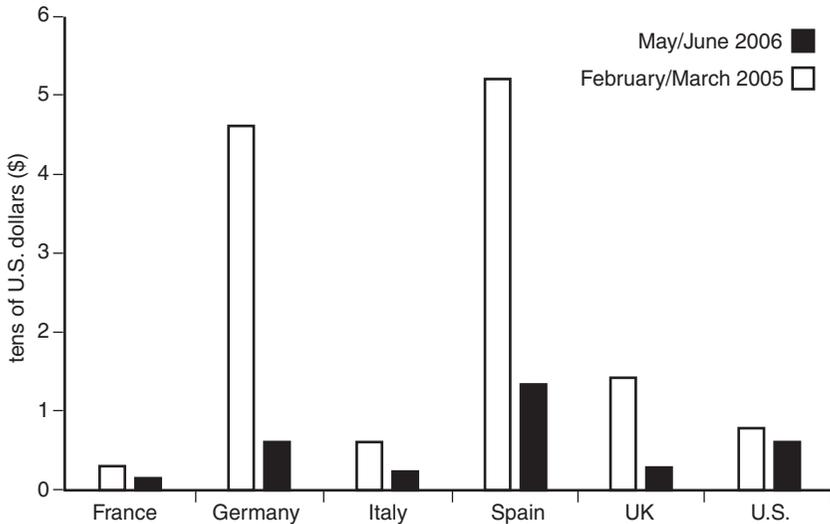
Source: OECD

six U.S. states would rank close to the top EU states (Denmark, the Netherlands), whereas the least penetrated U.S. states are significantly ahead of the least penetrated EU states, and only three U.S. states would fall below the EU average of 23 percent penetration.<sup>28</sup>

Figure 5.5 also shows that some Northern European countries have outperformed Korea since 2005 in terms of subscribers per 100 inhabitants. These countries have also managed to establish significant infrastructure-based competition over the past few years. As was noted also by Commissioner Reding, in all six EU countries that have exceeded 20 percent broadband penetration cable has an important market share, and this “regardless of the effectiveness of regulation”.<sup>29</sup>

<sup>28</sup> Source: for the U.S., Leichtman Research Group, *Broadband Access and Services in the Home*, May 2006; and Pew Internet & American Life Project, *Home Broadband Adoption 2006*, May 28, 2006. For the EU, European Commission, *E-Communications Household Survey*, July 2006.

<sup>29</sup> Speech by Commissioner Viviane Reding at ECTA Conference, SPEECH/06/697, November 16, 2006.

**Figure 5.6 Average Cost of 1Mbps of Residential Bandwidth per Month**

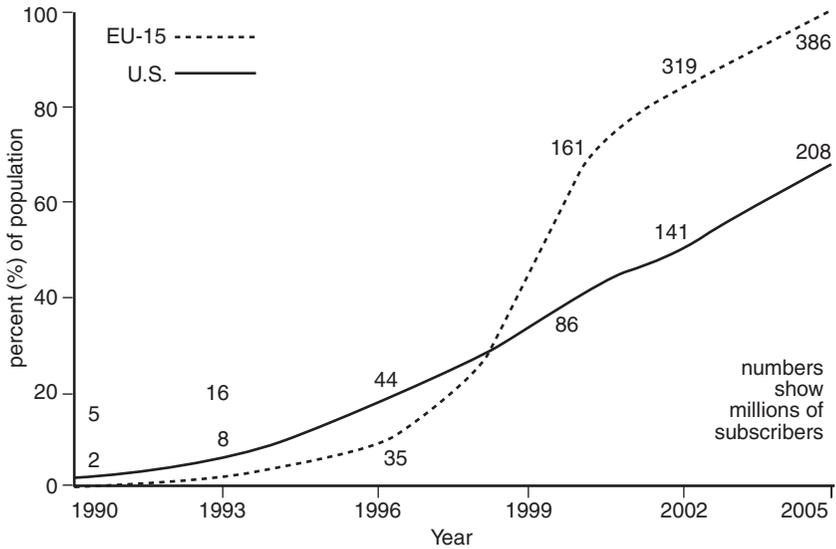
Source: elaboration from eMarketer data, 2006

Increased competition and innovation in many markets has also brought substantial benefits as regards the average cost of broadband subscriptions. Figure 5.6 below shows the enormous reduction in the average cost per 1Mbps of residential bandwidth in selected countries between February 2005 and June 2006. As shown in the figure, countries like Spain and Germany have achieved huge reductions in the cost of broadband bandwidth. Such cost is now lower in UK, Italy and France than it is in the U.S.

### 1.3.1 *Wireless Broadband: 3G Telephony and WiMax*

A growing feature of broadband in the U.S. and EU is the deployment of alternative, wireless access technologies. Wireless is expected to increase its share of the broadband market from two percent to around 17 percent in the early years of the next decade.<sup>30</sup> According to recent data, 29 percent of European Internet users had access to the Web on mobile devices in October 2006. This includes users in Germany (34

<sup>30</sup> See Rethink Research, *Operator Spending on WiMax*, September 2006.

**Figure 5.7 Mobile penetration and subscribers, 1990-2005**

Source: UMTS Forum (2006)

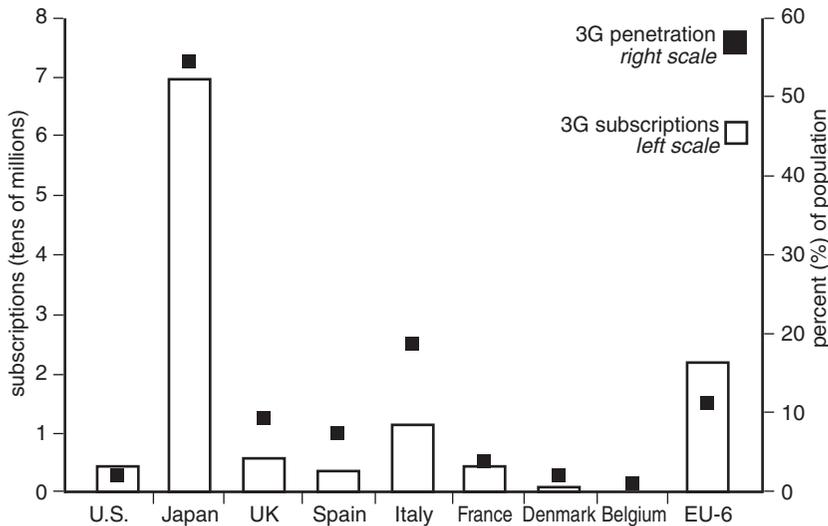
percent); Italy (34 percent); France (28 percent); Spain (26 percent); and the U.K. (24 percent). In the U.S., to the contrary, only 19 percent of Internet users access the Internet on cell phones and other mobile devices.<sup>31</sup> This also depends on the relatively low penetration rate of mobile telephony in the U.S., as depicted in Figure 5.7 below.<sup>32</sup>

A similar trend is observable as far as fixed-mobile substitution is concerned. According to recent surveys, in Finland as many as 47 percent households have become mobile-only, followed by 38 percent in Portugal, 25 percent in Italy, 14 percent in France, 13 percent in the UK and 11 percent in Germany. The average figure for the EU-25 is already as high as 18 percent. On the other hand, only 10 percent of U.S. households are mobile only.<sup>33</sup>

<sup>31</sup> ComScore Mobile Tracking, available at <http://www.clickz.com/showPage.html?page=3623758>.

<sup>32</sup> Mobile penetration had reached 73.3 percent in the second quarter of 2006, according to Merrill Lynch, whereas the corresponding figure for Europe was 107 percent. See Campbell, G. (2006), *North American Telecom & Cable in Pictures*, presentation at the Transatlantic Telecom Dialogue, Columbia University, New York, October 20, 2006.

<sup>33</sup> Data updated at December 2006. Sources: for EU countries, Eurobarometer Special—eCommunications household survey, 2006; for the U.S., CTIA and FCC (adjusted).

**Figure 5.8 3G Penetration, 2006**

Source: Screen Digest

With penetration being already at 103.2 percent in Europe, however, revenue growth has declined below five percent in 2006, compared with double-digit figures in 2000-2003. On the other hand, since 2003 the average revenue growth in the U.S. has remained constantly above 10 percent, and declined below 10 percent only in the second half of 2006.

As regards 3G telephony, data reported by Ofcom for 2005 showed that the U.S. was lagging behind many European countries with as few as 2.7 million 3G connections, compared with Japan (29 million), Italy (10.8 million), Germany (5.5 million), UK (4.6 million) and France (3.4 million).<sup>34</sup>

Figure 5.8 below reports data by Screen Digest (2006) expressed as percentage of total population.<sup>35</sup>

<sup>34</sup> Ofcom, *The International Telecommunications Market 2006*, available at <http://www.ofcom.org.uk/research/cm/icmr06/> (visited on April 25, 2007).

<sup>35</sup> For a comprehensive view, see the study for the European Commission by Screen Digest et al. (2006), *Interactive Content and Convergence. Implications for the Information Society*, available online at [http://www.ec.europa.eu/information\\_society/eeurope/i2010/docs/studies/interactive\\_content\\_ec2006\\_final\\_report.pdf](http://www.ec.europa.eu/information_society/eeurope/i2010/docs/studies/interactive_content_ec2006_final_report.pdf) (last visit, April 25, 2007).

The prospects for infrastructure-based competition and the development of new digital platforms are also closely linked to investments in broadband wireless technologies. With WiFi being a rather limited technology due to very short-range coverage, the attention of operators and policymakers has recently shifted towards the WiMax technology, which promises to enable wireless access to fixed-line broadband at remarkable speed (up to 70 Mbps) and over a range of 30 miles.<sup>36</sup> WiMax is also particularly important for bridging the digital divide, especially as far as broadband coverage of rural areas is concerned.<sup>37</sup>

A recent report estimated that global WiMax infrastructure spending will rocket from \$655 million today to \$7.36 billion by 2009, rising from 22.5 percent of all broadband wireless spend in 2006 to be the dominant platform in the market, with a 63 percent share.<sup>38</sup> It is also expected that mobile operators, currently reluctant in investing in WiMax, will eventually exploit the potential for enhancing their handset with fixed-link technologies, then realising in full the convergence between fixed and wireless handsets.<sup>39</sup> This also implies that 802.16e is bound to become the dominant standard for WiMax, instead of the 802.16d.

Europe currently represents the bulk of investment in WiMax technologies, with a 56 percent share. In particular, Europe dominates the 3.5 GHz band in 2006 with over two-thirds of the world's licenses. This band will remain the key one for WiMax for the rest of the decade, and countries such as France, Germany and Italy already announced that they will offer additional 3.5 GHz licenses for the deployment of this technology.

On the other hand, in the U.S. the situation is more complex, as the 3.5 GHz band is not available for WiMax services.<sup>40</sup> The other band

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<sup>36</sup> Morgan Stanley estimates that, as of mid-2006, there are about 60 million Wi-Fi users and 200,000 Wi-Fi hotspots worldwide, many of which are at Starbucks and McDonald's locations. See PFE, *The Digital Economy Factbook 2006*.

<sup>37</sup> See, e.g., OECD, *The Implications of WiMAX for Competition and Regulation*, Working Party on Telecommunication and Information Services Policies, DSTI/ICCP/TISP(2005)4/FINAL, March 2, 2006.

<sup>38</sup> See Rethink Research (2006), *cit.*

<sup>39</sup> Though mobile operators still see WiMAX as being in the enemy camp, by 2009 mobile operators round the world will be the second largest spenders on WiMAX equipment, making up 17 percent of the total WiMAX equipment spend. The report shows that the market for WiMAX equipment will be larger than many have previously suggested and informs 802.16 vendors in which territories they should be making their biggest efforts.

<sup>40</sup> The 3,400-3,650 MHz range is allocated for use by the radiolocation service (radars) on a primary basis and does not contain provisions for use of fixed or mobile systems.

designated by the WiMax forum—the 2.5 GHz—is owned mostly by the third largest U.S. wireless carrier, Sprint, which committed to invest \$1 billion in 2007 and \$1.5 to \$2 billion in 2008 to develop this promising technology as a complement and upgrade to its own cellular network, with the hope to reach 100 million U.S. citizens by 2008.<sup>41</sup> The other owner of spectrum in the 2.5 GHz band, Clearwire, has launched service based on a hybrid WiMax-WiFi technology in 29 metro areas, and recently started partnerships with municipalities to build privately operated public networks.<sup>42</sup> Finally, Valtech Communications deployed network in Northwest Ohio at beginning of 2006, and currently holds licenses for the Midwest and Florida; whereas NextWave Wireless holds licenses in the 1.7 GHz and 2.1 GHz band.

Although it is probably too early to judge on investments in WiMax technology, the need to secure adequate access to spectrum resources has already been stated with great emphasis. I will therefore come back to this issue later on in this paper, when dealing with spectrum policy issues.

### *1.3.2 Multiple Play Offers*

Ongoing technological convergence and digitization of voice services has spurred a number of changes in the industry both in the U.S. and the EU. In the all-IP value chain, value-added, low-cost applications such as VoIP threaten the sustainability of traditional business models, as traditional PSTN operators now face growing competition from nomadic players such as Skype, Vonage, Yahoo! and Microsoft. Available data on revenues from fixed voice services confirms the decline of the ARPU from wireline telephony in Western Europe, declining from €33.4 to €30.8 per access line per month in the 2001-2006 timeframe.<sup>43</sup>

At the same time, increased competition has led to a significant decrease in the broadband ARPU in many countries, including the largest EU member states and the U.S.<sup>44</sup> A similar trend is expected

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<sup>41</sup> <http://www.informationweek.com/story/showArticle.jhtml?articleID=191902091>, August 14, 2006.

<sup>42</sup> See, e.g., <http://www.grand-rapids.mi.us/index.pl?binobjid=4146>.

<sup>43</sup> Source: IDATE (2006)

<sup>44</sup> See, e.g. Ofcom (2006), *The International Telecommunications Markets*, cit..

for mobile voice services in the near future, especially as handsets embed WiFi and WiMax functionality and 3G allows more intensive use of VoIP. As reported in a recent study by Analysys, by 2015 mobile VoIP will carry 28 percent of all fixed and mobile voice minutes in the U.S. and 23 percent in Western Europe.<sup>45</sup>

All these changes have led industry players to increasingly provide multiple-play offers to their customers, which range from triple-play bundles (fixed, mobile, Internet) to quadruple-play (fixed, mobile, Internet, TV). With the move to IP networks, PSTN are now offering their own Voice-over-Broadband (VoB) services to contrast the competition from nomadic players.

In the U.S., multiple-play offers have been launched by many players, which include SBC's quadruple-play on its ADSL/VDSL connections, Comcast on its cable network and MStar over the UTOPIA's fibre optic municipal network in Utah. TV services were also recently announced by Verizon on its FiOS network, which brings fibre to the premises.

In Europe, the Commission recently acknowledged that triple- and quadruple-play have become common ways of offering services to end users. European players have taken the lead in these types of offers and are currently changing their business models in search for new sources of revenue from bundling ancillary services and applications with the basic multi-play offer. A recent EU survey on the evolution of communication services in European households showed that 19 percent of EU households subscribed to at least one bundled service with higher percentages in Denmark (38 percent), Estonia (35 percent), the Netherlands (32 percent), Spain (29 percent) and Luxembourg (27 percent). As of early 2007, the most frequently purchased service package was a double play offer of fixed voice telephony and Internet access (eight percent of EU households), whereas triple play and quadruple play offers had been taken up by only three and one percent of EU households respectively.<sup>46</sup>

The development of multi-play offers also directly affects barriers to entry in a national market. In line with the economic theory of

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<sup>45</sup> See Analysys, *Forecasting the Commercial Impact of Wireless VoIP in the USA and Western Europe*, August 2006.

<sup>46</sup> See European Commission, *European Electronic Communications Regulation and Markets*, 12th Report, COM(2007)155, March 29, 2007.

bundling, such offers can be seen at once as pro-competitive moves to conquer market share, but also as attempts to preserve and/or extend dominance across different relevant markets. In this respect, some competition authorities and national regulators have already had the temptation to define triple play as a distinct relevant market. Potential consequences of this market development for the entry of new players are the following:

- *Incumbent players are subject to increased competitive pressure from broadcasters, mobile operators, nomadic players, etc.* In order to replicate available multi-play offers and conquer customer base, every player needs to ensure that its customers have access not only to (commoditized) voice services, but also to mobile services, broadband services, killer applications, premium content and functionalities offered by operating systems, digital rights management technologies, etc. For such reason, players once operating in separate relevant markets now compete for the same customer, and have different competitive advantages.
- This inter-platform competition, in turn, spurs *cooperation between competitors (co-opetition) and industry consolidation*. Examples of recent M&A activity that confirms this trend are reported above, at section 1.2.
- *Barriers to entry are higher*, especially for foreign players, who need to gain access to a wide range of technologies, services, applications, content and spectrum if they want to play a role in a national market.

### 1.3.2.1 Broadcasting and Content

In the multi-play era, telecom services are increasingly linked to broadcast services and the delivery of digital content. Although a detailed description of developments in this segment would fall outside the scope of this paper, it is worth looking at some existing features of the U.S. and EU markets which may hinder entry by foreign players and create ambiguous regulatory regimes.

First, digital terrestrial television and cable television seem to have developed quite extensively in Europe over the past few years. Most of

the EU27 today exhibit significant inter-platform competition, with some countries—notably, Austria, Belgium and the Netherlands—having almost replaced terrestrial TV.<sup>47</sup> This is also confirmed by the findings of the market analyses carried out by national regulators under the 2002 regulatory framework, which found the market (i.e. the so-called “market 18”) to be fairly competitive in some member states due to platform-based competition. As a result, the share of terrestrial TV in households in the EU-27 decreased from 47.7 percent to as low as 29 percent from the end of 2004 to September 2005. The share of cable fell from 29.6 percent to 17 percent, whereas satellite TV increased its share from 22.4 percent to 52 percent and DSL conquered a two percent share of the market.<sup>48</sup>

In the United States, a similar situation is developing, with traditionally dominant cable companies now facing increased competition by Digital Broadcast Satellite (DBS) providers. The FCC, in its 12<sup>th</sup> annual report on the state of competition in the video market, acknowledged that “[c]ompetition in the delivery of video programming services has provided consumers with increased choice, better picture quality, and greater technological innovation”. According to the FCC, almost all consumers have the choice between over-the-air (OTA) broadcast television, a cable service, and at least two DBS providers as well as “emerging technologies, such as digital broadcast spectrum, fiber to the home, or video over the Internet.” Finally, video programming has become available over wireless handsets on networks operated by Sprint, Verizon Wireless, and Cingular.<sup>49</sup>

On both sides of the Atlantic, investments to upgrade the networks to migrate to NGNs are driven by expectations that digital content will provide the revenue source operators are missing after the decline in revenues from traditional voice services. In this segment, the United States still play a paramount role in the production and export of movies and formats, although the UK has outpaced the U.S. on this latter dimension in 2006.<sup>50</sup> But digital content is much more than this:

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<sup>47</sup> Source: Dataxis (2006), *Digital Television Data*, Study for European Commission.

<sup>48</sup> *Ibid.*

<sup>49</sup> Verizon’s V Cast service is available to more than 148 million people in 181 major metropolitan areas, while Cingular offers television programs from NBC, Fox, CNN, ESPN, Disney, The Weather Channel, and HBO.

<sup>50</sup> See Ofcom (2006), *The International Telecommunications Market 2006*, cit..

fast-growing markets include digital music and media stores (such as, e.g. Apple's iTunes), DRM-enabled peer-to-peer networks and super-distributors (e.g. Weedshare, Wippit, Napster, Virgin, etc.); user-created content mostly accessed through social networking websites—e.g. YouTube, Myspace, Friendster, etc.—and also instant messaging systems and blogs.<sup>51</sup> These services have become a source of economic power for their operators, as they ensure a high retention rate and thus a loyal customer base—a key asset in the converged world. It therefore came to no surprise that Microsoft and Yahoo! decided to make their own instant messaging systems interoperable, and that an Internet giant like Google spent no less than \$900 million to Rupert Murdoch to power the Myspace search function in August 2007, and three months later decided to acquire Youtube in a \$1.65 billion deal.

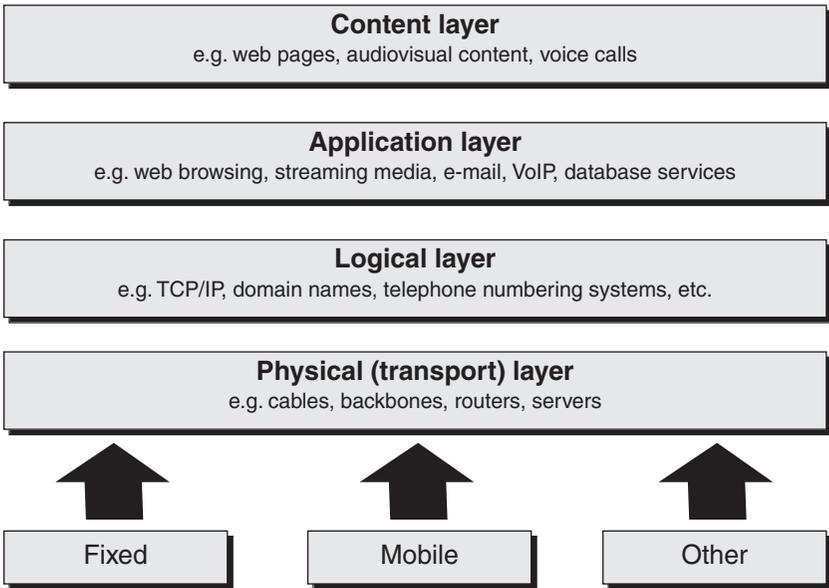
As many of the powerful Internet players strive to develop their own VoIP service, ensure the availability of killer applications and premium content, and even invest in network technologies (e.g. Google in BPL, Disney as MVNO) it becomes quite clear that the competitive landscape of telecommunications, particularly in the U.S., has become broader. From this perspective, the regulatory approach adopted by national policymakers at the higher layers of the NGN architecture becomes as important as the decision on whether to impose access obligations at the infrastructure layer, especially as far as the business case for investing in new technologies is concerned. I will come back to this issue below, in section two.

## 2. Policy Challenges: Getting Ready for NGNs

Most investments in the telecom sector today seek to ensure fast migration of legacy networks to all-IP Next Generation Networks (NGNs). NGNs are defined as “a packet-based network able to provide telecommunication services and able to make use of multiple broadband, QoS-enabled transport technologies and in which service-related functions are independent from underlying transport-related technologies.”<sup>52</sup> NGNs enable unfettered access for users to networks and to competing service providers and/or services of their choice, and

<sup>51</sup> See FCC, Twelfth Annual Report, March 2006.

<sup>52</sup> See International Telecommunications Union, ITU-T NGN FG Proceedings, 2005, p. 53 (available at [http://www.itu.int/ITU-T/ngn/files/NGN\\_FG-book\\_II.pdf](http://www.itu.int/ITU-T/ngn/files/NGN_FG-book_II.pdf)).

**Figure 5.9 Layers of an IP-based Network Architecture**

support generalized mobility which will allow consistent and ubiquitous provision of services to users.

NGNs are characterised by IP-based core networks that support the full range of services offered by operators. Depending on market development and regulatory strategy, countries rely on one or more core IP-based networks, and on securing that end users have different ways to access them. A prominent feature of IP-based networks is that they exhibit a layered end-to-end architecture, exactly as the internet does. As a result, a suitable way to observe the functioning and competitive dynamics of those networks is to look at the interactions that will take place between the different layers. Figure 5.9 below illustrates the main layers of an IP-based network architecture.

The migration to IP-based networks promises to unleash the potential for new services and applications to be delivered to end users at unprecedented speed, at the same time delivering Opex and Capex savings of hundreds of millions per operator.<sup>53</sup> Available data from

<sup>53</sup> For example, Verizon is on track to achieve in 2010 a total CAPEX per home of \$1,350, a 22 percent cost saving over the next 4 years.

2005 showed that the global reshape in telecom services is more visible when one looks at future technologies: China was the leader with one third of all NGNs worldwide, followed by the U.S. with 26 percent, and the United Kingdom with 13 percent.<sup>54</sup>

Planned investments in NGNs in the U.S. and EU are of gigantic scale.<sup>55</sup> Such investments still face significant uncertainty, and many national regulators are realising that careful *ad hoc* policymaking is needed in order not to stifle incentives to build the infrastructure of the future. In particular, the business case for building an all-IP network is not only dependent on user demand, but also on the regulatory approach adopted by regulators as regards spectrum availability/trading, unbundling obligations at the infrastructure layer, and net neutrality at higher layers. For such reason, in order to understand the potential for infrastructure deployment in the U.S. and EU, all these policy developments must be duly considered.

As acknowledged by scholars, practitioners and policymakers, the migration to Next Generation Networks will radically change the industry structure and—accordingly—the challenges faced by regulators. This change will affect more the EU regulatory approach than the U.S. one. For example, the current list of 18 relevant markets included in the 2003 Commission Recommendation—which forms the basis for the market analyses performed by NRAs and reviewed by the Commission—will become obsolete and will have to be significantly reshaped. More importantly, the assessment of market power by NRAs will have to take into account the broader competitive landscape in which once-dominant operators will end up after convergence will be fully realized. Given that competition policy tools are so deeply embedded in the EU framework, new tools for market analysis will have to be developed: these include two-sided markets and cluster market concepts.

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<sup>54</sup> See Worldwide NGN Migration Status and Vendors Opportunity Analysis Report, Dittberner Associates, November 2005.

<sup>55</sup> In Europe, investment in NGN by the top 5 players is in the magnitude of 100 billion. For example, BT has announced it will have invested £10 billion by the end of the decade on its 21CN initiative, and expect savings of around one billion pounds a year by September, 2008. In the U.S., Verizon believes that in the 2004-2010 timeframe it will have spent \$18 billion passing 18 million households, according to Ovum-RHK.

In this section, I briefly describe the current regulatory frameworks in the U.S. and EU and then address the current approaches to encouraging investment in NGN and their likely effects on market openness and entry of new players.

## **2.1 *The United States: the Long Way Out from the 1996 Telecommunications Act***

Since the 1980s, the U.S. telecom industry has been characterized by an artificial regulatory segregation of local exchange telephony from long-distance telephony that arose principally from the consent decree signed by the U.S. Department of Justice and AT&T in 1984.<sup>56</sup> The 1996 Telecommunications Act deregulated long-distance telephone services, local exchange telephone services, and local cable television services. As a result, the RBOCs were finally allowed to enter lucrative long-distance markets under the condition that they provided unbundled access to any entrant that wished to use part of their networks (the so-called Unbundled Network Elements or UNE) at fair, reasonable and non-discriminatory conditions, based on the so-called TELRIC pricing.<sup>57</sup>

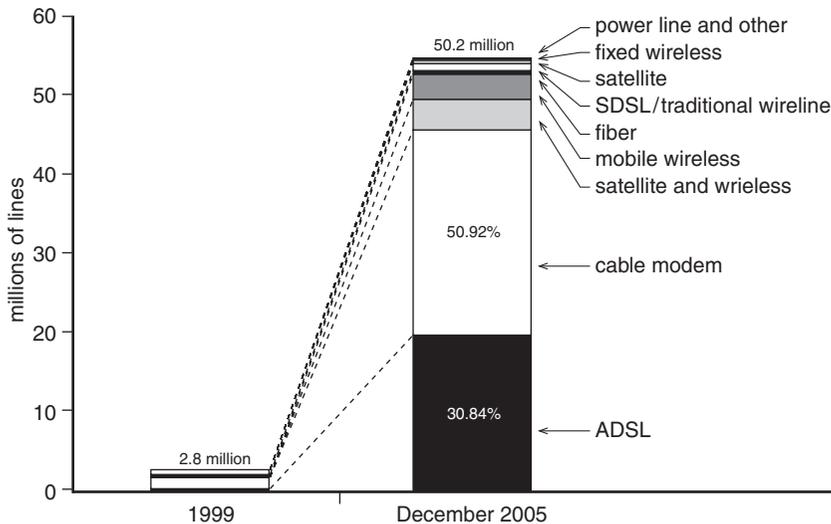
The 1996 Act, initially welcomed with enthusiasm as a “Camelot moment,” soon proved to be inadequate to efficiently regulate the fast-changing U.S. telecom industry.<sup>58</sup> Two main problems emerged:

- mandatory unbundling obligations have been increasingly considered as an insurmountable hurdle for investments in (DSL) broadband deployment by RBOCs. In this respect, many economists have highlighted that charges to access the incumbents’ UNE were insufficient to reward investments in infrastructure.<sup>59</sup>
- the so-called “silos” approach adopted by the Act—in which each type of telecommunication service (broadcasting, telephony, cable television, information services) is subject to its own regulatory structure—seems to have hampered the level-playing field, by creating an artificial “regulatory apartheid”

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<sup>56</sup> Modification of Final Judgment, reprinted in *United States v. AT&T Co.*, 552 F. Supp. 131, 226-34 (D.D.C. 1982), *aff’d sub nom.* *Maryland v. United States*, 460 U.S. 1001 (1983).

<sup>57</sup> TELRIC stands for Total Element Long-Run Incremental Cost.

**Figure 5.10 High Speed Line Growth in the U.S., 1999-2005**

between sectors subject to common carriage obligations under Title II of the 1934 Act (the wireline companies); sectors falling under Title III (which include satellite and wireless) and under Title VI (cable), which were generally exempted from common carriage obligations.<sup>60</sup>

The UNE regime collapsed after the *USTA II* case in 2004, especially after the decision by the FCC not to appeal.

### 2.1.1 Focus on Broadband Deployment

Cable operators have had the first move in deploying U.S. broadband. The legacy of the 1996 Telecommunications Act is the main explanation for the cable-intensive nature of broadband connection in

<sup>58</sup> Senate Commerce Committee Hearing, Voice over Internet Protocol, Feb. 24, 2004.

<sup>59</sup> See, e.g., Hausman, J.A. and J.G. Sidak (2005), *Did Mandatory Unbundling Achieve Its Purpose? Empirical Evidence from Five Countries*, Journal of Competition Law and Economics, Vol. 1, pp. 173-245.

<sup>60</sup> The definition of “regulatory apartheid” was given by Peter Huber, quoted in Thomas W. Hazlett, *Explaining the Telecommunications Act of 1996: Comment on Thomas G. Krattenmaker*, 29 Conn. L. Rev. 217 (1996).

the U.S.<sup>61</sup> Figure 5.10 below shows the enormous increase in high-speed lines that occurred in the U.S. between 1999 and 2005, with cable broadband rising from 1.4 million lines in 1999 to 25.6 million in December 2005, and DSL climbing up to 19.5 million lines, with a growth of almost 20 percent in the second half of 2005 only.<sup>62</sup> Of these, 82.2 percent was provided by RBOCs, whereas ILECs and non-ILECs were providing 14.1 and 3.7 percent, respectively.

Like incumbents in Europe, RBOCs have been facing decreasing margins from traditional voice services. The most (if not only) relevant source of profits is today provided by wireless services and by triple-play offers. Faced with the prominent position of cable operators in the broadband market, the FCC attempted to restore the level-playing field. The FCC approach, however, was very different from the European one: as a matter of fact, a degree of technological neutrality was achieved in the U.S. not by regulating all services regardless of the underlying technologies, but by lifting up regulation on both FTTx and DSL investments. The FCC decided to declare cable modem broadband services as an 'information service' back in 2002; later, it decided to forbear from imposing mandatory unbundling and pricing of FTTH in August 2003, and extended its decision to FTTC in October 2004 and to DSL in September 2005. The FCC decision to forbear from imposing mandatory unbundling and price regulation on FTTC, FTTH and DSL reportedly provided a tremendous stimulus to investment in the U.S.<sup>63</sup>

Today, cable companies still hold the largest share of high-speed connections (51 percent), but market analysts expect DSL to conquer 55 percent of new subscribers in 2007. Since 2004 telcos outpaced cable operators in subscriber growth for the first time, by focusing on price instead of speed. The price for DSL broadband services is

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<sup>61</sup> Another explanation is that DSL is constrained by the distance between the subscriber and the central office. DSL over a copper wire only works within 18,000 feet of a central office facility. See, *i.a.*, A. A. Gilroy and L. G. Kruger, *Broadband Internet Access: Background and Issues*, CRS Issue Brief for Congress, updated April 4, 2005.

<sup>62</sup> See FCC High-Speed Services for Internet Access Report, July 2006.

<sup>63</sup> SBC Communications announced investments of \$4-6 billion, Verizon planned investments totalling \$15 to 20 billion and other providers, including incumbents like Bell-South, followed a similar strategy by announcing investments of \$3 to 4 billion. Some commentators have argued that investments by regional incumbents (RBOCs) would have taken place anyway, given the intense competitive pressure exerted by cable operators, and were not significantly affected by the FCC announcements.

reported to have fallen down substantially from February 2002 to January 2005. In 2002, SBC and Verizon both priced their monthly DSL subscription at \$49.95; at the end of 2006, AT&T introduced a new low-speed service (768 Kbps) at \$14.99 per month, whereas BellSouth lowered 3 Mbps service to \$37.95 and 6 Mbps service at \$42.95. Verizon offers low speed service at \$19.99 and its high-speed FiOS service (50 Mbps in NY, NJ, and CT) at \$89.95.

### 2.1.2 *A (Deregulated) Level Playing Field?*

In order to encourage investment in new infrastructure, the FCC has decided to exempt also other high-speed technologies from heavy-handed regulatory obligations. Broadband over Power Lines is considered as an information service, and as such exempted from state regulation and from common carriage obligations.<sup>64</sup> This approach is consistent with the framework that the Commission has established for cable and DSL broadband Internet access services, and could encourage investment by large players. One early example is the \$100 billion investment by Google and Goldman Sachs in the BPL provider Current Communications Group in 2005.

A ‘hands-off’ approach to regulation was also applied to IP-enabled services such as VoIP. The FCC has taken advantage of its legacy “silos approach” by classifying VoIP as an “interstate information service” back in November 2004, therefore exempting it from state regulation just as cable modem services. More recently, the FCC started its IP-Enabled Services Proceeding in order to assess whether VoIP is to be considered a telecom or an information service.<sup>65</sup> Meanwhile, VoIP already became a reality in the U.S. According to a recent report by Infonetics, North American VoIP service revenue is poised to grow eighteen-fold between 2004 and 2009, from \$1.24 to \$23.4 billion. More than \$62 billion will be spent on VoIP services over the five year

<sup>64</sup> Specifically, the FCC 06-165 Order classifies the transmission component underlying BPL-enabled Internet access service as “telecommunications,” and the provision of this transmission component as part of a functionally integrated, finished BPL-enabled Internet access service offering as an information service.

<sup>65</sup> An example is the order issued by the FCC on May 19, 2005, requiring VoIP providers to “supply enhanced 911 (E911) emergency calling capabilities to their customers as a mandatory feature of the service”. In that occasion, the FCC also clarified that “[t]he IP-enabled services marketplace is the latest new frontier of our nation’s communications landscape, and the Commission is committed to allowing IP-enabled services to evolve without undue regulation”. WC Docket Nos. 04-36, 05-196, May 19, 2005.

forecast period. At the end of 2006, the number of VoIP subscribers in the U.S. was estimated at more than 9 million.<sup>66</sup> Forecasts that cable operators would dominate the market already in 2006 were not confirmed by market evidence. Vonage still leads this segment with more than 1.8 million subscribers, with Time Warner following closely at almost 1.6 million. Other big players are Cablevision (988,000) and Comcast (721,000).

In summary, the U.S. has reached a greater degree of technological neutrality than initially achieved with the 1996 Act. Such neutrality comes close to creating the level-playing field that is needed for infrastructure-based competition and fast, almost universal broadband coverage. As a result, although lifting up regulation for investments in high-speed technologies might hamper access and investment by foreign players, such an approach appears to fit the U.S. telecoms sector, due to legacy infrastructure-based competition.

### **2.1.3 The “Net Neutrality Thicket”**

The extent to which investment will be driven by expected profits as well as by end user demand is also significantly affected by the “net neutrality” debate. Especially as telecom services migrate on all-IP networks, the risk of congestion and the need to customize platforms and prioritize packets for some bandwidth-intensive services such as IPTV or VoIP has led some industry players to claim the possibility to abandon the TCP/IP protocol and, where appropriate, also charge application and content providers for use of their bandwidth. The so-called “net diversity” advocates suggest that application and customer tiering are the only ways in which operators can provide enhanced customer experience on all-IP communication networks.<sup>67</sup>

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<sup>66</sup> Source: In-Stat (2006). Cable VoIP subscribers are expected to reach six million at the end of 2006 due to aggressive cable VoIP deployments by Comcast and Charter, and will reach 9.9 million customers at the end of 2007. In 2006, independent VoIP subscribers are expected to reach 2.8 million.

<sup>67</sup> Net diversity should allow for optimisation of service quality for different uses: for example, Yoo (2006) advocates for three different types of networks: one optimized for traditional Internet applications such as e-mail and website access; another incorporating security features to facilitate e-commerce and to guard against viruses, spam, and other undesirable aspects of life on the Internet; and a third that prioritizes packets in the manner needed to facilitate time-sensitive applications such as streaming media and VoIP. Likewise, different networks also allow for different degrees of control and anonymity, which may be needed if connections serve different purposes and are consequently optimised. Some services would not even take-up without more secure network systems.

On the other hand, net neutrality was defined by the FCC as the right for internet users to access any content and run any application as they see fit. Under full-fledged net neutrality provisions, broadband network operators should not be allowed to discriminate between content or applications when offering access to end users—i.e., they should not be able to adopt a proprietary architecture for their platform, by departing from the TCP/IP protocol. Advocates of network neutrality basically fear that players holding market power in the infrastructure layer should not be given the chance to leverage such power into the logical layer to discriminate between players in the application and content layers of the IP architecture. The main concern expressed by these commentators is that “deviating from the universal interoperability that currently characterizes the Internet would inflict irreparable harm to the market for Internet content and applications.”<sup>68</sup>

As a result, network owners should be forced to adhere to the TCP/IP protocol and preserve an end-to-end (e2e) architecture.<sup>69</sup> In addition, they should refrain from vertically integrating from the physical and logical to the application and content layer, unless they grant access and interoperability to all application developers and content providers, be they welcome or not.<sup>70</sup> Finally, Network operators should also refrain from entering any exclusivity agreement with content and application providers, as well as from imposing any use restrictions on end users.<sup>71</sup>

<sup>68</sup> See Yoo, C. (2006), *Promoting Broadband Through Network Diversity*, NCTA Expert Study, June 2, 2006.

<sup>69</sup> A good example of an attempt to change the e2e architecture is the launch by AOL/Time Warner and AT&T of broadband TV services @Home and Roadrunner in the late 1990s, which authoritative commentators saw as the imminent “end of end-to-end”. See Lemley, M. A. and L. Lessig (2001), “The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era”, *UCLA Law Review*, Vol. 48, at 925.

<sup>70</sup> This also means that network operators will not be able to recover any lost revenue in providing access service by charging higher rates on applications and content.

<sup>71</sup> In other words, network operators will not be able to ban certain uses on their networks. Evidence of attempts to impose usage restrictions is abundant in the U.S. since the famous 2005 Settlement between Vonage and Madison River Telephone Company, in which the FCC’s Enforcement Bureau prohibited Madison River from blocking the “ports” for VoIP traffic, and Madison River agreed to pay \$15,000. Other examples include cases in which cable operators, DSL operators and wireless operators willfully blocked VoIP applications, and one case in which AT&T imposed VPN restrictions. Such a requirement, however, also means that, in case of congestion on a given network, cable and DSL operators will not be able to respond by imposing use restrictions for more bandwidth-consuming uses. This also implies that the only possible way to contrast congestion is through higher prices for all users (and cross-subsidies).

The network neutrality v. network diversity dilemma is far from its final word in the U.S., although the FCC seems to have taken a decisive stance in favor of internet freedom. Network neutrality proposals include provisions relating to consumer access similar to those found in the FCC principles and Internet Bill of Rights, but also provisions relating to non-discriminatory or neutral access to broadband networks or the internet by independent applications providers.<sup>72</sup> Three such proposals have been incorporated in legislation introduced in the 109th Congress—the *Network Neutrality Act of 2006* (H.R. 5273), the *Internet Non-Discrimination Act of 2006* (S. 2360), and the *Internet Freedom Preservation Act* (S. 2917).

Finally, during the FCC proceeding related to its acquisition of BellSouth, AT&T recently committed to refrain from charging companies such as Google premium fees for faster subscriber access.<sup>73</sup> Such net neutrality commitment provides a clearer view of the current development of communication services in the U.S.: a more lenient approach to investments in new high-speed infrastructure is coupled with neutrality principles at higher layers, thus leaving more room for competition and entry in application and content provision, at the same time ensuring fast broadband deployment in the years to come. Such approach, as will be made clear in the next section, appears quite different from that of the European Commission, and has raised concerns in Brussels over the potential for EU companies to invest in infrastructure in the U.S.<sup>74</sup>

## ***2.2 European Telecoms Regulation and NGNs***

In 2006, the European Commission launched the review of its 2002 regulatory framework for electronic communications.<sup>75</sup> The 2002 framework was highly praised for its reliance on a decentralised appli-

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<sup>72</sup> See Kilroy, A. A. and Kruger, L. G. (2006), *Broadband Internet Regulation and Access*, CRS Report for Congress, September 28, 2006.

<sup>73</sup> See “AT&T Wins Backing on BellSouth Merger,” *Financial Times*, December 30, 2006, available at <http://www.ft.com/cms/s/b047c064-97a5-11db-a680-0000779e2340.html>.

<sup>74</sup> See below, section 4.

<sup>75</sup> The new regulatory package consists of the Framework Directive (2002/21/EC, OJ/L 24/04/2002, P.33), the Access Directive (2002/19/EC, OJ/L 108, 24/04/2002, P.7), the Authorisation Directive (2002/20/EC, OJ/L 108, 24/04/2002, P.21), the Universal Service Directive (2002/22/EC, OJ/L 108, 24/04/2002, P.51), the Radio Spectrum Decision (676/2002/EC, OJ/L 108, 24/04/2002, P.1), the Directive on (continues on next page)

cation of tools mostly borrowed from competition policy practice, as well as for its thorough implementation of technological neutrality principles. As a matter of fact, no ‘silos’ approach was adopted in Europe: National Regulatory Authorities (NRAs), in charge of enforcing the framework, were called to perform detailed market analyses in order to identify (and notify) operators with Significant Market Power (SMP) in a given set of markets.

The 2002 framework was implemented by most NRAs with strong reliance on the “investment ladder” model, aimed at achieving long-term infrastructure-based competition through short-term service-based competition.<sup>76</sup> However, delays in the implementation of the framework at national level—with one member state (Greece) adopting the directives only in January 2006—and difficulties in market analyses and in implementing the ‘ladder’ approach have led to slow liberalization of most national markets, as well as regulatory uncertainty for industry players. Accordingly, real infrastructure-based competition is missing in many EU member states.<sup>77</sup> As recalled by Commissioner Reding in a recent speech, Europe has moved to “a competitive environment where a large number of telecom service providers thrive. This is based to a good part on service-based competition but whenever possible we should increasingly seek more infrastructure-based competition which is sustainable in the long term”.<sup>78</sup> As an example, only in a few European countries cable holds a significant share of the broadband market, whereas DSL dominates the scene and 3G still offers a barely comparable customer experience.

In 2006, the Commission decided to propose a substantial simplification of the list of relevant markets that are presumed to warrant *ex ante* regulation, by repealing most of the retail markets included in the

(<sup>79</sup> cont.) Privacy and Electronic Communications (2002/58/EC, OJ/L 201, 31/07/2002, P37) and the Regulation on Unbundling of the Local Loop (2887/2000/EC, OJ/L 336, 30/12/2000, P4). The application of competition rules to the telecommunications sector was also clarified in a 1998 Notice, and the terms of ULL obligations by incumbent operators were anticipated by a Communication issued by the Commission in 2000. See Communication from the Commission of April 26, 2000 on the Unbundled access to the local loop, OJ 23.9.2000 C272/55.

<sup>76</sup> Cave et al. (2002), *cit.*

<sup>77</sup> See the survey by London Economics and PwC for the European Commission, An assessment of the regulatory framework for electronic communications: growth and investment in the EU e-Communications sector, July 2006.

<sup>78</sup> Viviane Reding, SPEECH/06/697, November 16, 2006.

2003 Recommendation.<sup>79</sup> Other two markets, wholesale mobile origination (former market 15) and broadcasting transmission services (former market 18) have been subject to consultation, in order to assess the merit of retaining them in the list of markets warranting *ex ante* regulation. Another market, that for wholesale international roaming (former market 17), was dealt with separately by the Commission, which issues a proposal to regulate roaming charges at the retail and wholesale level and impose transparency obligations on mobile operators to the benefit of roaming customers.<sup>80</sup> In addition, currently proposed changes include a more coordinated approach to spectrum policy, restrictions on appeals process for NRA decisions, and the extension of the Commission veto power—currently covering only market analysis and SMP assessment—also to remedies proposed by NRAs, in the attempt to achieve greater harmonisation in the implementation of EU rules in the 27 member states.<sup>81</sup>

Interestingly, the Commission did not take any stance as regards the encouragement of investments in NGNs in its proposed review. This was motivated by the technologically neutral features embedded in the current framework, which allegedly make it perfectly fit to regulate also new technologies. However, many industry players and some national regulators disagree with the Commission's view. As a result, the issue of encouraging investments in all-IP networks is entirely dealt with at national level, with widely different approaches.

Some industry players—e.g. Deutsche Telekom—advocate for a 'regulatory forbearance' approach, similar to that adopted in the United States since 2003 to stimulate investments in FTTH, FTTC and DSL technologies. However, Commissioner Reding has in several occasions clarified that regulatory forbearance for investments in NGNs is "not a policy option" for the review of the 2002 framework.<sup>82</sup> Other players, such as British Telecom, rejected this approach and

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<sup>79</sup> Markets warranting *ex ante* regulation are those that fulfil three basic criteria: a) existence of significant barriers to entry; b) absence of a tendency towards effective competition; and c) the insufficiency of competition law to address the market failure.

<sup>80</sup> See the Commission's proposed regulation, COM(2006)382, July 12, 2006.

<sup>81</sup> See Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on the review of the EU Regulatory Framework for electronic communications networks and services (SEC(2006) 816) (SEC(2006) 817), June 29, 2006.

<sup>82</sup> Viviane Reding, SPEECH/06/697, November 16, 2006.

chose to focus on the deployment of one core NGN and on access to such networks by alternative operators. This, in turn, led to a more extensive consideration of the incumbent's investments when determining access charges for new entrants.

As a result, at least two extremely different regulatory approaches emerged in largest EU countries:

- The UK regulator Ofcom chose to initially rely on a single core NGN (the 21st Century Network being deployed by British Telecom) to be made available for access to all industry players. Ofcom has reached an agreement with BT, which imposes a comprehensive range of undertakings, under which BT commits not to foreclose network access, to ensure equivalence of inputs (EoI) between its downstream operations and competing players; and to make access available to all operators wishing to launch services at higher layers, with reasonable timing to allow for the simultaneous launch of competing products.
- In Germany, concerns have emerged that unbundling obligations could jeopardise the business case for Deutsche Telekom's new high-speed VDSL infrastructure—which currently covers 10 German metropolitan areas. As a result, the government recently approved a bill exempting Deutsche Telekom from mandatory unbundling of the new network, provided that the German incumbent proves that it offers innovative services, such as IPTV and VOD. Such move was heavily criticised by the European Commission, which reacted by starting a “fast track” infringement proceeding in February 2007.<sup>83</sup>

Of these two emerging models, the former seems to have been endorsed by the European Commission, which is currently working on including “functional separation” as a possible remedy available to NRAs under the EU regulatory framework.<sup>84</sup> In other large European countries—e.g., Italy—the sectoral regulator has already declared that it intends to pursue vertical separation and equivalence of inputs along with the UK model.

<sup>83</sup> See Press Release, Commission launches “fast track” infringement proceedings against Germany for “regulatory holidays” for Deutsche Telekom, February 26, 2007, IP/07/237.

<sup>84</sup> Viviane Reding, SPEECH/06/697, *cit.*

### 2.2.1 *Europe and Net Neutrality*

The ongoing tendency toward functional separation of infrastructures in Europe calls for a thorough assessment of the current business case for deploying NGNs in the years to come. As a matter of fact, the enormous size of investment plans must be justified by a reasonable expectation that costs will be recovered through efficiency gains in the networks, but also through revenues from subscribers, advertisers and application providers within a reasonable timeframe. For such reasons, firms wishing to deploy NGNs have called for regulatory certainty over the future approach that will be adopted by regulators and the European Commission at all layers of the value chain. Hence, not surprisingly, a net neutrality debate has emerged also in Europe: in particular, the current debate is focusing on whether access providers should be able to charge application providers premium fees for using their bandwidth, or whether full neutrality conditions should apply just as those imposed in the U.S. in occasion of the “mammoth mergers.”

The debate is way more complex than it may seem at first blush. For example, the most influential sectoral regulator in Europe, Ofcom, recently acknowledged that “[o]ne way that operators may plan to monetise investments in next generation access is through offering content providers different levels of quality of service to deliver their applications to consumers.... This could make a substantial difference to the business case for such infrastructure investments.... Were regulation introduced in Europe which restricted service providers from acting in this way, it could affect their incentives for investing in next generation access networks.”<sup>85</sup>

Dougal Scott, the Director of Policy Development at Ofcom, recently addressed the business case for investing in fibre networks, by identifying a sort of “incumbent’s curse”, in which players wishing to invest in an access NGN have two main ways to monetise their investment: a) by offering premium delivery services to application and content providers; and b) by closing down the copper network in time, or by selling exchange buildings. But in both cases, the road is blocked by regulation. Premium delivery services must confront the net neutrality debate, and assets such as exchange buildings are being used by LLU and other operators in line with the EU 2002 regulatory framework.

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<sup>85</sup> Ofcom (2006), *Next Generation Access*, Discussion Paper, November 23, 2006.

The European Commission has not taken any decisive stance on net neutrality issues to date, perhaps underestimating its importance for future investments in access NGN. The only statement on net neutrality is found in the Staff Working Document accompanying the proposed review of the 2002 framework.<sup>86</sup> According to the Commission, the current framework “allows operators to offer different services to different customer groups, but does not allow those who are in a dominant position to *discriminate* between customers in similar circumstances”. However, if there is a risk that QoS degrades to unacceptably low levels, the Commission is proposing to give NRAs the power “to set minimum quality levels for network transmission services in an NGN environment based on technical standards identified at EU level”; “to prevent any blocking of information society services, or degradation in the quality of transmission of electronic communication services for third parties”; and “to impose appropriate interoperability requirements”. The issue was further raised by industry players in the consultation on online content closed by the Commission in October 2006; and greater clarity on the net neutrality issue was also invoked by ERG.<sup>87</sup>

As a result, uncertainty over net neutrality issues still remains in Europe, and too much discretion seems to have been awarded to national regulators, which will inevitably result in regulatory uncertainty. Industry players and investors, while waiting for further certainty on the outcome of the EU (and national) debate, might then reconsider their willingness to invest in such a risky venture. Meanwhile, some mobile operators are reportedly considering to adopt a “walled garden” business model similar to that of most U.S. players, by blocking peer-to-peer and nomadic VoIP applications on their networks.<sup>88</sup>

## 2.2 *Summary: Two Worlds Apart?*

Just as technologies, markets and services converge into the ‘information superhighway’, the U.S. and the EU seem to be diverging substantially in terms of industry structure, market trends, growth speed and the regulatory approach. On the one hand, the U.S.

<sup>86</sup> See the Staff Working Document SEC(2006)816, June 29, 2006.

<sup>87</sup> See Kip Meek in [http://erg.eu.int/doc/meeting/erg\\_18\\_plenary\\_oct06\\_chair\\_presentation.ppt](http://erg.eu.int/doc/meeting/erg_18_plenary_oct06_chair_presentation.ppt).

<sup>88</sup> These include Vodafone Germany, T-Mobile and the French operator SFR. See OECD (2007), *Mobile Multiple Play: New Service Pricing and Policy Implications*, January 15, 2007.

telecommunications industry is almost going back to the old “Ma’ Bell,” with six of the eight RBOCs regrouped under the AT&T brand. U.S. authorities are pursuing ambitious universal broadband penetration objectives by protecting investment in infrastructure and NGN by incumbent telcos and cable companies, to the (temporary) disadvantage of new entrants. This is certainly due to the U.S. infrastructural endowment, characterized by facilities-based competition due to the widespread availability of cable: once wireless platforms develop their own broadband offerings through 3G technologies and WiMax functionality, U.S. citizens will have at least three alternative platforms to access the information superhighway for each zip code. The U.S. preference for investment over competition is found in FCC decisions, in Supreme Court judgments such as *Trinko*, and even in the more recent developments of the U.S. Microsoft case. The market reaction has been mixed: productivity is high, investment is resurging, but U.S. firms are losing competitiveness *vis-à-vis* “Chindian” players in the production and trade of communication services.

On the other hand, Europe leads in 3G penetration and in the development of multi-play digital platforms, and the share of incumbents in fixed-line voice services and broadband access has been slowly declining also due to the delayed implementation of the 2002 regulatory framework. Overall, however, the current regulatory framework seems to have created uncertainty for industry players: such uncertainty may ultimately result in a lack of investment and a consequent absence of facilities-based competition.

The relative strengths of the two regions—investment and productivity in the U.S., platform-building and fixed-mobile convergence in Europe—suggest that the U.S. and the EU can learn a lot from each other. As a matter of fact, many industry players in Europe have advocated for a more U.S.-like approach during the recent consultation on the review of the 2002 regulatory framework, but also some U.S. scholars have suggested that the U.S. pay more attention to the EU regulatory model as an example of almost-perfect technological neutrality.<sup>89</sup>

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<sup>89</sup> Including Speta, J. B. (2004), *Rewriting US Telecommunications Law with an Eye on Europe*. preliminary draft, available online at <http://web.si.umich.edu/tprc/papers/2004/322/Speta%20TPRC%202004.pdf>; and Weisman, M. (2005), *You Pick Up The Phone And It Works: An Examination Of Real World Telecom Reform In The European Union*, Available at SSRN: <http://ssrn.com/abstract=940705>.

Differences between the two approaches, however, do not necessarily suggest that creating an open transatlantic market would prove beneficial for end users in a long-term perspective. Creating a fertile business environment that proves conducive to innovation and competition is a very delicate task in this sector, and is being dealt with by national policymakers with a mix of deregulation and access policy. As a result, promoting investment in infrastructure by transatlantic players is not a priority for most countries in the EU, nor it is in the U.S. The potential for transatlantic investment in communication services is then mostly confined to the three following options:

- EU firms may invest in new access infrastructure in the U.S., such as BPL or wireless broadband. Of course, this requires massive resources and scale.
- As the regulatory framework is being implemented more fully in European member states, U.S. firms may consider investing in wholesale access to legacy networks and NGNs, and gradually build their platforms by achieving customer base and scale.
- Entering at higher layers with global applications/services/content is possible in both areas, due to current net neutrality provisions in the U.S. and EU.

In summary, the U.S. and EU, as was authoritatively stated in a recent paper, are each “dancing to a different drummer.”<sup>90</sup> Since such differences are due to peculiar industrial and sectoral policy, removing them may well create more distortions than the ones it seeks to solve—in other words, the cure would be worse than the disease. To be sure, regulatory cooperation between the EU and the U.S. can help remove some of the obstacles to entry and inward FDI in both areas; but a ‘holistic’ approach has to be maintained—solving, e.g., the net neutrality issue without harmonizing the regulation of infrastructure would inevitably hamper the sustainability of market operations or the prospects for consumer welfare in one of the two regions.

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<sup>90</sup> Scott Marcus (2005), *cit.*.

### **3. An Open Transatlantic Market?**

As recalled in the introductory section, late 2006 and early 2007 were marked by announcements on the need to intensify U.S.-EU regulatory cooperation to create an open transatlantic market and remove all barriers to transatlantic investment by 2015. In the case of telecoms, as explained in the previous section, the issue is particularly delicate. To be sure, there are remaining barriers to inward FDI on both sides of the Atlantic, ranging from incompatible standards to ownership restrictions, to delays in liberalization and persistence of high wholesale access charges. These barriers are surveyed in section 3.1.

However, removing those barriers does not mean opening up the transatlantic market fully. A real transatlantic market in telecom services must still be created, and examples of substantial investment ventures across the Atlantic are still very few. Thus, section 3.2 discusses in detail the prospects for an open transatlantic market, by identifying areas for cooperation/mutual learning and areas where national/community policies should not be harmonised.

#### ***3.1 Trade and Investment***

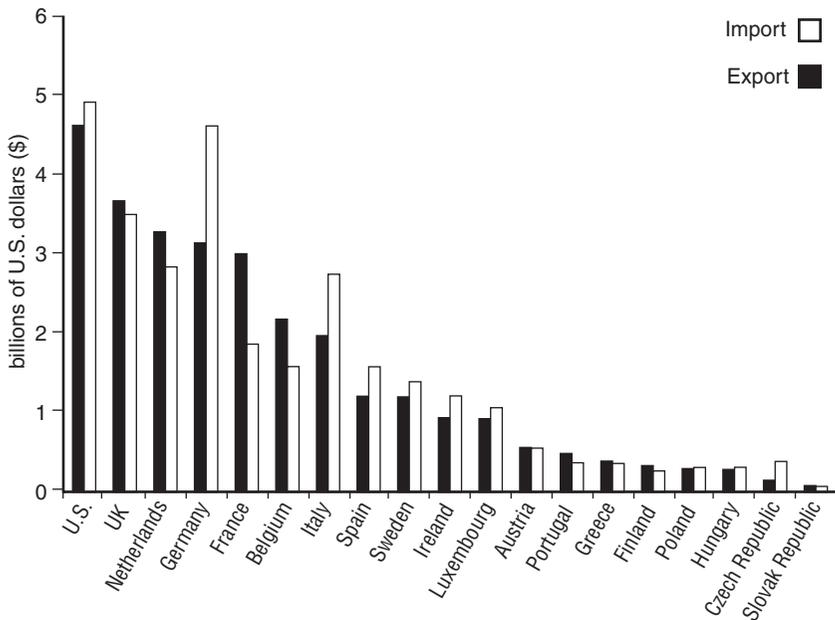
Trade in communication services represented approximately 2.5 percent of overall trade in services between the EU and U.S. in 2003-2004.<sup>91</sup> As reported by the OECD, the leading exporters of communications services worldwide are currently the U.S., the UK, the Netherlands, Germany and France. Data comparing the situation in 1996 and 2004 show, however, that U.S. imports of communication services have fallen by approximately 44 percent, from \$8.8 to \$4.9 billion. Meanwhile, Japan has drastically reduced its trade, whereas the Netherlands and Sweden have enormously expanded their trade. Figure 5.11 below shows imports and exports of communication services for selected EU countries and the U.S.

Data on trade in communication services are quite difficult to read and sometimes hardly meaningful, due to their strong dependence on regulatory trends and to the often observed inverse relationship with global trade trends in manufactured goods and other services.<sup>92</sup> To the

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<sup>91</sup> Last data available from Eurostat.

<sup>92</sup> See OECD IT Outlook 2006.

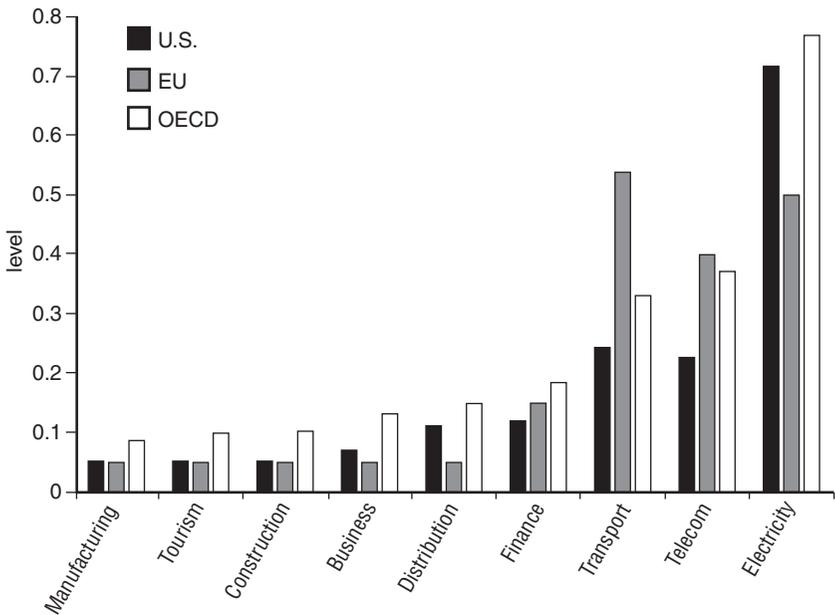
**Figure 5.11 Trade in Communication Services, 2004**

Source: OECD IT Outlook 2006

contrary, data on cross-border M&A activities are normally used as a proxy for FDI activity. In this respect, as already recalled, the two areas have witnessed a common wave of consolidation: but such consolidation most often involved the internal U.S. and EU markets. In addition, EU firms have increased their investment in Latin America and Southern Mediterranean countries, but very few EU-U.S. transactions took place in the communications services field.

On the other hand, global players have been very active at the physical layer—mostly in the field of networking equipment—and at higher layers of the IP architecture, especially in the application layer. Such trends are spurred by the need to invest in next generation infrastructure, on the one hand, and by the emergence of the IP era, on the other.

The most notable example of a transatlantic merger taking place in the physical layer is the acquisition of U.S. networking equipment company Lucent (formerly AT&T Network Systems) by French com-

**Figure 5.12 Restriction of Inward FDI in Specific Sectors, OECD, 2003**

The indicator ranges from 0 (least restrictive) to 1 (most restrictive)

Source: OECD IT Outlook 2006

pany Alcatel in a €11.6 billion deal, which created the world's largest producer of communication equipment. The transatlantic giant company will top \$25 billion of revenues in as many as 130 markets, reaching a 20 percent market share worldwide and overcoming Cisco Systems and Ericsson as world leader. The transaction was completed on December 4, 2006, after the approval of the Committee on Foreign Investment in the U.S., i.e. the inter-agency panel that reviews foreign takeovers of U.S. assets (see below, section 3.2, for further details on the procedure). The new global player has equally distributed revenues on the two sides of the Atlantic (35 percent in Europe, 34 percent in the U.S., 15 percent Asia and Pacific, 16 percent in the rest of the world). The merged entity immediately decided to acquire Nortel's UMTS radio access business and related assets for \$320 million, completing the acquisition on December 31, 2006. This acquisition will lead, *i.a.*, Alcatel-Lucent UMTS solutions to serve around 40 UMTS providers in the world. The Alcatel deal is a major step

towards the intensification of commercial relationship and technological cooperation by transatlantic players.<sup>93</sup>

At higher layers, competition ‘for eyeballs’ is driving also cross-border M&A activity, with many companies active in the search for preserving and increasing their customer base. For example, eBay’s acquisition of Luxembourg-based company Skype in 2005 created a powerful player with killer applications and a strong customer base. The a-territorial nature of the Internet will increasingly facilitate these transactions in the future.

The issue of cross-border investment, as was already mentioned, is way more complex in the market for telecommunication services. A survey conducted by London Economics and PwC for the European Commission in July 2006 revealed that only 26 European telecom operators were investing in non-EU countries, and investments are mostly directed to developing countries with high market growth prospects. Cases of European telcos operating in the U.S. are limited, and include Deutsche Telekom’s T-Mobile U.S., currently the fourth-largest wireless carrier in the U.S. market with 27.5 million customers; and Vodafone’s 45 percent stake of Verizon Wireless, which serves 57 million customers in the U.S.

### ***3.1.1 Barriers to Inward FDI in the U.S.***

Every year, the European Commission publishes a list of obstacles to FDI by European firms in the U.S., covering also communication services. In 2006, some of the traditionally mentioned obstacles have been lifted or alleviated. For example, the rigid taxonomy of services (‘silos’ approach) traditionally hampered the competitive level-playing field from 1996 until 2004 in the U.S.<sup>94</sup> Such classification arrangements, according to the European Commission, affected the ability of new players to enter the U.S. market in the near future. As the ‘silos’ approach was set aside for new high-speed technologies, such obstacle should not be considered as insurmountable anymore.

<sup>93</sup> For example, Alcatel advanced triple-play solutions will be the basis of a \$1.7 billion investment by SBC to implement Project Lightspeed and deliver integrated IPTV, high-speed broadband, IP voice and wireless services to 18 million households by the end of 2007.

<sup>94</sup> See Renda, A. (2005), “Telecom Services: a Transatlantic Perspective”, in Daniel S. Hamilton and Joseph P. Quinlan, *Deep Integration. How Transatlantic Markets are Leading Globalization*, Center for Transatlantic Relations and CEPS, Chapter 11.

On the other hand, the wave of industry consolidation that has characterized the U.S. in the past few years, resulting in the almost-complete resurgence of the old AT&T, could significantly reduce the degree of market openness in the U.S.; on top of this, the need to develop triple- or quadruple-play bundles and negotiate arrangements with content and application providers—when not with state authorities and municipalities—further jeopardises the business case for entering the U.S. market. New entrants, as of today, should possess remarkable scale and economic resources to profitably enter the market (like in the case of Alcatel), and even in this case—at least, at the infrastructure layer—the success of such venture is not at all guaranteed.

The European Commission has identified a number of remaining U.S. practices that substantially hamper EU firms trying to enter the U.S. market.<sup>95</sup> The main concerns expressed were related to the satellite and mobile sectors, as well as to spectrum availability and diverging standards. Existing barriers are listed in more detail in the next sections.

### **3.1.1.1 The ECO-Test**

Since November 1995, the FCC adopted a rule on entry of foreign-affiliated carriers into the U.S. market, by introducing the so-called “Effective Competitive Opportunity test” (ECO-test). In the aftermath of the *WTO Basic Telecommunications Agreement*, then, the FCC replaced such test with a “rebuttable presumption” that entry by a foreign-affiliated competitor is pro-competitive, but retained a “public interest” criterion which can still be invoked to deny a license to a foreign operator in cases of trade concerns, foreign policy concerns and very high risk to competition. These rules are said to create uncertainty for foreign operators wishing to invest in the United States. Such system has later been extended to satellites licensed by WTO countries.<sup>96</sup> Although the FCC expressed its intention to only deny

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<sup>95</sup> See the European Commission’s Report on U.S. Barriers to Trade and Investment, March 2006, stating that: “[t]he reduction in the number of competitors in the wire line sector raises some concerns, in particular, regarding the provision of local connectivity (namely special access lines for businesses requiring dedicated, non-switched connections to external networks), as well as Internet connectivity services. On the one hand, special access lines are key inputs for the provision of global telecoms services and particular attention will be required to ensure a fair and non-discriminatory special access offer. On the other hand, several submissions to the Federal Communications Commission (FCC) in the above mentioned proceedings have also expressed concerns about a reduction of competition in the internet backbone market leading to “de-peering”, dominance and packet-discrimination concerns.”

<sup>96</sup> See 2005 Report on U.S. Barriers to Trade and Investment, European Commission, December 2004.

market access on this basis in exceptional circumstances (which are not well defined) the discretion retained by the FCC remains of concern to the EU and raises questions as to the compatibility of the FCC rules with U.S. WTO commitments.

### 3.1.1.2 Direct Limitation of Ownership of Common Carrier Radio Licenses and Broadcast Licenses

Direct investment in U.S. companies holding common carriers radio licenses is still limited to 20 percent by section 310 of the 1934 Communications Act. This rule—which applies also to companies holding broadcast licenses—seems to run counter to the commitments undertaken by the U.S. within the WTO Basic Telecommunications Agreement, and inevitably limits the freedom for EU firms to invest in U.S. companies. The European Union expressly stated that “the U.S. broadcasting market today is hardly accessible to foreign media companies”.<sup>97</sup> The U.S. Administration holds the view that it is not necessary to adopt specific legislation to abolish such investment restrictions, since the FCC may waive these restrictions under the current law by invoking the “public interest.” In light of the ongoing technological convergence and consolidation between telecoms and media in the U.S., ownership restrictions may hamper attempts by EU companies to enter a dynamic and profitable market.

### 3.1.1.3 Satellite Operators

After the Basic Telecommunications Agreement, the U.S. has kept a market access restriction on satellite-based services—*i.e.* protecting the monopoly of Comsat although formally abolished by the 2000 ORBIT Act. European satellite operators such as Intelsat, Inmarsat Ventures plc and New Skies N.V. have experienced substantial barriers to entry and suffered from complex and lengthy proceedings in their attempt to enter the U.S. satellite market. In addition, the U.S. has taken an exemption to the MFN principle for one-way satellite transmission of Direct-to-Home, Direct-Broadcast-Satellite and digital audio services. Such exemption was considered by the European Commission as a measure that “may impair European interests”.<sup>98</sup>

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<sup>97</sup> *Ibid.*

<sup>98</sup> *Ibid.*

The initial U.S. offer in the current WTO round of negotiations proposes to eliminate these exceptions.

#### **3.1.1.4 Spectrum Availability for 3G**

An obstacle to entry in the U.S. telecommunications sector traditionally identified by the European Commission is the limited availability of spectrum licenses, especially for 3G and wireless broadband services. In particular, the unavailability of 3.5 GHz bands in the U.S. is considered as a limit to the deployment of WiMax, typically implemented in that band in the rest of the world. In November 2006, the FCC granted 550 of the 1,087 new licenses won in the AWS (Advanced Wireless Services) auction run on September 18, 2006.<sup>99</sup> These licenses are worth \$12.2 billion and are located in the 1710-1755 MHz and 2110-2155 MHz band. One of the top bidders was T-Mobile U.S., the U.S. wireless carrier owned by Deutsche Telekom. Despite this encouraging result, further moves towards the compatibility of 3G frequency bands used in the U.S. and the EU would facilitate roaming between the U.S. and the EU via multi-mode terminals, thus boosting the provision of transatlantic communication services.

#### **3.1.1.5 Incompatible Standards**

The U.S. is normally praised for its bottom-up, market-based approach to standard-setting. However, whenever incompatible standards are chosen or exclusive standards are selected in the U.S., entry of European companies in the U.S. market can be strongly hampered. This of course mostly applies where the EU already holds widely adopted standards, as is the case for mobile telephony and digital terrestrial television. As regards the former, U.S. wireless carriers still rely on a number of incompatible technologies—Cingular and T-Mobile use GSM, GPRS, EGDE, UMTS and TDMA; Verizon and Sprint rely on CDMA, 1xRTT and EV-DO. For what concerns digital terrestrial TV, the ATSC technology is incompatible with the established DVB-T standard adopted in the EU.

Incompatible standards in 3G telephony are also an important obstacle to international data roaming services. A recent report by the

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<sup>99</sup> Auction No. 66. the 1,087 licenses were won by 104 bidders for a total revenue of \$13,700,267,150.

OECD shows that almost all 3G operators provide international data roaming services based on 3G technologies, but European operators only covered EU countries, whereas North American operators tended to cover mainly North America.<sup>100</sup>

### 3.1.1.6 Cable Franchises

Municipalities in the United States require cable companies to offer services to everyone in a given area in exchange for a license. This could potentially create an uneven playing field for telecommunication and cable operators offering multiple-play services, creating further barriers to entry by foreign players in the U.S. The FCC has taken action on December 20, 2006 to streamline cable franchise procedures, in its attempt to create a level-playing field between cable operators and telecom players such as AT&T and Verizon. This may lift up barriers to entry also for foreign players in the medium term.

### 3.2.2 *Non-tariff Barriers in the EU*

Similarly, the U.S. Trade Representative (USTR), in reviewing the operation and effectiveness of U.S. telecommunications trade agreements, pursuant to Section 1377 of the Omnibus Trade and Competitiveness Act of 1988, recently identified remaining barriers to investment in EU member states and at community level.<sup>101</sup> Here too, significant steps forward have been made, most notably in the liberalization of markets pursuant to the 2002 regulatory framework. The most relevant barriers identified are listed below.

#### 3.2.1.1 **Slow Market Liberalization, Especially in the Fixed-line Sector**

The observed delays in the implementation of the 2002 framework have hampered the effective ability of U.S. firms to successfully enter the EU market. Primary legislation was adopted only recently by five Member States (Belgium, Czech Republic, Estonia, Luxembourg and

<sup>100</sup> See OECD (2007), *Mobile Multiple Play: New Service Pricing and Policy Implications*, January 15, 2007.

<sup>101</sup> See USTR, 2007 National Trade Estimate Report on Foreign Trade Barriers (NTE), April 2, 2007.

especially Greece), and market analyses by NRAs have taken too long and were completed only in 2006, when the 2002 framework was already being reviewed. Moreover, appeals procedures have slowed down the implementation of the 2002 framework, creating problems in at least 17 of the 25 (now 27) member states. A timely implementation of the new package in laggard States would certainly contribute to further boosting the telecom sector in the EU and open up the market to U.S. firms. As recently showed by recent data, the market share held by incumbent firms in the fixed-line sector has fallen in many countries; at the end of 2005, the incumbent's share was 47.2 percent in Germany, 51.8 percent in the UK, 65.2 percent in France, 66.5 percent in Spain and 72.2 percent in Italy.<sup>102</sup>

Recent attempts by the Commission to achieve further consistency in the national application of the regulatory framework for e-communications should bring more legal certainty for U.S. operators. Implementation of the framework should also bring relief to U.S. companies currently denouncing unfair practices by national incumbents, such as Vega in Slovenia.<sup>103</sup>

### **3.2.1.2 Excessively High Interconnection Prices**

Telecom liberalization in Europe is also leading to increased price regulation of mobile termination rates. The U.S. Trade Representative has recalled in several occasions that mobile termination is still too expensive in many EU countries, and particularly in Germany, Belgium and France. The different interconnection models used in the U.S. and EU (the mobile-party-pays to the U.S., the calling-party-pays in Europe) also determines the different levels of termination charges. Over the past few months, the situation has improved, after market 16 (wholesale mobile termination) has been found to be anti-competitive and subsequently regulated in all member states. Figure 5.13 below shows the average mobile termination rates in the EU-27 in January 2006. A comparison with 2004 shows that significant reductions have been achieved in most countries.<sup>104</sup>

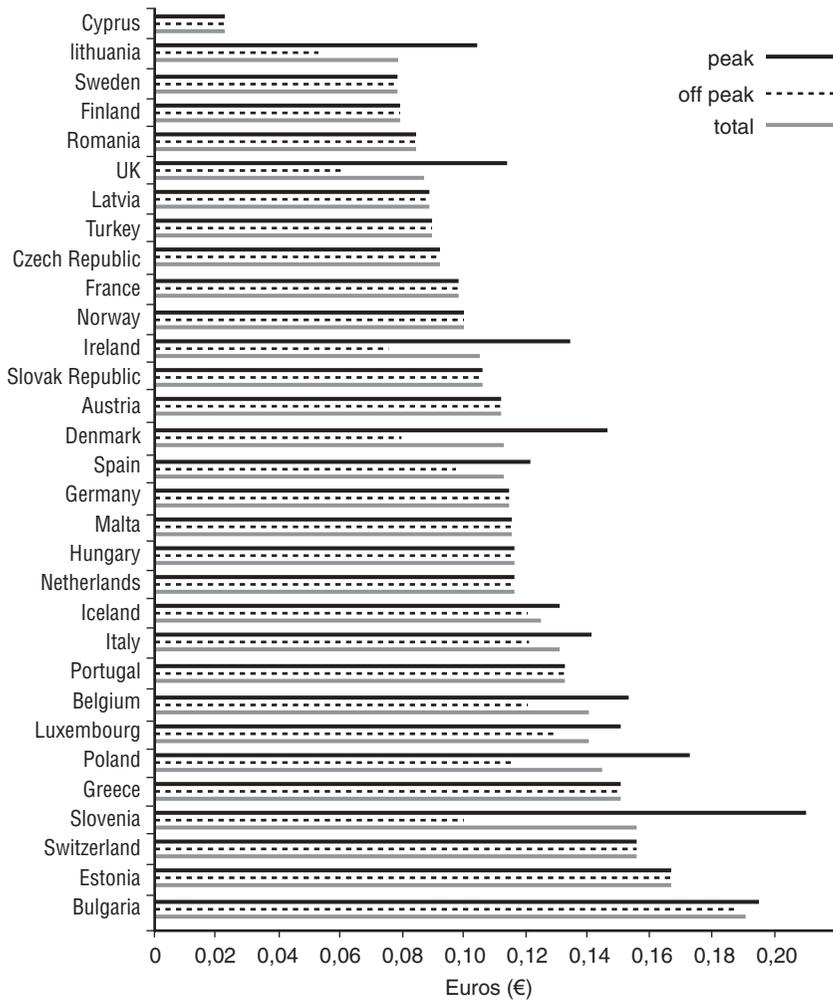
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<sup>102</sup> Ofcom Discussion Paper on Next Generation Access (2006).

<sup>103</sup> USTR, 2006 National Trade Estimate Report on Foreign Trade Barriers (NTE), March 31, 2007.

<sup>104</sup> See, e.g., Renda, in *Deep Integration* (2005), cit.

**Figure 5.13 Average Mobile Termination Rates in the EU-27, January 2006**



### 3.2.1.3 Spectrum Policy

A potentially significant barrier to entry in the EU telecoms market is the rigidity of spectrum policies in most member states. In this respect, the European Commission has paved the way for a more coordinated approach to spectrum policy in its proposal to review to 2002 regulatory framework. Current proposals include the endorse-

ment of principles of technology and service neutrality, and the identification of certain bands for spectrum trading/liberalization, as well as bands for unlicensed uses of spectrum. However, the future of spectrum liberalization in Europe is still uncertain, and the ‘command and control’ method of spectrum allocation will dominate the scene in most of the EU27 in the next few years. Some countries have taken action to liberalize uses of spectrum in certain bands, although the Commission’s project to reach agreement with member states on a number of selected bands for wireless access services is currently stalled.<sup>105</sup> A notable example of progress in spectrum policy is the upcoming ‘digital dividend’ auction of spectrum for mobile television and wireless broadband in the UK, expected by late 2008. Ofcom estimates the value for consumers and businesses over 20 years to be between 5 and 10 billion pounds.

In subsequent years, the switch-off of analog TV will free valuable frequencies in most member states. If frequencies will be auctioned or traded under technology and service neutrality conditions, this will represent a major occasion for investment in EU communication services also by non-EU firms.

#### **3.2.1.4 The TVWF Directive**

The 1989 Television Without Frontiers Directive (TVWF) contains provisions related to the protection of European-origin programs; such provisions were not changed by the review launched on December 13, 2005, and were confirmed also in the European Parliament’s first reading in December 2006. Article four of the TVWF Directive stipulates that a majority of television transmission time must be reserved for European-origin programs “where practicable and by appropriate means”, excluding the time appointed to news, sports events, games, advertising and teletext services. According to the latest report published by the European Commission, the EU-average transmission time reserved for European works by all covered channels in all member states was 65.18 percent in 2003 and 63.32 percent in 2004. In addition, some member states have decided to implement the TVWF directive by reserving even more space for EU or national programs. This is the case for France, Italy and Spain.

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<sup>105</sup> The so-called WAPECS project. On this, see the final report by the Radio Spectrum Policy Group, at [http://rspg.groups.eu.int/doc/documents/meeting/rspg8/rspg\\_05\\_102.pdf](http://rspg.groups.eu.int/doc/documents/meeting/rspg8/rspg_05_102.pdf).

### 3.3. *The Pros and Cons of an Open Transatlantic Market*

Evidence reported in the previous section portrays a mixed picture as far as the prospects for an open transatlantic market for communications services is concerned. No doubt, the U.S. and EU can work together to reduce the impact of existing non-tariff barriers to entry and investment, such as those identified above in section 3.1. However, there are other ways in which transatlantic trade might be boosted—e.g. by facilitating wholesale access of new players to the incumbents' infrastructure, and by improving the regulatory environment through regulatory cooperation. These aspects must be kept separate in the assessment of the prospects for an open transatlantic market.

Available estimates on the costs and benefits of changes in the regulatory environment in the U.S. and EU show the following expected gains:

- **Liberalization efforts**
  - Restoring mandatory network sharing rules in the U.S. may lead to significant welfare decreases.<sup>106</sup> A study by Hazlett *et al.* (2004) calculated that the phasing out of network sharing rules—together with greater availability of spectrum and measures aimed at exempting DSL and internet services from state regulation, would have led to incremental investment of \$58 billion and a combined effect of both supply and demand channels totaling \$634 billion of additional goods and services, including \$113 billion in new tax revenues over five years.
  - Further liberalization of communications services in the EU would increase growth. In 2003, The Commission estimated that the liberalization of the telecommunication and electricity markets would lead to GDP and employment levels increase of 0.4 and 0.6 percent respectively, four years after the liberalization, and a GDP level increase of 0.6 percent, ten years after liberalization.<sup>107</sup>

<sup>106</sup> See Hazlett *et al.* (2004), *Sending the Right Signals: Promoting Competition through Telecommunications Reform*, a Report to the U.S. Chamber of Commerce, September 22, 2004.

<sup>107</sup> European Commission, Chapter 2—Structural reforms in labour and product markets and macroeconomic performance in the EU, in: *The EU Economy: 2002 Review*. In a more recent study, Kox and Lejour (2006) estimate that the trade and FDI effects of the

- **Spectrum liberalization and trading**

- In Europe, spectrum trading and liberalization is expected to generate benefits of as much as €900 billion yearly, whereas trading without liberalization would yield much lower welfare gains, at around €900 million yearly. A recent study by Mott McDonald *et al.* (2006) estimated the net present value of the harmonisation of collective uses of spectrum in the EU in a range between €463 and €898 billion; this means a yearly contribution to GDP of up to 0.17 percent.
- Estimates put the value of U.S. spectrum at \$771 billion, and U.S. consumer welfare gains associated with introducing a suitable system of issuing spectrum usage rights at \$77 billion/year.<sup>108</sup>
- In the UK, Ofcom estimated that the benefits of introducing spectrum trading will substantially exceed costs with net economic benefits ranging from £67 to £144 million if the impact of increased competition is taken into account.<sup>109</sup>

These estimates are of course quite conservative: harmonized spectrum bands would boost the deployment of new technologies that need almost global scale to be developed. Potential benefits that would accrue to the transatlantic economy from cooperation on spectrum allocation are related to economies of scale in manufacturing of equipment, more competition for equipment procurement, increased spectrum efficiency, greater stability in band planning, and even increased response to disaster relief.<sup>110</sup> Notable examples of technolo-

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EU services market liberalization could lead to an increase in GDP by 0.5 to 1.5 percent. However, such increases are only marginally related to communication services, as liberalisation is well on its way in most European countries. See Dynamic effects of European services liberalisation: more to be gained, in Global challenges for Europe, Report by the Secretariat of the Economic council, PART 1, Prime Minister's Office Publications 18/2006, 2006, p. 313-142.

<sup>108</sup> See European Commission, *A New EU Radio Spectrum Strategy*, MEMO/05/345.

<sup>109</sup> A study for Ofcom by Analysys, DotEcon and Hogan & Hartson estimated that benefits due to the additional competition that would result from spectrum trading on its own would be roughly equal to the direct benefits of spectrum trading. This would increase the Net Present Value of the benefits to the United Kingdom to £154 million.

<sup>110</sup> See the ITU Background paper, *Issues Related to Spectrum*, 2004, available at [http://www.itu.int/ITU-D/partners/Events/2004/New-Delhi\\_Apr04/Backgrounds/Spectrum.pdf](http://www.itu.int/ITU-D/partners/Events/2004/New-Delhi_Apr04/Backgrounds/Spectrum.pdf).

gies that would enormously profit from global harmonisation are RFID and WiMAX.

- **Tackling net neutrality**

- A recent study by Darby in the U.S. found that solving the ‘net neutrality thicket’ by allowing carriers are to recover 10 percent of the common costs of building a new FTTH network from content providers would generate direct consumer welfare gains of \$8 billion over a ten-year period.
- Starting from Darby’s calculation, Sidak (2007) finds that allowing broadband access providers to reduce their monthly access prices by \$5 to \$10 and assuming a demand elasticity of -2.0 would produce yearly welfare gains from \$3.441 billion (in response to a \$5 per month subsidy) to \$7.740 billion (in response to a \$10 per month subsidy).<sup>111</sup> These estimates, however, do not take into account potential dynamic losses in product variety, and welfare losses from reduced internet freedom and enhanced barriers to entry for nomadic application providers.
- In Europe, the issue still has to be tackled. As already recalled, Ofcom has recently stated that full net neutrality provision would undermine incentives to invest in NGNs by depriving access providers of one possible source of revenue. Accordingly, finding a suitable compromise at EU level would improve regulatory certainty for increasingly pan-European players both at the infrastructure and the application layers, and thus seems to be highly advisable in Europe.

As a result, the prospects for transatlantic communications services seem to lie more in achieving spectrum harmonization and certainty on net neutrality, whereas pursuing further market opening at the infrastructure layer seems to be a solution to a rather obscure problem. To the contrary, the current development of U.S. and EU markets suggests that encouraging investment in new enabling technologies is an absolute priority for the transatlantic economy, and this may require lifting up regulation in some cases, especially when infrastruc-

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<sup>111</sup> See Sidak, J. G. (2006), A Consumer-Welfare Approach to Network Neutrality Regulation of the Internet, 2 *Journal of Competition Law & Economics*.

ture-based competition already exists. In Europe, this is the case of the Scandinavian countries, the Netherlands and Belgium. The area in which transatlantic activities seem to have the greatest potential to improve welfare is spectrum allocation.

### **3.3.1 Enhancing regulatory cooperation**

Creating a fertile business environment for industry players is essential on both sides of the Atlantic. In this respect, regulatory cooperation can boost the transatlantic economy in many ways, including arrangements that are more indirectly related to the telecom sector. The most important are the following:

- **Regulatory certainty on DRM and interoperability issues:** the development of new global platforms highly depends on the availability of DRM solutions and access to them by new entrants wishing to market new products. There is a clear trade-off between the need to protect valuable investment in new technologies and the need to avoid the crystallization of market power on *de facto* standards in the industry. In this respect, the U.S. demise of the essential facility doctrine (after *Trinko*), the “deferential approach” to system design in antitrust (after *IBM v. Telex*), the absence of overlaps between antitrust and sector-specific regulation and the ongoing deregulation of most communications services add regulatory certainty to firms’ investment decisions. In Europe, on the other hand, regulatory certainty is still undermined by differences in national approaches to market analysis and remedies, by the upcoming review of Article 82 of the Treaty, and by the approach to system design and interoperability adopted by the Commission in *Microsoft* and soon to be judged by the CFI.
- **Cooperation on better regulation issues.** Recent developments in the debate on better regulation include discussions on whether it would be appropriate to include competition assessments and trade impact assessments in the standard RIA process. This would of course help policymakers raise their awareness of the consequences of their actions for entry of foreign players and trade openness. Some countries, e.g. the

UK have already mainstreamed competition assessment into the RIA process.

- **Cooperation on competition issues.** The work of the Antitrust Modernization Commission in the U.S. and the review of the application of Article 82 to exclusionary abuses in the EU will exert a significant impact on the future trends of competition in the telecoms sector. In this respect, transatlantic cooperation is taking place, and could be further strengthened to become transatlantic coordination.

#### 4. Conclusions: Should the Giant be Awakened?

There is little doubt that future developments of telecommunications services will result in increased globalization. Available studies show that full liberalization of communication services worldwide would bring at least some short-term benefits to the world economy, although these benefits would not be reaped by the transatlantic economy.<sup>112</sup> In light of these findings, the U.S. and EU can profitably work together to achieve further harmonization in spectrum allocation and in tackling multi-layer trade-offs such as the net neutrality issue. Harmonized conditions of competition can lead to substantial welfare increases in a dynamic sector such as telecoms. In a word, diverging regulations in a converging world are hardly conducive to dynamic welfare gains.

However, current trends towards a more lenient approach to network sharing obligations at the infrastructure layer should no be considered as harming social welfare in the U.S. and EU. Policymakers are currently prioritizing investment in enabling infrastructures to accelerate the transition towards the information society for all and bridging the digital divide. In this respect, competition and openness are likely to flourish in the application and content layer, just as the do on the Internet today.

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<sup>112</sup> Dee and Hanslow, Verikios and Zhang (2000) simulate multilateral liberalization of trade in communication services and financial services in a post-Uruguay Round environment and finds positive welfare effects for the world as a whole in both cases. According to this study, when liberalizing trade in communication services, the world as a whole is projected to gain about \$13 billion or 0.05 percent in terms of real income with China capturing 4.4 billion. See also Verikios and Zhang, at <http://www.monash.edu.au/policy/conf/53Verikios.pdf>, Table 5.

Finally, barriers to FDI in the transatlantic economy have been substantially reduced over the past few years, especially in Europe, thanks to the liberalization process spurred by the 2002 framework. Further improvements depend on the removal of ownership restrictions in the U.S., and on the free circulation of content and non-linear services in the EU.