Competition in European Telecom Markets

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Abstract: In recent years, the European telecommunications market has witnessed major developments, with rapid expansion in access to telecommunications networks and a surge in the number of available services and applications. While many factors have contributed to the transformation of the telecommunications industry, competition has played a key role in driving telecom players to invest in new technologies, to innovate and to offer new services. Increased competitive pressure is being felt across all market segments, even though significant differences remain across services and countries. Broadband roll-out has allowed operators to offer multiple-play services, thereby transforming traditional segment boundaries and competitive market structures.
Key words: competition, access, convergence, multiple-play, fixed telephony, mobile services, broadband, VoIP, MVNO.

In recent years, the European telecommunications market has witnessed rapid expansion in access to telecommunications networks and a surge in the number of available services and applications. The telecommunications industry has turned into a multiple-play business, which covers not only core voice telephony, but also various data and video services. By the end of 2005 mobile-phone subscriptions had exceeded 100% of the population in the European Union (EU), while broadband subscriptions had reached 15%, closing the gap with the USA and Japan. Telecom operators are now actively bringing IPTV to the market, and VoIP is starting to rise and disrupt the revenue streams of fixed operators. Broadband wireless is also making progress through WiFi hotpspots and emerging 3G mobile networks.

While many factors have contributed to the transformation of the telecommunications industry, competition has played a key role in driving telecom players to invest in new technologies, innovate and offer new services. On the whole, the number of operators and providers has increased across Europe. With network connections reaching record levels, competitive pressure has intensified as operators are increasingly vying for the same customers.

Alongside liberalisation and pro-competitive regulation, technological advances have transformed the competitive landscape. Convergence of networks, brought about by digitisation, and spectrum capacity growth have allowed networks previously operating in separate markets to compete with each other. Traditional boundaries have blurred, not only between wireline and wireless networks, but also between broadcast and telecommunications networks.

This paper provides an overview of the current state of competition development in the telecommunications industry in the European Union. It examines trends in pricing and market concentration in the fixed telephony, mobile services and broadband segments, and highlights differences across domestic markets within the EU.

■ Competition in fixed telephony slowly expands from the international and long distance markets to access

Over the past few years the decline in incumbent operators' share of the fixed telephony market has reflected the higher proportion of customers using services from alternative operators. The introduction of carrier pre-selection in the early 2000s in the EU-15 countries [1] has allowed customers to route their calls through an alternative operator while still using the access line provided by the incumbent. The use of calling cards, and more recently the development of VoIP, has diverted further traffic from the incumbent operator.

However, the stronghold of incumbent operators in the access market has limited the capacity of alternative operators to challenge the incumbent's dominant position in the market. Recent development of unbundling and wholesale line rental has brought new perspectives for competition development in that segment.

Since the liberalisation of fixed telephony, competition has gradually expanded from the business market to the residential market and from international calls to local calls. However, incumbent operators have maintained strong positions in the market. In the EU-15, the market share of incumbent operators in the voice telephony market in terms of revenues has

[1] EU-15 refers to the 15 Member States of the European Union before the 2004 enlargement.

fallen to 55% for international calls, 62% for calls to mobile, 65% for long distance calls and 67% for local calls. Significant differences have remained across national markets, reflecting differences in the liberalisation agenda. Across the five largest markets, the incumbent operator's share of fixed calls ranges from less than 50% in Germany to over 70% in Italy. The UK, which pioneered telecom liberalisation in Europe, has remained the leader in terms of competition intensity, but the gap with other incumbent operators has reduced in recent years.

Table 1 - Incumbent operators' market share of fixed call volumes in Europe-5, 2001-2005

	2001	*2002*	*2003*	*2004*	*2005*
Germany	67.2%	61.1%	54.8%	49.7%	47.2%
France		79.7%	76.3%	72.0%	65.2%
Italy					72.2%
Spain	82.4%	75.8%	73.1%	69.7%	66.5%
UK	62.0%	62.0%	60.0%	55.0%	55.0%

Source: Bundesnetzagenture (Germany), IDATE estimates based on ARCEP and operators publications (France), Telecom Italia (Italy), CMT (Spain), OFCOM (UK until 2004). 2005 figure in the UK is an estimate.

Access competition is still relatively weak in Europe, with only 8% of subscribers using direct access from an alternative operator (through a cable line, a fully unbundled line or other means of access) in September 2005 according to the European Commission [2]. Denmark and the United Kingdom, where direct access by alternative operators is largely based on cable access, reported the highest competition degree, with respectively 20% and 18% of subscribers using direct access from an alternative operator [3].

Although small, the share of alternative telecom operators in the retail market access has grown in the recent period. Full unbundling and in some cases wholesale line rental, have enabled alternative operators to provide single billing to their customers. In the EU-15 the number of fully unbundled lines more than doubled within two years to exceed 5 million at the end of 2005. Wholesale line rental (WLR) has been implemented in only a few

[2] See Commission of the European Communities, "European Electronic Communications Regulation and Markets 2005 (11th Report), Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, COM(2006) 68, February 2006.

[3] No data available for the Netherlands, which also has very developed cable networks.

countries, mostly located in the North of Europe. At the end of 2005 WLR accounted for 15% of the incumbent's local loops in Denmark and 10% in Ireland. In France competition development in the access market has mainly relied on migration from shared access to full unbundling, with the number of fully unbundled loops increasing by nearly 1 million within one year to stand at 1.2 million at the end of June 2006. France Télécom launched a WLR product in April 2006, but its commercialisation has not yet started.

This decrease in tariffs has reflected the development of competition. In the EU fixed telephony costs by user fell by 1% per year between 1998 and 2005 in the residential market and by 3% in the business market [4]. The reduction in call tariffs has been off-set to some extent by an increase in rental charges. In Germany, for example, overall fixed telephony cost for a residential user fell by 5% per year between 1998 and 2005. The decrease reflected a 12% drop in call costs per year, which was partially compensated by a 3% rise in access costs per year.

As VoIP services expand, they are starting to sharpen competition in the voice market. The impact is already being felt in the international voice market and is starting to spill over into the domestic voice market. In France, which has one of the most advanced VoIP markets with over 4 million VoIP subscribers at the end of March 2006, *versus* 33 million subscribers to traditional fixed telephony, VoIP now accounts for 10% of fixed traffic in France.

Competition intensification in the fixed market has led some regulators to remove obligations on the incumbent operator. The regulators in Finland, Sweden, Austria, Denmark and the Netherlands have found that the market for international calls is competitive, and have consequently removed retail level obligations in these markets (Austria only for residential users, and Denmark only for business users). In the United Kingdom, OFCOM relaxed controls on BT's retail prices as direct result of its positive assessment of BT's wholesale line rental product at the end of 2005. That was followed in August 2006 by the abolition of all controls limiting rises in the price of calls and line rental for BT customers.

4 This estimate is based on OECD/Teligen telecoms basket methodology. See Teligen, "Report on Telecoms Price Developments from 1998 to 2005", produced for the European Commission, Directorate General for Information Society, December 2005.

Table 2 - Evolution of fixed telephony tariffs based on OECD national PSTN baskets (Annual cost of fixed telephony for a typical business or residential telephone user, in EUR/PPP per month)

	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*
Residential								
France	29.33	29.90	28.40	30.00	30.39	30.39	30.51	28.72
Germany	32.83	26.99	25.33	25.32	25.81	26.10	26.62	23.56
Italy	31.24	29.86	32.64	30.83	28.71	28.71	28.73	29.94
Spain	49.35	41.71	34.26	35.74	34.93	33.62	34.28	34.28
UK	29.59	29.26	27.07	26.71	25.28	24.97	24.47	24.65
Poland								
EU-25	33.49	31.01	31.73	32.22	32.15	32.29	32.30	30.79
Business								
France	64.01	63.19	56.97	59.27	60.09	60.09	60.19	60.31
Germany	79.52	63.17	54.06	54.06	54.49	54.36	54.95	39.54
Italy	78.76	70.44	74.35	67.69	62.84	62.84	64.04	67.45
Spain	122.49	96.96	79.88	76.48	62.76	60.20	60.30	60.30
UK	68.28	68.97	67.99	68.57	69.16	69.24	69.24	68.85
EU-25	77.61	69.34	69.31	68.14	66.09	66.43	66.17	62.64

(1) The OECD basket methodology allows for calculation of the annual cost for a typical business or residential telephone user. The user is assumed to be using the default national PSTN service from the incumbent operator, and any fixed charges are also included. The OECD national PSTN basket structure covers 14 distances (3 km to 490 km) and 6 times of day (4 at weekdays and 2 at weekends), all with individual weights. Call duration is varied over the distances and times of day. Fixed charges are included with the appropriate annual rental charge and 1/5 of installation charges.
(2) All values are in EUR/PPP per month. VAT is included in the residential basket, and is not included in the business basket.
(3) The average value is a weighted average across EU Member States using population as a weight.

Source: Teligen

Near saturation in mobile markets has spurred competition

With average density over the 100% mark in the EU, the mobile market is now edging towards saturation and operators are fighting stauncher competition to gain and retain customers. Although usages have developed through increased traffic per user and new data services, operators have struggled to maintain their average revenue per user (ARPU). In addition, regulators been scrutinising the mobile sector more closely, taking action or threatening to take action to reduce tariffs in termination rates, roaming rates or as in France, SMS tariffs, with significant impact on operators' revenues. Competitive pressure in the mobile sector can be assessed through trends in market structure in terms of market concentration and entry of new players, trends in prices, as well as use of mobile number portability.

Table 3 - Competition in mobile services markets in the EU (2005)

Country/zone	*Mobile subs* (1)	*Mobile density* (2)	*# network operators* (3)	*Top two operators' share* (4)	*MVNO market share* (5)	*% of ported numbers* (6)
Germany	79	96%	4	74%	22.0%	0.8%
France	47	77%	3	82%	0.6%	1.2%
Italy	72	123%	4	73%	0.0%	7.8%
Spain	43	107%	3	76%	0.0%	14.6%
UK	68	113%	5	49%	7.7%	8.3%
Total/average EU-25	456	100%	4	72%	5.7%	5.9%

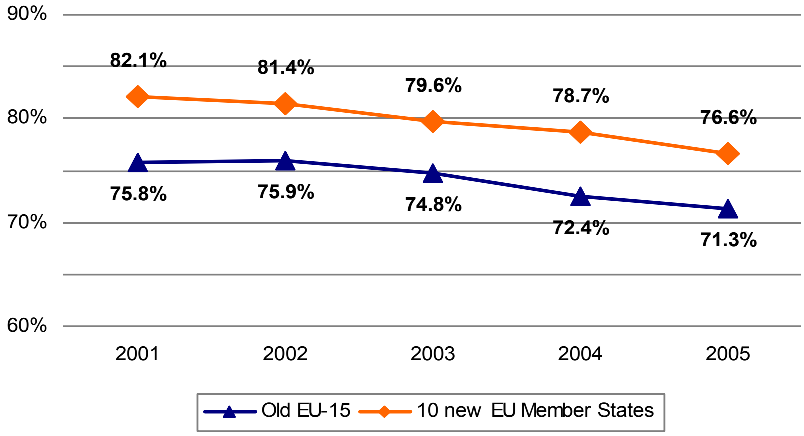
(1) Number of mobile subscribers at the end of 2005, in million
(2) Number of mobile subscribers at the end of 2005, as % of population
(3) Number of network operators at the end of 2005 (excl. MVNO)
(4) Top two operators' share of subscribers (including wholesale)
(5) MVNO subscribers as % of total mobile subscriber base at the end of 2005
(6) Number of ported mobile numbers, as % of total subscriber base..

Source: IDATE, Telecoms in Europe, 2006 Edition

In recent years, the average market share of leading mobile network operators has continuously declined in the EU. In the EU-15, the combined market share of the two leading operators fell from an average 76% in 2001 to 71% in 2005. In the new EU member states it fell from an average 82% to 77%. The differences across national markets reflect differences in the number of network operators, which ranges from 2 in Slovakia to 5 in the United Kingdom. In the vast majority of EU countries, the market share of the leading operator ranges between 40% and 50% of total subscribers. The UK has the most competitive market in terms of market share, with the leader holding 26% of the market, and the leading two operators controlling 48% of the market.

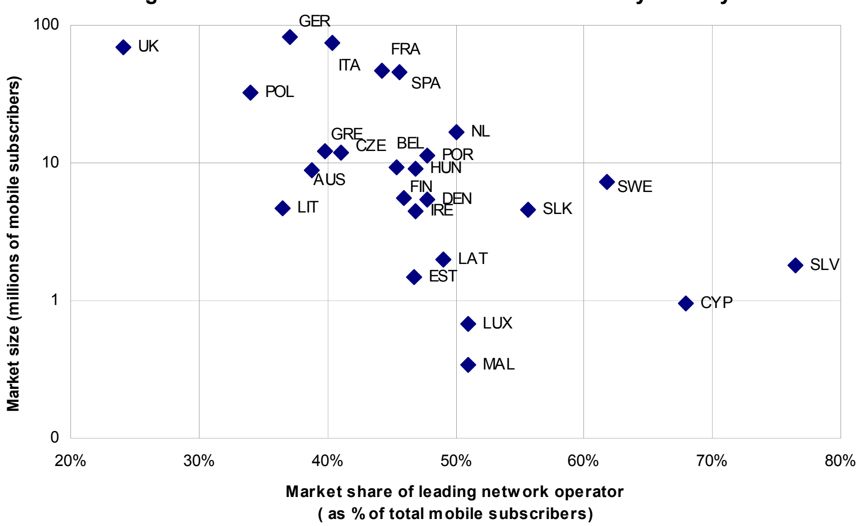
There is pressure on mobile prices as reflected in the tariff trends of major mobile network operators across Europe. The OECD/Teligen baskets for comparing cellular mobile communications prices show that the steepest reductions are taking place in Northern Europe (Denmark, Finland, and Sweden). They also show that prices continue to vary significantly across countries.

Figure 1 - Market concentration in the EU mobile sector (Average market share of top 2 mobile network operators in the EU-25, as % of total subscriber base)



Source: IDATE, Telecoms in Europe, Edition 2006

Figure 2 - Mobile market concentration in the EU by country



The development of mobile virtual network operators (MVNOs) has led to a significant increase in the number of mobile providers in Europe, but the impact of MVNO has been limited so far. MVNOs hold a sizeable market share only in northern Europe, Germany and the UK. At the end of 2005, their share was estimated at 22% of the total subscriber base in Germany (which includes resellers and not pure MVNOs), 10% in the United Kingdom and in the Netherlands. In France, where the regulator took steps to impose entry of MVNO to reluctant operators in 2004, MVNOs had gained only 1.5% of the market by mid-2006. MVNO progress does not necessary entail entry of new operators as network operators also resort to sub-brand MVNOs to address niche markets either by buying out existing MVNO or by creating their own MVNO.

As regards the number of network operators, recent years have seen two reverse trends. On one hand, the allocation of 3G licences has resulted in the entry of Hutchison Whampoa as a new player in Europe. Aside from Ireland, where it did not launch services until 2004, Hutchison has managed to gain market visibility through aggressive tariff strategy in all the countries where it was allocated a 3G licence (Austria, Denmark, Ireland, Italy, the UK and Sweden). On the other hand, the intensifying competitive pressure has led several operators to buy out other operators to consolidate their market position. In the Netherlands and in Austria, the number of network operators was reduced from 5 to 4 following KPN's acquisition of Telfort and T-Mobile's acquisition of Tele-ring.

Mobile number portability, which facilitates the capacity of customers to switch operators, has been introduced in most EU countries (except for a few new member states). The amount of ported mobile numbers doubled in 2005, but still only represented 6% of all mobile subscribers in the EU. Portability has had a major impact in only a handful of countries, such as Finland and Denmark. Aside from prices, procedures and delays required for porting a number account for the massive disparities that still exist between the different EU countries.

Competition development has enabled broadband roll-out in Europe, bringing major changes in telecom markets

Development of broadband services over the past few years has opened up new avenues for growth for many European telecom operators. The number of broadband subscribers climbed from 6 million at the end of 2001 to nearly 60 million at the end of 2005, and is expected to exceed 70 million by the end of 2006. Consequently, internet revenues more than doubled between 2001 and 2005.

The impact of broadband subscriber base expansion on revenues has been partly diluted by the parallel decrease in dial-up internet revenues (subscriptions and communications) and by the sharp decline in ARPU. The fall in tariffs, through enriched bundles, price reductions and promotions, has facilitated the creation of a mass-market.

Table 4 - Competition in broadband access markets in Europe (2005)

	Total broadband market		*DSL market*		
Country/zone	Subs (million) (1)	Incumb. Share (2)	DSL share (3)	Inc. share (4)	ULL share (5)
Germany	11.0	60%	97.2%	61.6%	23.4%
Spain	5.1	54%	76.4%	70.2%	11.2%
France	9.4	47%	94.0%	50.2%	32.0%
Italy	6.8	71%	94.8%	74.5%	10.8%
Netherlands	4.2	31%	59.6%	51.4%	27.3%
UK	9.8	24%	73.2%	32.3%	2.9%
Total EU	59.4	47%	81.3%	58.6%	17.2%

(1) Total broadband subscribers at the end of 2005
(2) Incumbent carrier's share of the retail broadband market at the end of 2005
(3) DSL's share of total broadband connections at the end of 2005
(4) Incumbent carrier's share of the retail DSL broadband market at the end of 2005
(5) Unbundled lines (fully unbundled and shared access) as % of total DSL connections at the end of 2005

Source: IDATE, Telecoms in Europe, Edition 2006

Incumbent operators have built solid positions in the broadband market, but their market share has steadily declined in recent years. At the end of 2005, incumbent operators held 47% of the retail broadband market in terms of subscribers, down from 55% at the end of 2002. They also strongly dominated the DSL market, with 82% of the lines and 58% of DSL subscribers (in the retail market).

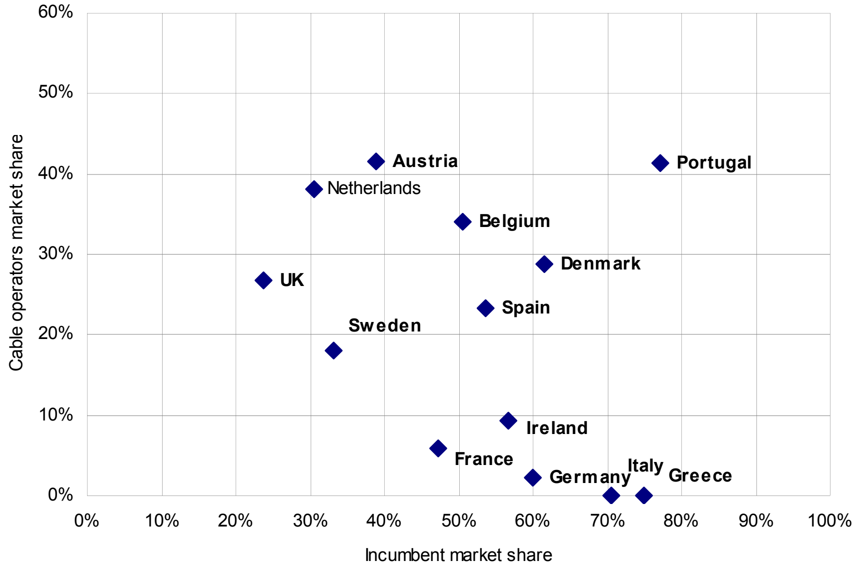
Increased competition has probably played a decisive role in the take-up of broadband in Western Europe since 2003. Competition in broadband can be measured both at the infrastructure level and at the service level. On the whole, there is limited facilities-based competition in Europe, with DSL accounting for over 80% of broadband connections. As the broadband market strongly relies on the network of the incumbent operator, the capacity of alternative operators to get access to this network has been crucial to the development of competition.

The availability of cable broadband services as an alternative to DSL varies widely across Europe. Cable is used in the urban centres of many countries to provide TV services, but many networks still require costly upgrades to offer broadband services. In some countries, however, cable networks provide competing and widespread broadband access. That is the case in the United Kingdom, Sweden, the Netherlands, Belgium, and

Denmark, where cable accounts for over 18% of the broadband market in terms of connections. Consolidation among cable operators has taken place in several other markets (in particular France, Germany, and the United Kingdom). This is likely to reinforce the capacity of cable operators to invest in their networks, strengthen their market visibility, and thereby challenge telcos in the broadband market.

Wholesale DSL products of incumbent operators, including bitstream access and unbundling, have allowed other service providers to compete at the retail level. The recent period has seen a significant shift of new entrants moving from resale and bitstream to local loop unbundling, which allows much stronger differentiation with the incumbent retail product. In 2005, the number of unbundled lines (used for DSL) doubled to stand at 8.5 million. On average, unbundled lines represented 18% of DSL connections at the end of 2005, compared to 8% at the end of 2003.

Figure 4 - Competitive structure of broadband retail markets in EU-15 countries (end of 2005)



Source: IDATE, Telecoms in Europe, Edition 2006

In terms of net additions in lines, the increase in the number of unbundled lines far exceeded that of wholesale lines in 2005, which was not the case in 2004. However, unbundling has expanded at a very different pace across Europe. At the end of 2005, unbundled lines accounted for roughly 30% of the DSL base in France, Sweden and the Netherlands, but for less than 5%

in the UK (where progress is nevertheless taking place under active intervention from the regulator), Ireland and in Belgium.

In Eastern Europe, where broadband markets are still in their infancy, incumbent operators enjoy very strong positions and are now rolling out DSL investment plans. Alternatives to DSL are also emerging (cable modem and wireless solutions such as WiMAX). Unbundling is available in most countries, but its application remains very limited, due to tariff conditions and demanding technical requirements for its implementation.

While networks used to be built for specific types of service, broadband roll-out has enabled providers to deliver multiple services, in particular through "triple-play" services (which bundle voice, video and data). These multiple-play services are now extending to mobile telephony. In Europe, bundles have first been launched by cable operators already positioned in the fixed telephony market (such as Auna in Spain and ntl/Telewest in the United Kingdom) and by DSL providers trying to dent into the market. The typical example is French ISP "Free", which has become one of France Télécom's main challengers in the broadband market by launching low-cost bundled products. Incumbent operators have followed with their own bundled products in an attempt to preserve their market share. As increasing competition in the broadband market threatens revenues operators' revenues from DSL and cable modem connections, bundles are a way for operators to introduce new services, increase ARPU and reduce churn.

The broadband market has so far relied on fixed networks, but the roll-out of new wireless technologies offering higher data transmission speed will likely alter broadband market structure in the future and further raise competition intensity in the wireline market. Mobile broadband is still very limited in Europe. Commercial 3G networks have flourished in Europe, and the number of 3G subscribers is on the rise. It is expected to reach 14% of the mobile subscriber base by the end of 2006, up from 6% at the end of 2005. However mobile operators are still faced with the challenge of offering attractive broadband services. They are now pushing ahead for HSDPA upgrade, which will increase their capacity to compete with broadband wireline networks. There are also many signs of a renewed interest in Broadband Wireless Access (BWA) technologies, such as WiMAX. As BWA technologies enable alternative service providers to acquire a share of the mobile data market, they could entail greater competition in the telecom industry, for both wireline and wireless operators.

Conclusion

Competition in the telecommunications sector has intensified across all segments and across all countries in Europe, although significant disparities in market structures across national markets remain. Increased competitive pressure is translating into challenges for all telecommunications operators to increase revenues and maintain profitability, as the cost of acquiring and retaining customers rises significantly. The effects are already being felt in Northern European countries (including Germany and the UK), where growth in the value of the telecom services is expected to stand at less than 3% in 2006, mainly due to a sharp decline in mobile services growth.

The development of multiple-play services (which combine video, internet and voice services) and fixed-mobile convergence are also transforming the competitive landscape. The introduction of multiple-play services has been largely motivated by the need for telecommunication and cable operators to offset revenue losses from increased competition to their core services and consolidate their position in increasingly competitive broadband markets. Wireless technologies such as Wi-Fi, 3G, WiMAX and satellite could extend the reach of multiple-play services beyond traditional wired networks, and further blur the traditional borderline between wireline and wireless markets.

Convergence at work does not only involve telecom operators *versus* cable operators, but also applies within the telecom industry to wireline operators *versus* wireless operators. Mobile operators are trying to promote usages to maintain their dwindling ARPU, and thereby encourage customers to use their mobile phone as a substitute for fixed telephony through call price cuts. At the same time, many fixed operators are launching combined fixed-mobile convergent products to capture revenues from mobile operators.

Ongoing market developments in the telecom industry raise major issues in terms of competititon regulation, and national regulatory authorities are already grappling with some of these questions. Upcoming regulatory issues include the definition of adequate market boundaries, spectrum allocation and the treatment of bundles and convergent products, particularly when the level of competition differentiates between fixed and mobile markets.