

A Future Policy Framework for Growth

A report for the European Telecommunications Network Operators' Association (ETNO)

By 2020 the European telecoms sector could generate up to €44 billion in new revenues—but only with fundamental reform of the regulatory environment.



A.T. Kearney has prepared this report in cooperation with ETNO. It is, however, an independent report and does not necessarily represent the views of ETNO or its members. Its purpose is to foster public debate, and neither A.T. Kearney nor ETNO assumes responsibility for any other use that might be made of the report.

Table of Contents

Executive Summary	5
Outlook for the European telecommunications sector	6
Opportunities for growth	7
The European regulatory framework	8
Chapter 1: Outlook for the European Telecommunications Sector	10
Industry value chain	10
Usage trends for core connectivity services	12
Revenue trends	14
2020 financial outlook	17
Chapter 2: Opportunities for Growth	19
Growth opportunity (1): Value-based pricing	20
Growth opportunity (2): New services	22
Growth opportunity (3): Operational transformation	27
Overall impact	30

Chapter 3: The European Regulatory Framework	31
Regulatory barriers within the telecommunications industry	32
Regulatory barriers regarding new services	33
Regulatory barriers to operational transformation	34
The Three Freedoms	36
The right policy framework for growth	37
Appendix: Approach and Methodology	38
Operator interviews	38
Quantitative analysis of trends and opportunities	39
Glossary	42
Sources of information	44

Executive Summary

Telecommunications is one of Europe's most important economic sectors. Its €282 billion revenues are equivalent to the gross domestic product of a mid-sized country. Its largest companies have invested in building businesses in every continent. The services it provides—in particular the broadband and wireless infrastructure underpinning the Internet—are central to many other sectors of the economy and to the daily lives of almost every citizen. Its history of innovation and growth has been trumpeted as a major achievement of the European Single Market.

Yet financial performance of late has been much less impressive. Of course, many sectors of the economy have suffered from the recent economic crisis and, in fact, telecommunications has been seen by some investors as a safe haven during uncertain times. Economic pressure on the industry predates the economic crisis, however, and has deep roots. As we have argued in previous reports, there is an imbalance between those investing in the Internet and those benefiting from its impressive growth.¹ There are also signs that the industry's pricing structures are eroding quickly—as is the case in other sectors impacted by the Internet—with traditional tariff structures that charged for voice and messaging bypassed by over-the-top (OTT) substitutes. The telecoms sector in Europe is fragmented, especially compared to the United States or Eastern Asia, and this restricts the ability to lead on innovation and to rationalize cost structures. Finally, the industry is heavily impacted by regulation and has recently faced an unfavourable climate of regulatory price cuts, restrictions on commercial strategy, and high taxation of essential spectrum in many countries.

On the positive side, demand for the industry's core offering—communications—is growing at a dramatic pace, in terms of both the quantity and the richness of communication. Adoption of new services is accelerating in all demographic segments: videoconferencing has migrated from the executive suite to grandparents' living rooms, while parents and teenagers communicate by social media messaging. This demand growth is fuelled by rapid technology evolution in network infrastructure (high bandwidth, high-quality access), in services, and especially in devices such as smartphones and tablets. The entire industry has plans already underway to deploy a major upgrade of Europe's communications infrastructure with fibre and fourth-generation (4G/LTE) wireless; meanwhile, policymakers intensely debate how best to support such investment.

Against this backdrop, A.T. Kearney has researched the health of the European industry, its plans and prospects to return to growth, and the contribution that the policy framework can make. We cooperated with the industry association ETNO, interviewing many of its members (and some operators that are not members) and discussing our findings with ETNO's leadership, but this report is an independent report that does not necessarily represent the views of ETNO or its members. We offer these findings as a contribution to an important debate on the future of the industry. This discussion is active in the policy arena: the European Commission has recently signalled an important realignment in its thinking on fibre investment and the related wholesale price regulation, and it will shortly review key market definitions and issue recommendations on non-discrimination and costing methodologies. All governments have been debating revisions to the treaty governing international communications via the International Telecommunications Union (ITU).

The executive summary of this report was released on 2 October 2012 at the FT ETNO summit. To view the speech discussing its content, please visit <https://www.ft-live.com/ft-events/ft-etno-summit-2012/sessions/keynote-presentation-a-future-policy-framework-for-growth>.

¹ See 'A Viable Future Model for the Internet' and 'Internet Value Chain Economics' at atkearney.com.

Just as importantly, many industry players are themselves considering how their business must evolve to remain competitive in the marketplace and attractive to investors. Each company will pursue its own strategy, and inevitably some will do so more successfully than others, but each of them, we believe, must address three broad strategic imperatives:

1. Break out of the deflationary price spiral and move to pricing models that better reflect the value for the customer.
2. Raise the effectiveness of innovation and launch new services that can compete with global champions.
3. Move beyond the pursuit of incremental efficiency gains and pursue the path of consolidation and transformation common to maturing, capital-intensive industries.

For each of these three imperatives, we see the need for the policy framework in Europe to evolve—not to disappear nor to substitute the work of management and investors, but to eliminate roadblocks and create a level playing field.

Outlook for the European telecommunications sector

Chapter 1 of the report documents the current health of the telecommunications sector and its outlook in the absence of change. The themes we describe are common to other analysts' reports. Despite growth in the number of wireless and fixed broadband connections, and rapid growth in the traffic they carry, revenues are in slow decline. Our forecasts suggest that revenues from fixed network services across Europe will decrease at an overall rate of around 2 per cent per annum between now and 2020, and by 1.5 per cent per annum in mobile. This contrasts with all other regions of the world, which have been experiencing continued growth in telecoms revenues in absolute and per capita terms. The cumulative impact in Europe is an industry that would be—if it did nothing to reverse the trend—€50 billion smaller by the end of the decade.

The biggest cause of this potential contraction is that the decline in voice revenues is far from offset by growth in broadband access charges. While broadband was initially a source of extra revenue for operators, now the traditional revenue sources are in effect being replaced by lower-priced services, benefiting consumers and stimulating volumes, but at a cost to operators. Regulatory price cuts (on termination charges and roaming fees) are taking a toll, although the entry of OTT players with voice over Internet protocol (VoIP) and messaging applications that are free at the point of usage (but are, in reality, paid for via other charges and supported by advertising models) has a greater impact. Yet our research shows that it is the industry's own price structures (especially flat rate or unlimited service bundles) and their customers' efforts to optimize the monthly bill that have the greatest impact on core revenue decline.

Operators are continuously making productivity and efficiency improvements, but offsetting annual revenue decline while also covering inflation in a number of input costs is a significant challenge. The trend rate of cost reduction is just under 1 per cent per annum in cash terms (or around 3 per cent in real terms). Capital expenditure (capex) has also been declining and would likely continue to go down in line with revenues, but the combined effect of revenue, cost, and capex reductions would be a decrease in the European telecoms sector's free cash flow from €44 billion in 2011 to just €23 billion by 2020—again, in the absence of significant action to reverse the trend. Even if such a decline were acceptable—and surely it is not—it would render impractical any plans to invest significantly in next-generation broadband networks (estimated as a €209 billion multi-year programme by the European Investment Bank) to provide an

infrastructure suitable to support the growth of the wider European economy.² A sector with a profile of declining revenues and even more rapidly declining cash flows would be unable to attract or sustain major capex for programmes with payback periods of 10 years or more. This is especially true given that multinational operators have a choice between investing in Europe or in other regions that are growing.

Opportunities for growth

In the second chapter of the report, we turn to the opportunities for growth—on both the top and bottom lines—and we find there are many. All operators are already pursuing initiatives to address pricing structures, develop new services, and tackle their cost base.

We believe that a new value-based pricing model would have a positive impact for the majority of consumers as well as operators. Value—understood as consumers’ willingness to pay—depends on a variety of factors, including access speed, quality, or connection time. Many tariffs contain elements of these already, although the fixed-fee component is almost always a high proportion of the total. By innovating in this area, operators would be able to offer services to ‘underserved’ segments, while also realizing greater value from the services they offer to heavy users. LTE services are being marketed in this way in some countries, with operators charging a premium for faster access speeds. In the fixed market, however, the premium for fibre-based services versus regular digital subscriber line (DSL) broadband appears to be much lower than the improvement in service and the underlying investment would seem to justify. Operators could also charge a price differential for premium content or application delivery services where traffic is delivered according to guaranteed quality standards. Our estimate is that price rebalancing could increase annual revenues over the long-term trend rate by an additional €12 billion by 2020. The European Commission’s reconsideration of wholesale price regulation should also have an across-the-board impact on broadband revenues, but we have not made an estimate at this stage since the implications remain to be spelled out in detail.

In new services, operators are exploring a wide range of potential opportunities, and their assessment of these will depend on their own capabilities, service portfolio, customer base, and local market specifics. Many have already moved into content, health services, telematics, smart grids, smart metering, and financial services, to name just a few. We assessed the five main opportunities for new or adjacent markets identified by the operators we interviewed, namely payments, mobile advertising, machine-to-machine (M2M) communications, Internet-protocol television (IPTV) services, and cloud computing. We found a broad range of opinions on how addressable these opportunities are and what portion of the value chain operators could capture, given the global nature of many of the potential markets and the entrenched positions of other companies in some of them. All these opportunities contain an element of communications service, but in each case the question is how much value-add the operators can sell and deliver successfully—from payment transaction platforms to e-wallets, from content acquisition to video-on-demand platforms, and so on. Given the uncertainty of the returns in what are rapidly evolving markets, operators will need to enter with confidence and sufficient ambition to compete with experienced global players. It is the nature of the Internet economy that very often the ‘winner takes all’ due to scale and network effects. For that reason, we developed a revenue estimate for 2020 for telecommunications companies with a wide range: from an additional €19 billion to €32 billion per year by 2020, with an average free cash flow margin of around one-third, since they can leverage existing infrastructure and customer bases.

² European Investment Bank, ‘Productivity and Growth in Europe: ICT and the e-economy’, EIB Papers 16 no 2 (2011)

Finally, we examined the potential for operators to go beyond the incremental productivity and efficiency programmes that are part of normal operations and to consider more radical cost improvement measures. There are a number of potential initiatives:

- Transformation of IT platforms and increased automation (including online sales and service), while phasing out expensive legacy systems
- Integration by multinational groups across borders to drive scale efficiencies and take advantage of lower-cost locations within their footprint
- An extension of network-sharing agreements to cover full, active radio access network (RAN) sharing, as seen in some countries already
- Further consolidation of operators within a country, which—after a period of restructuring—permits the removal of duplication across all functions

We found that many operators were pessimistic about the potential for consolidation under the current regulatory framework. Nevertheless, we examined the potential size of the opportunity without being constrained by the specifics of which operators and which markets. We identified a range of potential cost savings—from a total of €3 billion per annum if each operator transformed on a standalone basis, to €10 billion per annum if greater integration and consolidation were to occur by 2020. These are cash savings that, after restructuring costs and taxes, could go straight to the bottom line or be reinvested in growth initiatives.

In summary, the industry could return to a positive growth trajectory, at least neutralizing revenue decline in Europe at the industry level (and growing it at individual company level via consolidation and growth in other regions) while boosting industry cash flows by as much as 15 per cent above today's level in the best-case scenario.

The European regulatory framework

In our third chapter, we examine the effect of the European Union's regulatory framework on operators' ability to address and pursue these growth opportunities. As with all long-term capital-intensive industries, a stable regulatory framework is essential to create an environment in which investors are prepared to commit funds that only pay back after many years.

Telecommunications regulation in Europe is extremely detailed and varies by country within a pan-EU framework; it is not the purpose of this report to discuss every feature. We focus instead on the macro-environment for each of the three growth opportunities:

- Innovative, value-based tariffs will require operators to be able to create service bundles and to develop differentiated pricing that goes beyond basic data tiers. Just as OTT players have funding models that may combine subscriptions, advertising, sell-through of services, and the option to offer closed platforms, so operators need to enjoy greater pricing flexibility and to be less constrained by price caps, linkage to input costs, or the breakup of services into component parts. The latest announcement by European Commissioner Neelie Kroes that fibre pricing need not be cost-oriented under certain market conditions is promising in this regard. The emotional debate on charging by type of usage in some countries is less helpful.
- Entering new markets to compete with global players requires a symmetric regulation of all value chain players—and arguably a lighter touch to competition law to allow new services to flourish. The market for OTT services is global and rapidly evolving, with competitors

stepping into the communications sector from adjacent markets free of the same rules on service bundling, cross-subsidies, partnering, or cost-based resale obligations. The policy environment can also support consumer confidence in new services with appropriate measures on data protection and privacy, and it can remove barriers to deploying new services by harmonizing regulations across the Single Market.

- Further consolidation of Europe's more than 100 operators must also be permissible. Parallel infrastructure development can stimulate competition, but beyond a certain level it becomes inefficient. Significant cost and capex synergies can be released to fund investment in new services and higher quality infrastructure, as well as maintain investor confidence, but narrow definitions of markets for antitrust purposes are standing in the way of this necessary consolidation. In general, EU competition policy should take greater account of the potential for market entry from other geographies and rapid innovation to stimulate competition, supporting those mergers that can have positive effects on innovation, competitiveness, and, ultimately, consumer welfare.

Our recommendation to national and European policymakers is therefore to focus on providing operators with what we call the 'Three Freedoms':

- 1.** The freedom to develop retail pricing propositions that are customer-centric and unconstrained by regulations on bundling or restrictions on rebalancing
- 2.** The freedom to innovate on the same terms as a non-telecoms operator
- 3.** The freedom to pursue scale in operations, whether in-country or cross-border

Ultimately, these three freedoms add up to one: the freedom to compete that is central to Europe's Single Market and was at the heart of the industry's original growth phase in the 1990s. The competitive forces between operators themselves and the many other players within the value chain would then foster a level of innovation that would meet the diverse range of customer needs and strengthen the wider economy.

We would emphasize that neither A.T. Kearney nor any of the operators interviewed for this study believes that the policy framework is the only factor determining the future growth of the telecommunications sector in Europe. To reverse the slow decline in revenues with more competitive offers in core and new services, to deploy and commercialize next-generation networks effectively, to consolidate and transform company operations to grow cash flow and fund investment—this a very ambitious agenda for the leadership and employees of many important European companies. The right policy framework will support their work and thereby unleash the next wave of innovation, investment, and growth in a sector at the heart of the European economy.

Since this report was first presented at the ETNO summit, industry stakeholders and policymakers in Europe have held further discussions about the creation of a Single Market for telecommunications and other digital services. These discussions could give rise to a number of regulatory reforms and business transformations in line with these three freedoms. It is a welcome sign that there is growing recognition of the need for change in order to underpin the return to growth of the telecommunications sector in Europe.

Chapter 1: Outlook for the European Telecommunications Sector

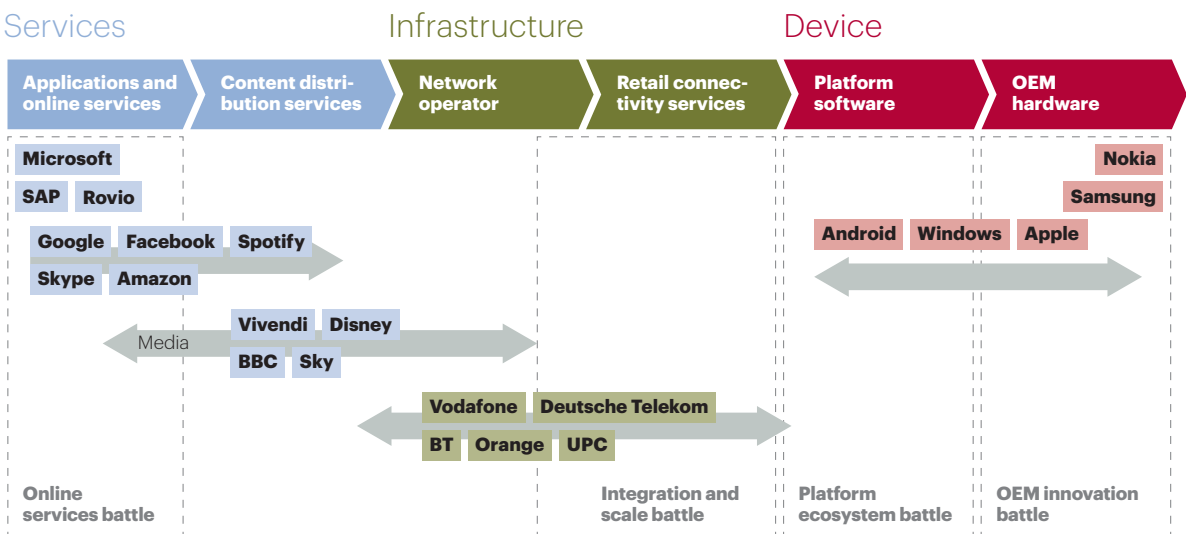
In the past decade, supply and demand trends in the European telecommunications sector have changed extensively. In this chapter we first discuss the dynamics between players within the value chain; we then look at the changes in consumer consumption (both number of connections and the traffic carried over them) and project these forward to develop a 2020 scenario for the industry if nothing changes (the 'as-is' scenario). In subsequent chapters we assess more positive scenarios.

Industry value chain

For most of the 20th century the telecoms sector was relatively stable, dominated by state-owned monopolies in fixed communications and a small group of operators in mobile services. Even the introduction of competition during the 1980s and 90s led to challengers selling comparable services, with the same basic business model of selling a connection at a fixed rental price and then charging for usage on top of that. The advent of the Internet and widespread multi-access broadband networks have fundamentally changed the ways people communicate, enabling communication via voice, video, and text-based services at any time and anywhere. As the Internet has evolved and the services offered over it have become ever more sophisticated and diverse, the nature of how these communications services are provided has also changed.

Figure 1 shows a view of the telecoms value chain developed in a previous paper, updated with the major movements that are taking place.³

Figure 1
Movements of value chain players



Note: OEM is original equipment manufacturer.
Source: A.T. Kearney analysis

³ See 'Internet Value Chain Economics' at atkearney.com. Reflecting devices' growing importance, we have separated them into OEM and operating systems. We have also simplified some of the specialist enabling services by integrating them into the steps of the chain they support.

Within the value chain, a number of dynamics are playing out, as companies look to expand into new areas and to compete in adjacent sectors in order to grow or strengthen their competitive positioning. The first major trend is the increasing separation between infrastructure (or ‘access connectivity’) and the actual communications services used by consumers over this infrastructure, with different providers of each. Voice services can now be purchased from players other than the network operator that provides the physical line. For example, VoIP providers such as Skype offer ‘fixed-line’ phone numbers that reach users wherever they are in the world; also, companies such as Facebook are looking to add voice functionality to their social networking platforms. At the same time, network operators are moving further into the services arena. IPTV services are now a standard part of fixed-line telecoms product portfolios, although not yet a large portion of revenues. Mobile operators are launching more advanced messaging services to compete with instant messaging and video communication tools—for example, the Joyn initiative promoted by the GSMA.

In the device market, whereas consumers’ decisions would once have been based on price, hardware features, and brand, they must now consider the operating software and the services they will subsequently be able to access and use, such as iTunes, Google Play, BlackBerry Messenger, and myriad apps. Operating software vendors and device manufacturers are locked in a fierce competitive dynamic, as the former increasingly move into the device market to further secure their control and position in consumers’ minds. Examples include Microsoft’s unveiling of a tablet device, as well as Google’s launch of its own-brand handset and its purchase of Motorola. Meanwhile, Samsung continues to develop its own platform while also supporting Android and Windows.

In addition to the changes taking place within the value chain, two external shifts can also be observed: in technology and in consumer behaviour. Now that both fixed (DSL and cable) and mobile broadband services are ‘mature’ and have high penetration, the next step in the network evolution will greatly increase the speed and quality of access services. In fixed networks, a variety of fibre-based access services are being rolled out across Europe while cable networks are upgrading to DOCSIS 3, both of which will bring speeds of 50 Mbps and more to many people. In mobile networks, LTE rollout is beginning to bring similar speeds to mobile devices. These new speeds enable many more devices to be connected and different services to be delivered over them. ‘Smart TVs’, networked game consoles, and connected cars are just a few examples of how access networks are now used for much more than simply web browsing via PCs, tablets, or smartphones.

On the consumer side, these technology changes are enabling people to spend more time communicating, and to do so via a greater variety of media. The range of options that have now opened up to consumers allows them to decide not only when, where, and how they communicate, but also how much they wish to pay. A telephone call may still be the most universal option for communicating (due to ubiquity and a common global numbering system), but if two people are on the same platform, a VoIP call can bring an enriched experience with photo sharing, multi-person conversations, and particularly video. Users who are suitably motivated and organized can enjoy these enhanced services at a lower cost than traditional voice calls, as advertisement-based funding models very often allow these services to be offered to users free of charge.

There is an important geographic component to these competitive dynamics. Many of the new services are now offered globally and can be delivered from outside the market in which they are consumed. Infrastructure services, however, remain necessarily local to the market where they are consumed, so tension can build around how parties can capture the value related to

their respective investments and commercial risks. The device market, moreover, has become truly global, with dynamics between manufacturers and platform ‘ecosystems’ becoming effectively borderless, but the value capture is still fundamentally local, as operators subsidize handsets—in effect, acting as retailers—to win customers. Therefore the European industry is competing not just within its own boundaries for its traditional services, but within a much broader context of global markets for devices and services.

Usage trends for core connectivity services

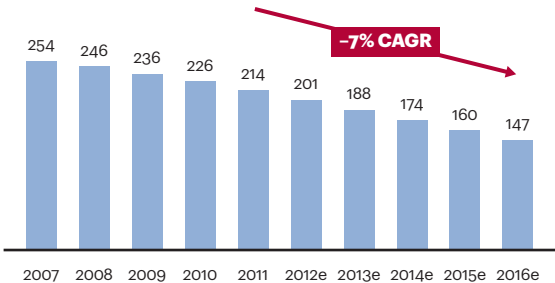
These trends are borne out by the data on connections and usage for the European market.

Figure 2 shows the recent historic trends and forecast for volume of connections within the 27 EU member states, plus Switzerland and Norway. The number of mobile connections is expected to continue growing at around 2 per cent a year, while the number of fixed connections has been in decline since 2007 and is expected to continue to decrease at the rather alarming rate of 7 per cent every year, due to the phenomenon of households ‘cutting the cord’ and relying on mobile. Broadband adoption has been the one area of growth over the last decade; however as penetration matures, growth is expected to slow to around 2 per cent by 2016 in fixed—although mobile broadband will still be growing at a healthy rate of approximately 10 per cent per year.

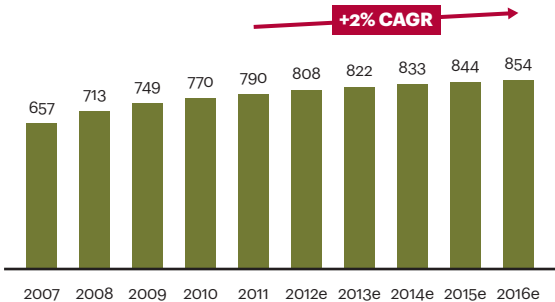
Figure 2
Evolution of connections by type

Million connections
(2007–2016)

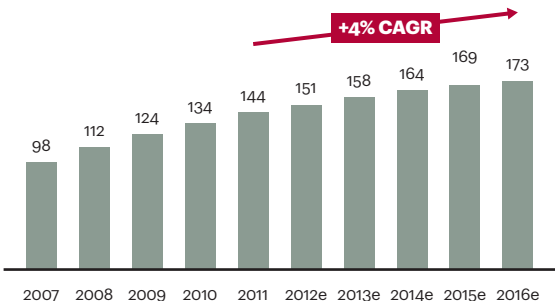
Fixed connections



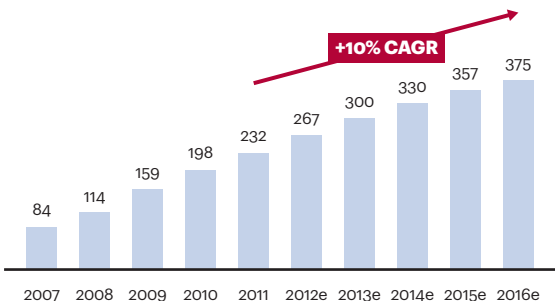
Mobile connections



Fixed broadband connections



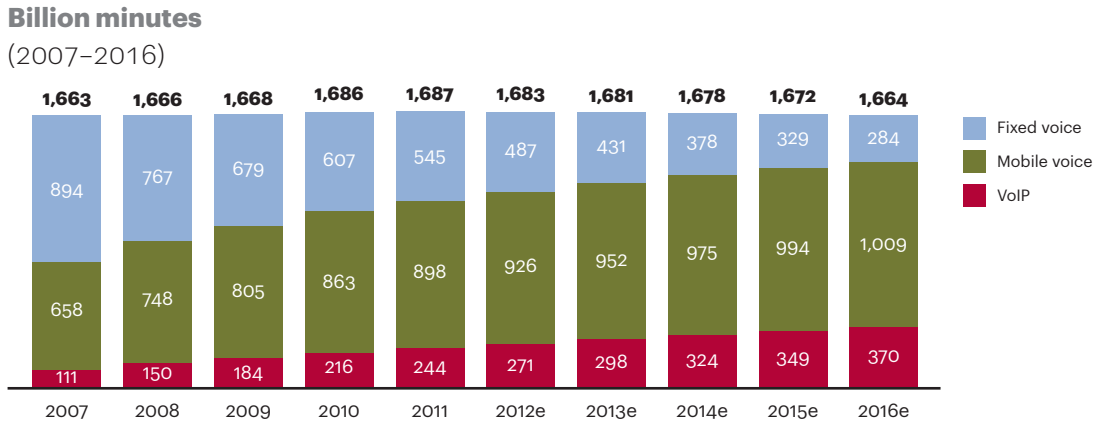
Mobile broadband connections



Notes: Data refers to EU27, Switzerland, and Norway. Fixed broadband connections includes cable.
Source: IDC

In terms of actual usage of these services, total volumes of voice minutes (including VoIP minutes carried by telco networks) are expected to have peaked in 2011 and are likely to decline slowly from that point. As figure 3 shows, within this relatively stable position, though, a major change is taking place.

Figure 3
Volume of voice minutes, by type

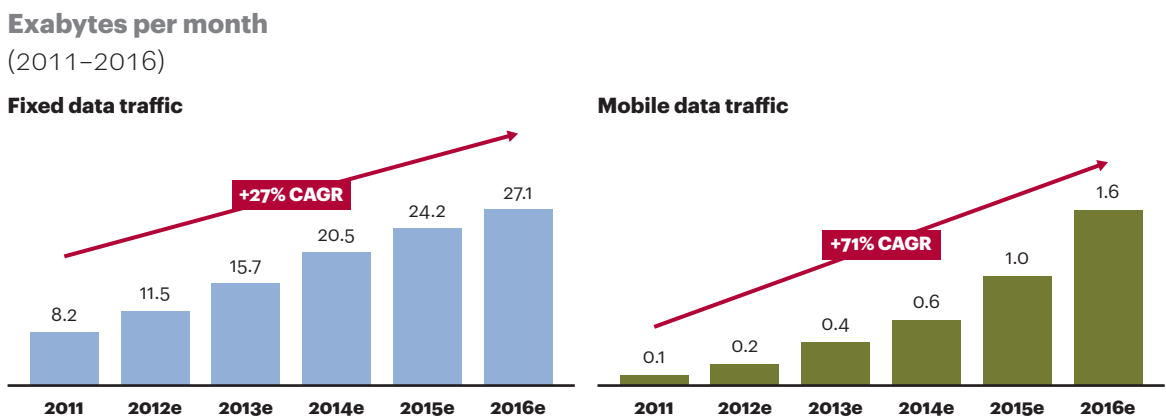


Notes: Data refers to EU27, Switzerland, and Norway. VoIP is voice over Internet protocol. Figures may not resolve due to rounding.
 Source: IDC

Fixed-line voice minutes are expected to almost halve from 545 billion minutes in 2011 to just 284 billion minutes in 2016. This fall is partly offset by an increase in mobile voice minutes and also the growth of VoIP services, which are expected to exceed fixed minutes from 2015 onwards.

In contrast to the relatively stable volumes of voice traffic (allowing for platform shifts), the relentless growth of data traffic carried over the Internet is well-known. As figure 4 shows, Cisco

Figure 4
Expected European data traffic evolution



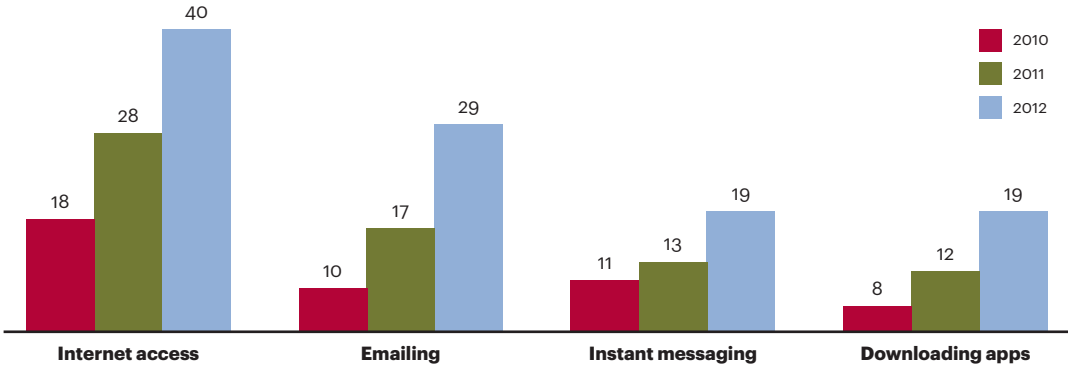
Source: Cisco VNI, 2012

forecasts data traffic on fixed networks in Europe to grow at 27 per cent annually between 2011 and 2016, and on mobile networks by 71 per cent per year. Much of this growth is being driven by the explosion of high-traffic applications, most notably video-content streaming, which places particularly high demands on networks. The percentage rates are dropping, but the absolute growth is still remarkable when compared to the current volumes on networks.

Other studies that consider how people use the Internet confirm this overall trend of people using the Internet more and for a greater variety of purposes. A study in the United Kingdom highlights the growth of various types of data usage on smartphones, with significant changes in behaviour in the space of just two years as smartphones penetration increases (see figure 5).

Figure 5
Use of data services on mobile handsets

Proportion of mobile data users
 (% , 2010–2012)



Notes: Data for each year refers to Q1. Includes all mobile users over the age of 16.
 Source: U.K. Office of Communications (Ofcom) research

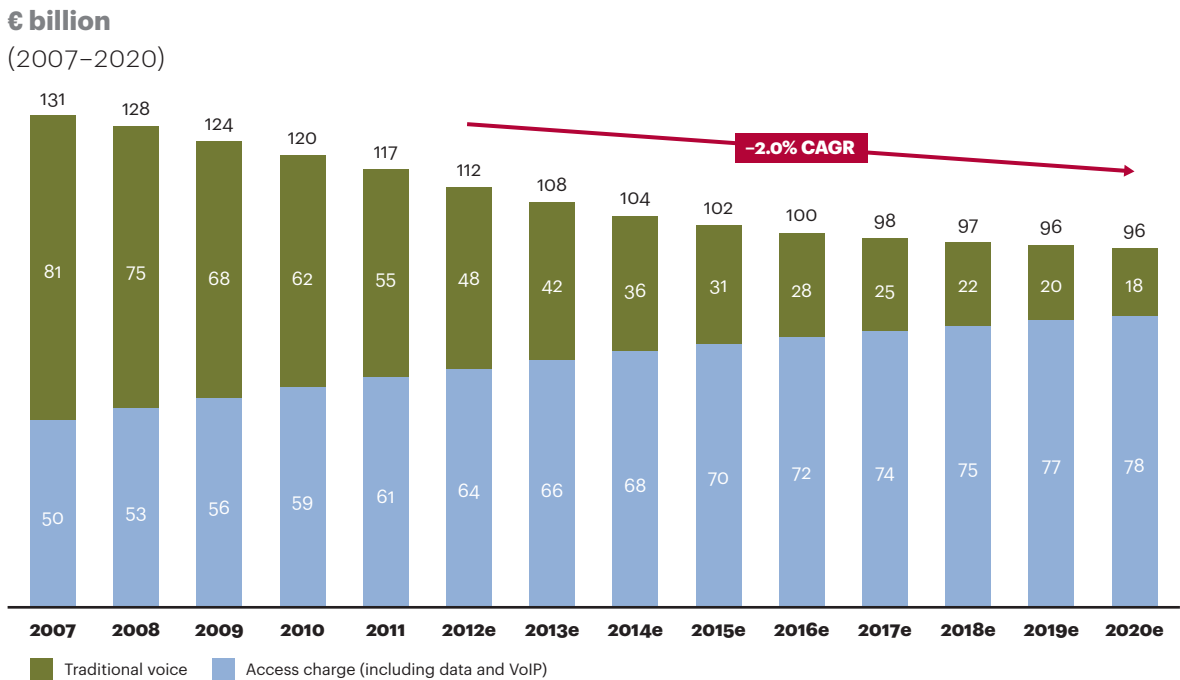
Demographic trends underpin this usage dynamic. It is the younger segments that are the heaviest users, and there is no sign that they will change communication or video-consumption patterns significantly as they age, so there will be a natural growth as future generations follow in their footsteps.

Revenue trends

In almost any other industry, such buoyant use of the primary output could only have a positive effect on the revenue and margins of the companies supplying these services. However, the European telecoms industry does not follow this pattern (see figure 6 on page 15). While broadband was initially a source of extra revenue for operators, growth in subscriber numbers has now slowed. Furthermore, customers increasingly use broadband as a substitute for other services, so that traditional revenue sources are in effect being replaced by lower-priced services, benefiting consumers and stimulating volume, but at a cost to operators.

Regulatory interventions on termination charges have already reduced revenues for many operators by over 5 per cent per year, with further reductions to come, although the entry of

Figure 6
Revenues from fixed services



Notes: Data refers to EU27, Switzerland, and Norway. Actual data was used through April 2012; all subsequent numbers are estimates. Figures may not resolve due to rounding. Sources: IDC; A.T. Kearney analysis

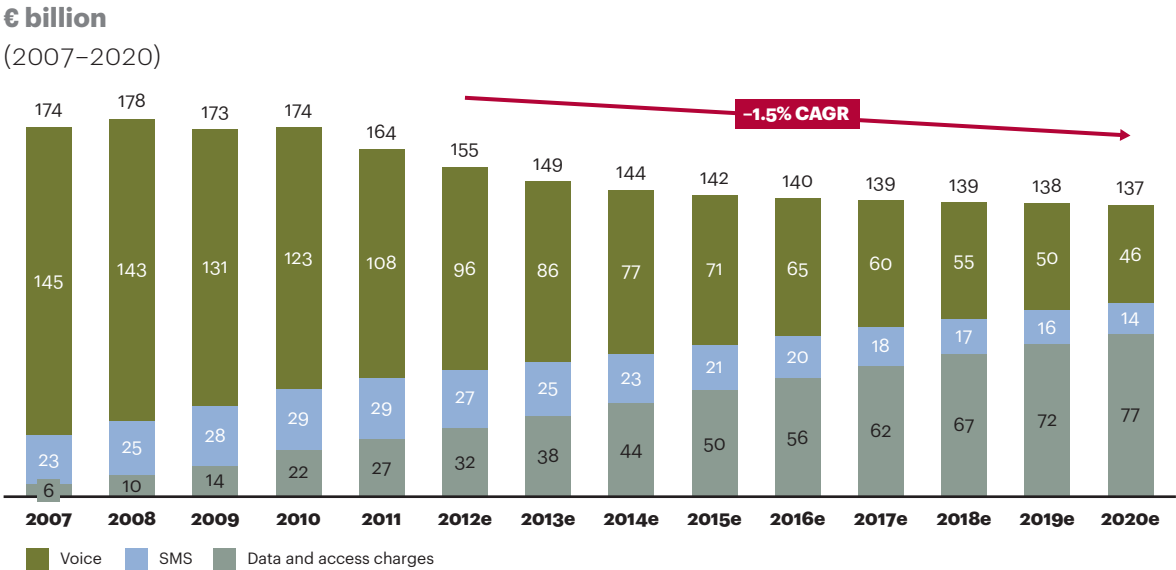
OTT players with VoIP and messaging applications that are free at the point of usage also has a significant impact on this revenue stream.

Based on current trends and our judgment of how these will evolve, we anticipate that fixed revenues at European industry level will fall from €117 billion in 2011 to €96 billion by 2020, a total decline of 18 per cent in cash terms—more when adjusted for inflation. Underlying this fall are two clear trends. As voice volume declines, the revenue from such services will also fall dramatically from €55 billion in 2011 to just €18 billion by 2020, a 68 per cent decrease. The drop in the volume of minutes is the primary driver, but this is compounded by unit price decreases—not just in ‘headline’ cost per minute, but increasingly through the bundling of calls within a package (‘unlimited weekend’ or even ‘anytime’ calls), which are effectively a discount on usage costs for consumers who choose wisely.

An important source of new revenue for fixed operators has been the sale of broadband services in the retail and wholesale markets. However, these are primarily priced as a fixed monthly fee, so the number of connections is the primary revenue driver. As the penetration growth rate slows, revenues are likewise stabilizing: our forecast, given the current product offering and price dynamics, would be for the total fixed broadband connectivity revenues to reach €78 billion by 2020. This means that the growth in broadband under the current model falls well short of filling the gap left by the drop in voice revenues.

A similar picture can be seen in mobile, with the additional impact of declining SMS revenues (see figure 7). Mobile services have in recent years generally been sold as a bundle, with an inclusive allowance of minutes, texts, and now data consumed by browsing, streaming, and other activities. It is therefore difficult—indeed somewhat artificial—to quantify the rise of data revenues and the decline of voice revenues. What is clear, though, is that the importance of data within the bundle is increasing, as usage trends and consumers’ stated buying criteria confirm. Whereas a typical bundle previously would be based on the number of minutes, with some data usage (until recently, unlimited data usage) included as a ‘value’ add-on, now the situation is reversing: the higher value tariffs more often have a high data allowance, with unlimited text messages and minutes sold as the add-on. At the recent FT ETNO Summit, Swisscom’s CEO stated that only 10 per cent of his firm’s revenues come from classic tariffs for voice usage.⁴

Figure 7
Revenues from mobile services



Notes: Data refers to EU27, Switzerland, and Norway. Actual data was used through April 2012; all subsequent numbers are estimates. Figures may not resolve due to rounding.
 Sources: IDC; A.T. Kearney analysis

Mobile data usage has been growing strongly and is fully expected to continue as more users switch to smartphones, tablets, and other ‘mobile data’-enabled devices. Revenue growth could be as high as 180 per cent over nine years, taking revenues from €27 billion in 2011 to €77 billion in 2020. However, even this dramatic growth would not fully offset the likely fall in voice revenues. Our estimate is that mobile revenues will decline from €164 billion in 2011 to around €137 billion in 2020, a fall of 16 per cent, if nothing in the market changes. Although less dramatic than in fixed, the decline in revenues associated with voice calls could be as high as 57 per cent, dropping from €108 billion in 2011 to €46 billion in 2020, as both revenues and unit prices fall. This reflects mobile termination rate (MTR) reductions, but also more generous bundles and increasingly ‘unlimited’ voice tariffs. Revenues from text messaging are already declining, and if SMSs are still

⁴ FT ETNO Summit, 2 October 2012

in use at all in 2020 and continue to be charged on a per-message basis, the revenue attributed to them is likely to be low. Our estimate of €14 billion is based on the current attribution of revenues, but we fully expect bundling to make this distinction immaterial long before the end of the decade.

Why is the European industry seeing revenue declines today that seem set to continue, when there is such strong appetite for the services provided? Our research suggests that the primary problem is the current outdated pricing model and difficulty in migrating to a new pricing model in markets that are both highly competitive and highly regulated. In the traditional telephony pricing model, there was a monthly line rental for the basic connection and then usage fees designed to reflect normal economic rationing of a limited resource. Premium pricing addressed bottlenecks and matched supply with demand, particularly around peak traffic and international routes. Call charges were based on the time of day, distance called (local, national, and international), and total time spent on each call. Even the early Internet services were based on dial-up fees, with usage effectively metered by the time spent connected. Although never explicitly designed to charge higher prices to those able to pay, higher charges on international or roaming calls and daytime usage tended to extract more revenue from businesses and more prosperous households.

With today's 'access-based' pricing model, however, the link between usage and amount paid has been broken. While there is some correlation, the current price difference between the entry-level bundle for low users and bundles with unlimited usage is fairly modest; the remaining 'usage fees' are for less common services such as roaming (though this too is changing), international calls, premium-rate calls, and exceptionally high bandwidth or traffic.

The logical extension of this trend will be a move—already observed in the United States with the introduction of shared data plans—towards device-independent 'subscription'-based pricing structures that could include multiple devices and also cover a whole family or small business. Pricing could also vary on other dimensions, including speed, quality, and overall usage. This still leaves a challenge for operators, since there is only a weak link between the traffic carried (which is a driver of cost) and the revenue generated. There is no price signal to end users to incentivize them to consider the value of their usage, and the opportunities for price discrimination to boost average revenues are limited. With regulated wholesale prices serving as an anchor for competitive retail prices, it is difficult for the industry to monetize demand for its services. In other regions of the world, demographic growth and the catch-up effect of penetration promises a continued rise in the number of users and, thus, revenue growth during the next decade and beyond. Here too, however, the ability to shift the pricing model to capture more revenue per user will be an essential factor in long-term industry health.

2020 financial outlook

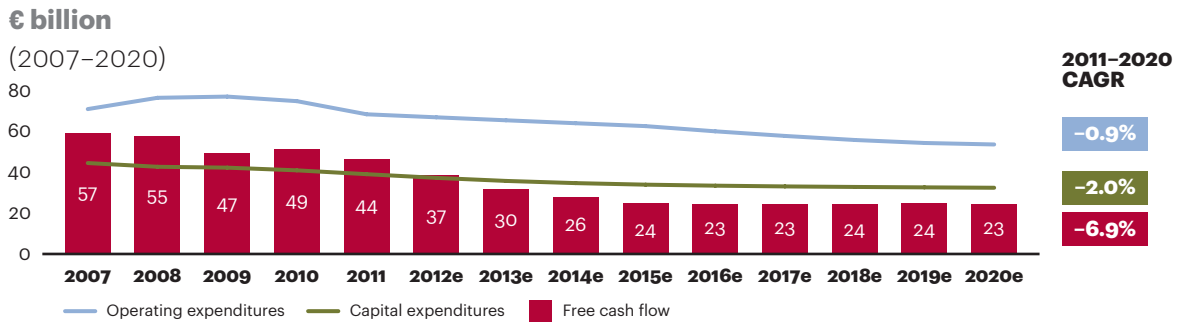
To evaluate the potential impact of the market trends described above, we examined the range of potential outcomes by 2020.⁵ In the as-is scenario, we have taken the revenue projections discussed above and carried out a similar projection of costs. Based on trends seen in recent years and A.T. Kearney's experience of working with operators across Europe, we assumed the as-is trend would be a reduction in operating expenditures (opex) of just under 1 per cent per year in cash terms (or around 3 per cent in real terms, after allowing for inflation), while capital expenditure (capex) would continue to decline in line with revenues. We note that even cost reductions of this magnitude require considerable effort by operators to raise productivity

⁵ For details, please refer to the discussion of methodology in the appendix.

year-on-year through improved processes, personnel efficiencies, and incremental steps to find additional economies across the business. Examples of initiatives already implemented by many operators include greater use of online sales channels, increased 'self-service', online billing, and outsourcing of field operations to equipment vendors. All such initiatives deliver incremental improvements but over a longer time period are inevitably subject to the law of diminishing marginal returns. In our as-is scenario, we have assumed operators will meet the challenge of delivering the 1 per cent year-on-year opex improvements, but we should be clear not to confuse this with a 'do-nothing' scenario, which would see costs rise in line with inflation.⁶ It should be pointed out that this forecast is for the sector as a whole, and within this, there will be range of performances across individual operators, with some performing and growing above this trend while others will see greater declines in revenue and profitability.

Putting the revenue forecasts together with the opex and capex projections (and the known declines in interconnection payments due to regulation), the resulting effect would be a decrease in the European telecoms sector's free cash flow after tax (FCF) from €44 billion in 2011 to just €23 billion by 2020, all other things being equal (see figure 8). Revenues decline more quickly than the underlying costs, and the gross margin of operators is therefore diminished even before taking account of the significant depreciation and financing charges typical of this asset-intensive industry.

Figure 8
Free cash flow in the base case scenario



Notes: Data refers to EU27, Switzerland, and Norway. Actual data was used through April 2012; all subsequent numbers are estimates.
 Sources: Bloomberg, IDC; A.T. Kearney analysis

Such a reduction in FCF would have a direct impact on operators' ability to pay dividends or to invest in new opportunities beyond their typical 'business-as-usual' capex plan of maintenance, capacity upgrades, and technology refresh. We therefore looked at two alternative outcomes that, although extreme, help to demonstrate how the sector could look by 2020 without change.

In the first hypothetical scenario, operators would dramatically cut opex in order to maintain FCF declines in line with the fall in revenues (that is, -2 per cent per year) to €37 billion in 2020. Such a scenario would require a reduction in operating expenditure equivalent to €32 billion

⁶ It has been suggested in response to our previous research that we underestimate the effect of deflation in hardware prices. In fact, expenditure on hardware (for networks or IT) is only a small percentage of the total spend of a telecommunications operator, and quoted figures for cost improvement tend to be based on theoretical estimates of cost per unit of traffic, not actual cash prices paid from year to year. Labour (and labour-related services), rents, and power are all subject to inflation and represent the majority of opex.

(or 17 per cent) by 2020. Assuming around 60 per cent of the opex is labour-related (including outsourced services) and these are likely to rise at an average of 2 per cent per year, then the gross opex reduction would need to be €50 billion, which represents a 26 per cent reduction in total. To put this into perspective, a 17 per cent workforce reduction by 2020 would mean the elimination of approximately 170,000 jobs across the sector and its supply base. Such a large decrease would involve a radical restructuring of operating models, such as a move away from physical retail channels to online, or a big change in the comprehensive customer service levels to something more akin to the budget airline model—where most service elements come with a discrete charge designed to raise marginal revenue or discourage demand.

Taking an alternate approach of reducing capex in order to deliver €37 billion FCF in 2020 would require a 12 per cent yearly reduction in capex, equivalent to a €26 billion (or 70 per cent) decrease in absolute capex by 2020. Such an outcome is unlikely to be sustainable if even today's network performance is to be maintained, and it clearly cannot be reconciled with planned investment in European broadband infrastructure in order to meet both Digital Agenda objectives and consumer expectations. In fact, far from being able to reduce capex, traffic demand and necessary technological upgrades are already putting upward pressure on capital expenditure budgets within Europe. LTE rollout requires significant investment to build 4G networks, demanding a large upfront investment to establish national coverage. In addition, fibre deployments are continuing, and IT upgrades are requiring most operators to significantly modernize and simplify IT infrastructure to support new services.

Within this context, operators' investment profile and priorities will vary, but all are facing a significant upward spike driven by upgrades to access networks, both fixed and mobile, and replacement of legacy IT. While the current environment will demand new investment, operators will continue to have 'business-as-usual' capex spending as part of the normal maintenance and renewal of their network and IT infrastructure. Reducing these ongoing requirements would be challenging in the medium to long term.

Clearly, none of these outcomes is desirable or acceptable for any of the groups affected: consumer expectations would be disappointed; online service and content providers would be unable to expand their digital offerings; investors would target other sectors or geographies to seek better returns; and policymakers would be unable to realize the ambitions they have set for the European knowledge-based economy. European telecommunications needs a different future.

Chapter 2: Opportunities for Growth

During the third quarter of 2012, A.T. Kearney interviewed many of the largest operators in Europe to understand how they plan to respond to the challenges facing the sector. We found a high degree of consensus on the overall set of initiatives that are underway or in planning, although the precise details vary from operator to operator. In this chapter we evaluate the opportunities for enhanced top-line growth or aggressive cost reduction and, in particular, focus on their potential to enable the European telecoms sector to return to growth and at least stabilize cash flows. The initiatives that are likely to have the greatest impact can be grouped into three types:

- Value-based pricing measures address some of the structural misalignment in pricing that we observe across the industry and (re)capture additional revenues by breaking out of the deflationary price spiral seen in recent years, instead monetizing growth in usage and functionality.⁷

⁷ Value-based pricing refers to the ability of operators to link price to the utility delivered to the end customer.

- Developing new services in adjacent and related markets enables telecoms operators to tap into new revenue streams by developing new businesses that build on the infrastructure investments they have made and by meeting the expanding needs of their existing and future customer base, albeit often in competition with players from other sectors.
- Operational transformation enables operators to unlock greater operational efficiencies to build scale and reduce duplications, so that future investments can be focused more closely on addressing customer demands. Extensive transformation will invariably require consolidation among operators within countries and across borders.

These opportunities are independent of one another, and so could be pursued by operators in parallel—with the resulting benefits combined.

Growth opportunity (1): Value-based pricing

Operators' ability to innovate with value-based pricing initiatives is an important potential driver of revenue uplift, although some regulatory constraints exist. This will necessarily involve innovation in pricing models, and examples are already emerging. Several new LTE tariffs are based on access speed rather than usage volume, with a premium for the higher speeds made possible by the new technology. Other approaches involve tariffs dependent on network load, prioritization of traffic for a premium, or charging based on a committed quality of service (which can be measured in a variety of ways). All such innovations enable differentiated tariffs and, by doing so, increase revenue by tapping into consumers' willingness to pay for better services and, perhaps, by addressing currently underserved segments too. As the range of applications and services delivered over the Internet increases, there is likely to be a broader spectrum of customer demands and needs: from the heavy users who require the fastest available connections for high-definition television and gaming to many others who still require only basic access to check email and browse websites. It will be increasingly important for operators to innovate and price this broader range of services more flexibly and creatively.

Operators will need to **develop innovative pricing models** to accompany the new services.

We have deliberately avoided estimating the potential for 'inflationary' price increases for existing services, since this is highly market-dependent and influenced by regulators' attitudes to inflation in setting wholesale access prices. Historically, retail price rises in the telecoms industry have been below inflation and much more strongly influenced by competitive dynamics, whereas in the unregulated cable sector, an annual price increase in the low single-digit range is not uncommon. By way of example, if operators were able to implement a price increase of just 1 per cent at some point between now and 2020, this in itself would increase revenues in 2020 by €2.3 billion—a sum that would go straight to the bottom line, assuming that costs do not also increase by more than projected.

Value-based pricing can provide revenue uplift in a range of service areas. In existing telecoms services, operators will have to move the marketing emphasis from a limited range of bundles

with relatively closely spaced price points to a more diversified range of offerings. Currently most operators offer tiers of bundles with increasing volumes of voice, texts, and data for only small additional charges. For example, Everything Everywhere in the United Kingdom offers a 4G tariff with 3GB of data for £31/month and another with 5GB of data for £36/month, which is similar to many tariffs across Europe. This is even more true with fixed services, with only two or three tiers and just a small difference in price between the top and bottom tiers.

A move to value-based pricing would involve greater differentiation of services, with the net result that heavy users would pay more in total (through a combination of access fee, traffic-related charges, priority traffic services, 'speed boost', and so on), but light users who nevertheless need basic access would pay a proportionately smaller fee—quite possibly lower than the entry level tariffs today. Differentiated offers could be developed using a number of characteristics: usage volume and, to a lesser extent, access speed are the main factors today, but time of day, traffic type (browsing versus video), and traffic priority (prioritized download speeds) could also be incorporated. Of course, it would be challenging to find a balance between increasing differentiation targeted to specific segments and developing service propositions that are understandable and attractive with wide appeal. There is also the question of how to implement such approaches technically without alarming customers who have legitimate expectations that their usage pattern is subject to rigorous privacy controls.

The launch of LTE services represents a new opportunity in the mobile sector to offer a valuable premium service for an additional charge. Main players have already started offering plans based on speed and not on data usage. For example, Vodafone Germany offers two dedicated LTE plans for different speeds (21 and 50 Mbps). Swisscom offers five different LTE plans for different speeds (from 0.2 to 100 Mbps) and uncapped usage. Research by ABI in the United States shows that 'next-generation' mobile services have been able to command a sustainable and significant price premium of around 20 per cent, but it is less clear whether this situation can be replicated in the highly competitive European market.⁸

In addition to establishing a price premium, the new tariffs also offer the opportunity for operators to move tariffs to a more variable basis with a stronger link to usage, pulling back from the 'all-you-can-eat' data plans that developed as part of 3G propositions. Most new 4G tariffs do indeed establish stepped tariffs, and most operators no longer offer an 'unlimited data' option.

In European fixed networks, fibre-based services appear to be commanding a lower premium so far. Our interviews with operators made clear that the business case for launching such services is at least partially dependent on enabling other services, particularly IPTV, in addition to the marginal revenue gained from basic connectivity improvements.

We found mixed levels of confidence around the potential opportunity for revenue uplift from the core connectivity services. The commercial logic is certainly there and most operators are looking at this area, but they are also mindful of the need to be responsive to the competitive pressures in the market. Due to this uncertainty, we estimate that next-generation access (NGA) and LTE services—through premium pricing for new high-speed services and higher quality of service—could provide additional revenue of €2.4 billion to €9.4 billion (1 to 4 per cent) on top of the €233 billion forecast revenues in 2020.

Managed services offer another revenue uplift opportunity. The content delivery network (CDN) service sector today represents about €1.6 billion globally but is expected grow rapidly and could be worth around €5 billion to €6 billion in Europe by 2020. Although, by its nature,

⁸ ABI Research, '4G Data is Priced 20% Higher than 3G', press release, 4 October 2012

a significant portion of this market will remain with the specialist global players such as Akamai and Limelight, large Internet service providers are well positioned to gain a sizable share in the market through their existing capabilities and infrastructure, particularly if delivery services over the 'last mile' (which the global players do not directly serve currently) becomes the growth area. There is also the potential for managed services to address the needs of new types of clients—for example, e-health applications such as 'remote consultations' using high-definition video links. Our estimation is that European operators could win between 20 and 50 per cent of the European market, so the potential uplift would be approximately €1.1–€2.8 billion in 2020 revenues.

The combined effect of these opportunities is €3.5–€12.2 billion in revenue in 2020, which represents 1–5 per cent on top of the €233 billion forecast (see figure 9). The net cash impact would be as much as €9 billion after taxes in 2020, assuming the uplift from value-based pricing would lie entirely in incremental revenue, with the main effect being to bring network investments forward to meet demand.

Figure 9
Revenue potential from value-based pricing for selected services

	Revenue potential in 2020 (€ billion)	Expected percentage of total revenues
NGA/LTE services	2.4–9.4	1.0–4.0%
Managed services	1.1–2.8	0.5–1.2%

Notes: NGA is next-generation access. LTE is long-term evolution.
 Source: A.T. Kearney analysis

Growth opportunity (2): New services

In addition to new revenues and pricing models for existing services, the second major avenue that operators can explore is new services in adjacent markets that build on existing investments and capabilities. This is an evolving space with many possibilities that operators have been looking into for many years, so there is some scepticism about how much revenue and margin they can really capture. Yet technical innovations and high-speed networks enable new possibilities, and this is a growing area with an expanding horizon. There are, however, fundamental differences between building a business around infrastructure and launching innovative new services provided over the infrastructure. Telecommunications infrastructure is characterized by a long-term investment cycle predicated on steady returns over the life of the asset. While its geographical scale remains important, it remains essentially local in nature and requires scale within a geographic region to be successful. Also, the infrastructure investment profile requires a large upfront cost with a stable, long-term income stream.

In contrast, the services that are delivered over this infrastructure reflect a much faster innovation cycle. While they used to be integrated within the network, they are now increasingly delivered 'over' the network (hence the term 'over-the-top'). The market is much more global in nature, and one of the great attributes of the Internet is that it enables such services and information to be provided on a cross-border, non-geographic basis. The investment profile remains much more

speculative, characterized by many ideas with only a few likely winners, and most operators will need to adapt their culture and investment approach away from payback periods and internal rates of return to a more opportunistic ‘venture capitalist’ mentality if they are to succeed. Some will prefer to steer clear of such services and focus on providing connectivity and managed services to firms that specialize in innovation, sometimes known as a wholesale model.

The very different characteristics of these two markets have led companies such as Telefonica and Telenor to establish separate subsidiaries, Telefonica Digital and Comoyo respectively, to pursue them. These companies embrace a different mindset and investment profile and are not defined in geographic terms, unlike the network service companies within the respective groups. Fundamentally, the market for services is global and comprises of many types of players, and so the nature of competition is different.

Through the operator interviews we identified a common set of opportunities operators were pursuing. While priorities and ambition levels varied, we believe that five areas are the primary focus: payments, mobile advertising, machine-to-machine (M2M) communications, IPTV services, and cloud services. A number of other opportunities were identified by some operators but less consistently, such as e-health, m-health, and m-commerce platforms. To be clear, the five areas we have assessed are by no means exhaustive, but they seem reasonably representative of the range of opportunities in the marketplace.

Building a business around infrastructure is **very different from launching a service** over that infrastructure.

For each of these five areas we followed a similar approach to estimate the potential revenues and margins. We started with an estimate of the total value of the market and identified the addressable portion for new network-based services. We then assessed the proportion that could be captured by the operators as opposed to by companies in other sectors or startups. In each case the limitation comes down to operators’ appetite and ambition to address a broader portion of the value chain. Each service has a connectivity element that can be considered the ‘comfort zone’ of operators, but the real value (and margins) will accrue to those that are able to move along the value chain and capture an element of the more advanced services, such as data aggregation, processing, and mediation services.

Opinions differed widely among our interview partners on how addressable such opportunities are for telecoms operators and what portion of the value chain operators can capture, given the global nature of many of the potential markets. Also, the services themselves are at different stages of maturity in each country, and so naturally are operators’ perspectives.

Mobile payments (m-payments). Over the last decade, mobile payments have assumed a more prominent role in the transaction marketplace. As the technology (in terms of user devices and merchant equipment) is deployed more widely and consumer acceptance increases, mobile payments are set to grow rapidly between now and 2020. There is a range of different solutions that involve users paying via their mobile phones. These solutions could be based, for example, on near field communication (NFC) functionality of the handset, with the charge appearing on

the user's mobile bill, being directly debited from a bank account, or being processed by a third-party platform such as Google Wallet or PayPal. Exactly which platforms and standards will win out is less clear, but we forecast that by 2020, overall mobile payment transactions in Europe are likely to be worth over €200 billion.

While the growth of mobile payments is not in doubt, the uncertainty is how much of the value will flow to the operators whose infrastructure underpins it. We have modelled three scenarios in order to estimate 2020 mobile payment revenue potential for operators. In the most modest scenario ('SIM space only'), revenues would only derive from space rental on the SIM card and would account for just €120 million. In a more optimistic revenue-sharing scenario, we assume that each transaction generates a commission equivalent to 2 per cent of its value, and that operators are able to capture between 10 and 50 per cent of that commission. The actual model may be based on a clearing service similar to Visa and MasterCard (which would take a portion of the fee), or on a more direct model where charges go directly to the operator—which is then able to capture the whole commission (but has to assume some credit risk and may also be subject to financial regulation). The fees generated for the operators in this scenario in 2020 would therefore be between €0.5 billion and €2.7 billion. To put this in perspective, Visa Europe's revenues in 2012 were €1.3 billion for a similar role of clearing transactions. (The majority of the commission value in the current 'card-based' transaction chain flows to card issuers, not the transaction processors.)

Mobile advertising (m-advertising). While mobile advertising offers a compelling business opportunity, the m-advertising value chain remains complex. Estimated to be worth around €1 billion in Europe in 2012, a tiny fraction of total advertising spend, it is nonetheless growing rapidly. It is difficult to estimate the size of the market in 2020, given that it is still fairly early in the development cycle, but our 'optimistic but achievable' estimate is that it will grow to around €10 billion. Mobile operators can play a key role in the value chain, since search- and location-based ad services will be major components. Capturing this revenue, however, will not be straightforward. There is an emerging consensus that to be successful, mobile advertising needs to be linked up with coupon offers and retailer programmes.

A primary challenge to monetize mobile advertising is to find a balance between the design of the m-advertising model, customer willingness to actually receive advertisements, and the ability to process usage data to conduct personalized targeting. Additionally, operators will likely need to enter partnerships with advertising players to leverage these opportunities, further complicating the capacity to capture revenue. Finally, European telecoms players confront sophisticated and innovative competitors: Google, through its acquisition of AdMob, and Apple, with its iAd service, have also entered the mobile advertising market with strong, scalable propositions.

Of the €10 billion market in 2020, a considerable portion will go to the owners of the websites, apps, and games where the ads are placed. Various intermediary services that tailor, target, and place the ads will also take a share. We think a reasonable range would be for operators to capture between 5 and 10 per cent of the market if they are able to monetize the fact that they are the primary providers of information about where users are and what device they are using—as well as of insights into the consumer profile (if regulators allow them to leverage this). Based on these premises, the potential revenue generated by operators in 2020 will be between €0.5 billion and €0.9 billion.

Machine-to-machine communications (M2M). M2M communications is a term that spans a broad array of applications and technologies. M2M covers the many instances of automated communication between devices, with some form of sensor relaying information (temperature

controls, an alarm trigger, location information) to a monitoring or aggregating application. A good example, currently at different stages of deployment across Europe, is smart metering. The first development of smart metering involves meters automatically reporting usage information (perhaps on a daily basis) to a central application, eliminating the need for labour-intensive site visits to read the meters. Another emergent application is automatic monitoring and reporting of an individual's driving habits (such as speed, braking style, or routes taken at specific times) to an insurer so that the risk and premium can be accurately assessed. In this case, a 'black box' is fitted to the vehicle and transmits the data back to the insurer at regular intervals. More advanced applications involve the bidirectional transfer of information in a way that causes the end device to take a particular action in response. One of the big attractions of smart metering is its ability to enable dynamic tariffs, where the cost per unit varies during the day in response to demand and 'nonessential' or non-time-sensitive uses of electricity may be 'paused' when demand is high. (For example, a dishwasher may respond to the price signal by stopping for an hour if the rate exceeds a certain threshold and resume its work later in the evening when demand is lower.)

The interesting aspect for telecoms network operators is of course that all such M2M applications require a network of some form to transmit the data. Many of the in-house applications may use the home Wi-Fi network, but many 'mobile' applications such as the car insurance case will require use of mobile networks. Although the volume of data in any such instance is modest, the potential volume of devices connected to these networks could be huge. As with the other potential areas of new opportunity, the value is not in the increase of network usage per se, but rather in the opportunity to move into more advanced services. In the smart metering example, depending on the regulatory framework, there is a need to aggregate, synthesize, and process the large volume of information that will be generated. As the 'collectors' of the primary information feeds, telecoms operators already have a place within the value chain that, with the right innovative approaches, could be expanded to tackle these potentially more rewarding challenges.

M2M offers operators the opportunity to price for the value of information and not the volume of bytes.

IDC analysts have estimated that the communications component of the M2M market will be worth around €2 billion by 2015 and the services market a further €2.5 billion, based on annual growth of between 12 and 15 per cent up to that point. We have taken our own view on the market evolution out to 2020, including a declining growth rate as the market matures, so that our estimate is that the total market for M2M communications services will be up to €4.3 billion by 2020—an amount that can be expected to flow entirely to network operators. The services segment will be worth as much as €5.6 billion, but this will be a much more competitive market attracting global players in software, system integration, and data services. We assume that telecoms operators are able to capture between 10 and 50 per cent of the services segment, so that total European M2M revenues would yield between €4.9 billion and €7.1 billion.

IPTV services. Content services in the form of premium TV channels are part of a well-established market, often led by cable companies but also satellite operators in certain markets. A more recent

development has been the development of video-on-demand services. As cable companies have added high-speed Internet access services to their offering, the rollout and adoption of advanced DSL technologies and, more recently, fibre services has enabled the traditional telecoms operators to add both premium channels and video-on-demand services to their bundles too, delivered via IPTV technology. OTT players are also reasonably well established, with Netflix and Amazon's LOVEFiLM subsidiary making the transition from physical DVD to digital delivery.

The historic evolution and current market for premium and on-demand TV services vary considerably between European markets. Cable and satellite companies often, though not always, have the strongest portfolio of content (including live sports rights, popular entertainment shows, and the most recent film releases), but telecoms operators have often been able to find an offering that enables them to boost revenues and—almost as importantly in such competitive markets—reduce churn to cable. Perhaps the most ambitious approach to date by a telecoms operator has been BT acquiring the rights in the United Kingdom to a significant proportion of live domestic football and rugby matches (for a combined sum of nearly €1 billion); it is now preparing to launch dedicated channels to broadcast this content.

Two major factors will drive revenues in this area for telecoms operators. The first is the proportion of customers who add television services to their existing telephony and Internet bundle, which is already quite high in certain countries such as France but is relatively low in others. The second factor is the increasing ARPU uplift as the offerings become more advanced and attract a higher pricing premium (through higher-value content or more frequent use of on-demand services, such as film rentals).

Our estimate is that the IPTV market (including video-on-demand services) will be worth around €10 billion in 2020, based on the number of users increasing 7 per cent per year on average and ARPU by 5 per cent year-on-year. Telecoms operators might be able to capture between 60 and 90 per cent of this market, given its level of integration with the broadband service hardware (hub and set-top box), the sales process, and the billing relationship.⁹ The remainder would go to OTT competitors, such as LOVEFiLM and Netflix. It is important to note that much of this revenue will have to be shared with the content rights owners, so while it represents a reasonable opportunity, it is not necessarily a high-margin segment.

Cloud services. Although cloud computing is a relatively new term, telecoms operators have been offering services such as storage, remote backup, and hosted ERP platforms for many years. The market itself is broad and encompasses the physical data centres and platforms themselves, the many specialist intermediary services that ensure these discrete physical sites operate as a fully synchronized and seamless 'cloud', the connectivity services that link the core infrastructure together and enable the users at the periphery to access them, and finally, the actual hosted services and applications that the end user effectively perceives and consumes. There is clearly a role for infrastructure operators as the companies that provide the connectivity underpinning cloud services, but telecommunications firms are well placed to expand this offering by providing the more advanced services and by acting as the primary sales channel—capitalizing on the many trusted customer relationships built up over years.

IDC estimates that current European market volume for cloud services is around €6.5 billion. Based on our modelling of expected growth evolution, we estimate that by 2020 the market will have grown significantly to around €24 billion. Of this, around €6 billion will be communications infrastructure-related that we expect to go directly to the telecoms operators (though exactly

⁹ Some cable operators are launching IPTV services to homes not in their network footprint, while satellite operators with a DSL business can do the same. Both are included in this €10 billion forecast, but they only make up a small share.

which ones will depend on how competition among them plays out). We further estimate that telecoms operators could capture up to one-third of the remainder for hosting and operating the services (that is, another €6 billion), depending on how far into the more advanced data centre and processing service provision they are able to go.

In summary, there is great potential for telecoms operators to enter adjacent markets, but potential is the right word. Moving beyond services related directly to infrastructure—where competitors are relatively easily identifiable and the market stable—into more dynamic and rapidly developing markets presents a lot of challenges: from a diverse range of competitors with a host of different competitive strengths, to the ‘softer’ aspects, such as the different organizational, investment, and management culture needed to succeed. We have deliberately considered a broad range of outcomes, and the top end of our estimates is based on the expectation that operators will commit fully to pursuing the opportunities and find ways to adapt their approach to succeed in the new markets. To do so, they will need to leverage their natural strengths, acquire new skills, and not be constrained by any factors relating to their ‘heritage’ as telecoms operators.

Figure 10 summarizes the A.T. Kearney forecasts for additional revenue for telecoms operators in Europe by 2020.

Figure 10
Revenue potential from launching new services

	Revenue potential in 2020 (€ billion)	Expected percentage of total revenues
M-payments	0.5–2.7	0.2–1.2%
M-advertising	0.5–0.9	0.2–0.4%
M2M	4.9–7.1	2.1–3.1%
IPTV	6.1–9.2	2.6–3.9%
Cloud services	7.5–11.7	3.2–5.0%
Total	19.5–31.7	8.4–13.6%

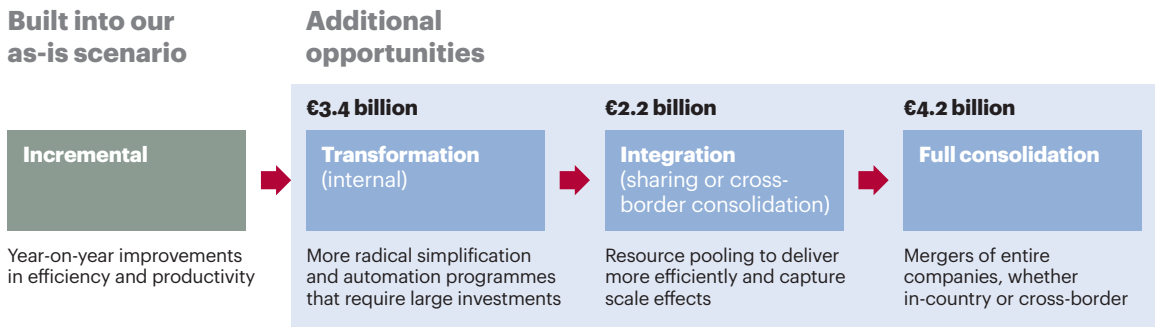
Notes: M2M is machine-to-machine. IPTV is Internet protocol television.
 Source: A.T. Kearney analysis

Growth opportunity (3): Operational transformation

Besides the opportunities to grow the top line, operators could also pursue a more radical approach to cost reduction through a step change in operational transformation. Almost all operators in Europe have been working on incremental productivity and efficiency programmes that are part of normal operations. However, in the interviews many identified the potential for a more ambitious approach to lower the cost base, adopting more radical cost improvement measures to boost long-term cash flow. Going beyond the incremental improvements already factored into our as-is scenario, we looked at three further sources of operational cost efficiencies (see figure 11 on page 28), together with their annual cash-flow impact.

Figure 11

Operational transformation opportunities



Source: A.T. Kearney analysis

Internal transformation. In addition to the incremental improvements that have long been underway, we already see certain operators launching more radical transformation programmes based around a new IT application stack that enables a complete redesign of internal processes, together with IT simplification and automation. By breaking away from legacy systems, operators have a large potential to streamline their businesses. This has been the ‘holy grail’ of IT and customer service departments for a long time, and, while the prize is clear, achieving it requires building the IT application stack from the ground up, followed by a complex migration of data and business processes. From discussions with operators and our own experience of working with them on such projects, we estimate that mobile operators have the potential to reduce IT operating costs by around 20 per cent by 2020, and fixed operators by 12 per cent. These savings will be a mix of lower IT costs in absolute terms and savings arising from the leaner processes they enable—processes that then raise productivity, particularly in customer services (and, to a lesser extent, in select support functions). Clearly, some operators will exceed this target through more ambitious and radical programmes, while others will show less improvement—perhaps because they are more efficient already. The total impact of this would be an opex reduction of around €1.8 billion in 2020 versus the as-is scenario described in Chapter 1.

The move to ‘all-IP’ backbones and converged cores for operators with fixed and mobile networks is another avenue for certain telcos. Although some operators view this as part of their normal network evolution, we did speak to some, particularly in the fixed arena, who have more radical plans that they expect to reduce network operating costs by up to 25 per cent by 2016. We have modelled a more cautious scenario and assumed that only half of operators achieve savings, and that those savings will average around 15 per cent. Based on our modelling, we estimate that fixed operators could save up to €1.3 billion.

Integration. Going beyond internal transformation, opex could be further reduced through integration, either cross-border or between operators within a country. At its core, network infrastructure remains a scale business, so sharing and integrating to build that scale is a natural evolution for the industry to reduce its overall costs and to improve efficiency. Although the potential for cross-border integration and scale efficiencies should be large, the complexities of the telecommunications business have made operators cautious so far. We believe, supported by the findings of our interviews, that cross-border network integration initiatives—although

challenging and complex to execute due to variations in market dynamics, including language barriers and network legacies—could be the next big area of savings. Most multinational groups have carried out some level of centralization or consolidation, but generally of specific activities in a piecemeal fashion. The typical activities selected are device and network equipment purchasing (where operators need to leverage their full buying power against the big global players), IT data centres, and occasionally, network management and testing. Based on the hypothesis that operators that are members of groups save up to 10 per cent of the addressable cost base (value-added-services platforms, IT development, and a portion of operating and general overheads), we estimate that further cross-border integration could deliver up to a €1.5 billion reduction in 2020 opex across Europe.

Several groups identified product development as another focus area for economies of scale, particularly for the more advanced services and adjacent market opportunities mentioned earlier in this chapter. To date, market-specific factors including language, national regulations, and consumer behaviour have limited such initiatives, but in future competitors, especially in the OTT arena, will be much more global, and building scale will be essential. The total amount spent on product development may or may not actually increase, but the way it is spent needs to be much more centralized and leveraged across the markets in which an operator is present in order to have maximum effect and impact.

Network sharing is a well-established efficiency approach that is highly developed in most markets, at least in the passive variation, where operators share physical sites and towers. Many operators are taking the concept further and developing active sharing deals that make greater use of the expensive equipment in each base station; the technology exists to go all the way to actual spectrum sharing, in which case a single base station could offer services to consumers from two competing network providers. Our estimation of the impact of moving to an average of 2.5 physical RAN infrastructures per country and allowing for a 25 per cent increase in cost for the remaining networks would lead to an operating cost savings of around €750 million, which is relatively low due to the fact that this is a well-developed area already. There will be additional savings in capex on civil works of new sites and the active components, but we have not included them in the potential benefits identified here. This is because in the initial years of such sharing arrangements, these savings are offset by the transition cost of reconfiguring equipment, decommissioning surplus sites, and deploying new equipment to run two radio networks.

Full consolidation. Taking this a step further, full consolidation of operators within a market is the ultimate step to building scale. There are few potential opportunities in the fixed arena, but in mobile many operator businesses are highly complementary, so the potential benefits of any two operators merging could give rise to very significant scale effects. This is also the area that regulators and competition authorities scrutinize most closely; nevertheless, we have not been constrained by the current restrictions and have examined what is, by today's standards, a fairly radical scenario of one full merger per market. Such a scenario would reduce the current average number of operators per market from 3.85 today (based on 104 operators in 27 countries) to 2.85 by 2020. For each combination we have assumed opex savings of up to 8 per cent of total operating costs, which in fact means a 16 per cent reduction in indirect opex since around 50 per cent of operator costs are typically direct costs (interconnection, handsets, and customer acquisition costs). This scenario, then, would generate total opex savings in 2020 of €4.2 billion, or a 2.4 per cent reduction in total opex versus our as-is scenario. Such a scenario is clearly radical and has clear implications for public policy and regulation, but we believe it is also pragmatic and could unlock significant benefits.

In summary, we identified a range of potential cost savings—from a total of €3.4 billion per year if each operator transformed on a standalone basis, to around €9.8 billion per year if greater integration and consolidation were to occur by 2020 (see figure 12). These are cash savings that, after restructuring costs and taxes, could go straight to the bottom line or be reinvested in growth initiatives.

Figure 12
Savings potential from operational transformation

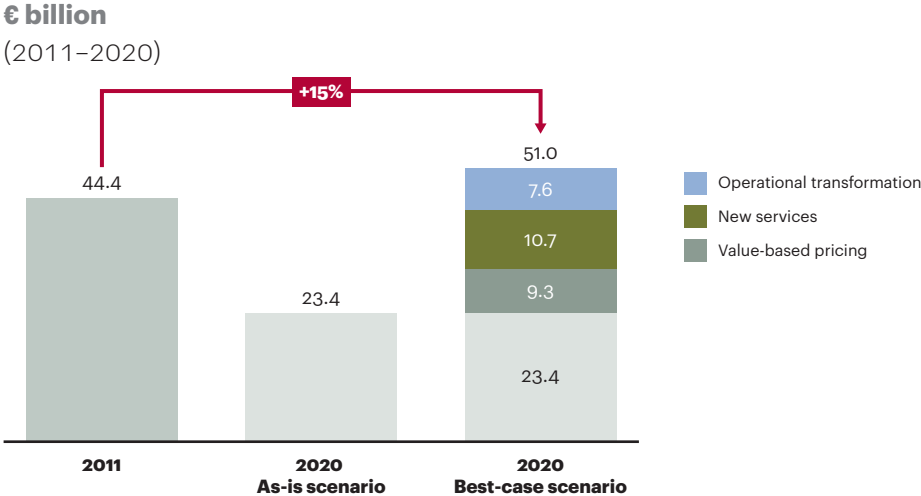
	Potential opex savings in 2020 (€ billion)	Expected percentage of total opex
Internal transformation	3.4	1.9%
Integration	2.2	1.3%
Full consolidation	4.2	2.4%

Note: Opex is operating expenditures.
 Source: A.T. Kearney analysis

Overall impact

The combined impact of these three areas, if executed in parallel, would be to increase revenues by up to €44 billion, or 19 per cent of forecast revenues, and also reduce the expected cost base by 5.6 per cent by 2020. Taken together, the three areas would actually increase free cash flow after tax (assumed at constant rates) by 15 per cent, from the €44.4 billion 2011 position to €51.0 billion in 2020, versus the as-is scenario of free cash flow declining to €23.4 billion (see figure 13).

Figure 13
Free cash flow (after taxes)



Source: A.T. Kearney analysis

This growth agenda is ambitious. If some of the percentage improvements seem modest compared to other forecasts, it is because we are assessing the whole European sector, including those operators that consider such initiatives too risky to pursue. We are also focusing on the cash impact and recognizing the competitive pressures and costs that a radical growth plan must tackle.

Rolling out value-based pricing will require significant changes in consumer behaviour. To modify the thinking of an established, broad, and diverse customer landscape, and also how these customers engage both with their products and with this industry, will demand sustained investment, marketing, and engagement. Launching new services will not, in itself, solve the industry's challenges either: these new services will require development, rapid uptake, and the fine-tuning of infrastructure, regulation, and the industry's broader ecosystem to ensure their success. Finally, while operational efficiency improvements could enable the industry to achieve positive growth, many of the most significant improvements—the transformations that would effect meaningful change—require the alignment of a spectrum of fragmented players, buy-in from diverse stakeholders across the economy, and a responsive regulatory environment that will enable the industry to achieve a greater level of competitiveness.

While these growth opportunities, at the minimum, would neutralize revenue decline in Europe at the industry level, they would also grow revenue at the individual company level via consolidation—on top of whatever growth such companies may derive in other regions. In the best-case scenario, these changes could boost industry cash flows by as much as 15 per cent above today's levels. However, all three growth levers must be executed successfully and concurrently; no single solution will suffice.

Chapter 3: The European Regulatory Framework

The telecoms industry in Europe has always been closely regulated, having originated with primarily state-owned monopoly providers that were then privatized during the 1980s and 1990s, followed by the growth of the mobile industry using licensed spectrum. The primary objective of the national regulators and the European Commission has been to promote competition in national markets. As the competitive situation has evolved in most of these markets, so too has the regulatory framework. Extensive intervention on both wholesale and retail pricing is still the norm within the EU, however, as is considerable scrutiny of competitive behaviour (including mergers and acquisitions). More recently there has been considerable policy attention on the enablers of broadband investment, such as spectrum availability or funding for rural coverage, as broadband is seen as central to enhancing the competitiveness of the broader EU economy. A full consideration of the policy framework must also encompass the regulation of services (such as payments or data protection) and privacy concerns.

The European regulatory approach has been more interventionist than in many other geographies, and it has clearly succeeded in creating one of the most open and competitive markets for telecoms services in the world. With industry revenues now in decline and investment slipping, the effectiveness of this approach is presently being questioned and a number of industry leaders have called for a change in policy. At a shareholder meeting, Deutsche Telekom CEO René Obermann stated, 'In one of the latest surveys, European capital market analysts conclude that a lack of investment incentives due to misguided regulation is the main barrier to further investment. We therefore need less regulation, not more.'¹⁰ At the FT ETNO summit in

¹⁰ Shareholder meeting, 24 May 2012

Brussels, KPN CEO Eelco Blok said, ‘Today, the regulatory environment is an obstacle to growth, and scale is very important in the telco business. Consolidation or network sharing is an issue today, and this needs to change in Europe to be able to sustain competitiveness.’¹¹ Vodafone CEO Vittorio Colao made a similar point: ‘The solution has to be found in scale and consolidation. We need to allow consolidation. We should not worry how many operators a single country has; we should be a bit more American.’¹²

There is also a growing question of what the objective of EU regulatory policy should be. If the aim were to promote broader EU competitiveness and an advanced infrastructure, it is possible that regulatory decisions and outcomes would be different. At a more technical level, the technological changes leading to the separation of services from infrastructure mean that the framework that has worked in the past may not be appropriate for the future. As the value chain restructures and operators run up against new competitors that are not traditional infrastructure providers, the regulatory framework must address these changes—many of the companies providing communications services are no longer ‘telecoms operators’. Equally, as telecoms operators seek to expand into new markets, they are providing services in areas that have not to date been regulated in the same way. One implication of this is that the telecoms operators are constrained in how they approach normal commercial opportunities in adjacent markets and in ways that do not apply to other companies entering the same market. In other words, the playing field is uneven.¹³

Operators need to be able to **price and promote more advanced services as a bundle**, as their online competitors do.

As part of the research into the growth opportunities, we also examined the role and impact of the policy framework on operators’ abilities to fully explore the potential opportunities for growth and cost transformation identified in Chapter 2.

Regulatory barriers within the telecommunications industry

One of the main pillars of the current regulatory framework concerns how infrastructure providers price services in both the wholesale market (selling to other operators) and in some segments of the retail market (selling to end users, whether consumers or businesses). The regulations consist of a variety of price caps and restrictions on pricing (especially bundled pricing) to prevent margin squeeze of companies that buy wholesale services for resale into retail markets. Price caps are set service by service on a national market basis whenever a given operator is deemed to have some form of pricing power for that service. This normally occurs with local loops and basic circuit pricing, but also with voice call termination. Restrictions on bundling prevent infrastructure operators discounting services as part of an inclusive bundle, requiring instead separate pricing for fixed and mobile services. As operators develop more advanced services such as IPTV and consumer cloud services, it will be important for their commercial propositions that they are able to price and promote these as part of an overall

¹¹ FT ETNO Summit, 2 October 2012

¹² FT ETNO Summit, 2 October 2012

¹³ The recent example of Skype refusing to register as a telecoms operator in France highlights the regulatory burden that would follow if it did so.

bundle rather than discrete services. The companies they compete against, including cable and satellite providers, typically face no specific pricing restrictions.

All regulation has an impact on operators' perspectives on new investments. Almost all investment decisions are based around an initial outlay, an expected return, and the risk profile. There has been extensive discussion on the attractiveness of major investments to achieve Digital Agenda targets on fibre deployment given the current regulatory framework, with implicit or explicit caps on returns. Restrictions on bundling can also deter an operator from entering a new and competitive market segment if it is prohibited from leveraging its investment in another related area. Of course, monopolistic pricing behaviour will also restrict investment by competing firms, and so there must always be a balance.¹⁴

Several operators argued that the case for rolling out fibre networks is uneconomic in their domestic market on a standalone basis. The pricing premium over DSL services is insufficient to justify the large investment in all but the most densely populated residential areas. However, the case can be more favourable if the extra revenue from additional services it enables, such as IPTV, is factored in. This case breaks down if the additional revenues are captured predominantly by other firms due to regulation, such as low wholesale fibre price caps.¹⁵ In this context, regulation in Europe should follow a more balanced approach, placing a stronger focus on setting incentives for investments in high-speed network infrastructure. The recent announcement of a change in the European Commission's proposals on unbundled copper pricing and the basis for determining wholesale fibre pricing has been widely acknowledged as a positive step, but has not yet been translated into specific national regulation, creating a period of uncertainty. Asymmetric regulation for connectivity with other network providers (for example, cable or local fibre networks) poses an additional challenge. Regulation—starting with the definition of markets for regulatory assessment—should take into account the strong platform competition between former incumbent telecoms operators, cable operators, and alternative regional fibre rollout initiatives. Developing a standard and stable approach to these issues will increase investor confidence and encourage the long-term investment that is needed in new advanced infrastructure.

Regulatory barriers regarding new services

As operators consider moving into adjacent markets, competition policy should normally see this as a positive move that increases innovation and competition in important segments. It would be helpful for policymakers to facilitate this by ensuring telecoms operators (and indeed any other new entrants) are able to compete freely and are afforded the same rights that companies seeking to enter the telecoms infrastructure business have come to take for granted. However, in our experience this is not currently the case. A new entrant into the broadband market has the right to use unbundled local loops and to place the necessary equipment in an existing operator's premises. Similarly in mobile, most regulators have supported the entry of new players through preferential termination rates, spectrum auctions that encourage a new entrant, and (in some countries) network sharing or wholesaling requirements to enable new entrants to launch a nationwide service without building an entire national infrastructure.

When telecoms operators seek to enter new markets, the reverse situation is rarely the case. Some new services already face challenges: in certain markets, there is unequal access to

¹⁴ The fibre exemption in Turkey, where operators are being given a limited time to make a return on new network investments before full regulation applies, is a good example of a measure to encourage investment without harming long-term competition.

¹⁵ For a full discussion of the economics of fibre rollout under the current EU regulatory framework, please refer to the Charles River Associates report for the European Commission, 'Costing methodologies and incentives to invest in fibre', July 2012.

content (for example, for IPTV), which undermines the ability of new players to attract customers. Restrictions on collaboration initiatives between operators also remain, even when these are in highly competitive services and where telecoms operators as a whole are minority players needing to build scale.¹⁶ As cloud services and M2M markets develop, similar situations may well arise. In such cases, collaboration and compatibility—provided it is open to other interested parties—will most likely be in the consumer interest. Should such networks later become dominant, some form of ex post regulation could then be appropriate, but there seems to be little case for such intervention before such services are even launched. Some operators told us that they foresee restrictions that disadvantage them from competing freely in the cloud services market due to obligations to protect consumer privacy that are more stringent than those faced by other players in the market. The European Commission’s adoption of a proposal for a data protection regulation, according to which all players (regardless of their geographic location) providing services to EU citizens fall under the same data protection rules, is a first step in the right direction.

While regulators have warmed to passive network sharing, they could **do more to facilitate active network and even spectrum sharing.**

Beyond the telecoms sector itself, specific industries and business sectors present their own challenges to operators seeking to enter them. The regulatory approval process for m-health devices, with no EU-wide standards for new services, can constrain growth by hindering the innovation pipeline. The financial services industry, with its own extensive regulatory agenda, places additional burdens on telecoms in the development of mobile banking and mobile payments. Specifically, restrictions imposed by financial regulators on the scope of the financial services that can be offered by non-bank institutions limit the range of service options. Operators are concerned that regulations that (sensibly) apply to financial institutions could be applied to the entirety of their operations and not just an m-commerce subsidiary, significantly raising the barriers to entry.

Regulatory barriers to operational transformation

Regulatory barriers not only constrain the revenue line of the industry, but also, in some cases, present obstacles to its more efficient operation. While competition policy over the last 20 years has focused on creating more competitors in each market, greater recognition needs to be given to the fact that there is also a cost to this. Multiple infrastructures—particularly in mobile, where each licensee is generally required to build a national network—lead to overcapacity in areas of low demand and result in suboptimal investment that diverts cash flow that could have gone into building capacity where there is greater need. Regulators have generally warmed to the concept of passive network sharing between two operators, but there is still more that could be done to facilitate greater active sharing and spectrum sharing.

¹⁶ For instance, a collaboration of three UK operators on mobile payments and mobile advertising required almost a year of regulatory investigation before it could proceed, despite the pace of innovation in these dynamic segments, where major US-based firms have been investing for several years.

Infrastructure is necessarily a scale business, where investment in a national network requires a minimum customer base and revenue stream to be justified and sustained. In several instances where operators have been unable to achieve this scale, there have been moves to consolidate. Examples include the merger of T-Mobile and Orange in the UK, the sale of Orange Austria to Hutchison, and the ongoing deliberations over a sale of Yoigo in Spain. In the broadband market, there has been a quieter process whereby small ISPs and resellers have exited the market because a minimum market share of 15 to 20 per cent is typically needed to earn reasonable returns. Allowing consolidation within a market is in the long-term interests of all parties: fewer but healthier competitors are better placed and more likely to make the necessary long-term investments in advanced infrastructure, quality of service, and customer experience. As shown in Chapter 2, the main source of potential opex savings comes from consolidation within a market. The political resistance to major mergers, however, is often vocal, even though no European market is even close to returning to the pre-liberalization days of a telecommunications monopoly.

The regulatory approach **should evolve along with the industry.**

In telecoms, Europe, unlike the United States or China, lacks operators with scale to address the needs of over 400 million consumers in a single market. As discussed in Chapter 2, cross-border integration has generally been limited by the management challenges it implies as well as by formal legal constraints. Political concerns have also been present whenever a cross-border merger has been suggested, often leading to suboptimal operational commitments to preserve jobs and budgets in each national market. While it is understandable for politicians to seek to protect domestic interests, paradoxically it is European companies that lose out when they are unable to build and exploit scale to be globally competitive. Thus, there is an urgent need for support from European policymakers to enable network operators to reach scale and facilitate cooperation for standardization. Although there is clearly a balance to be found between consolidation and local competition, a more consolidated and competitive European industry, through its increased ability to invest, would help to provide Europe with a state-of-the-art infrastructure and the resulting socio-economic benefits. Furthermore, cross-border consolidation could help to achieve a Single Market, which is otherwise materializing slowly but has been recognized by the Commission and industry executives as a priority.

The regulatory approach should not only reflect, but also respond to the evolving industry. The different characteristics of the telecommunications infrastructure and services markets should naturally lead to a different approach to their respective regulation. Content and services are provided by both global and local players, while infrastructure remains, fundamentally, a local business. The current asymmetric, sector-specific regulation of EU telecoms operators creates an imbalance in relation to OTTs. A too-rigid approach to consolidation and horizontal cooperation within the sector can affect the ability of the telecoms sector to compete with OTTs.

For instance, content and services providers routinely operate on a transnational basis and therefore might not be subject to any meaningful regulatory scrutiny. In contrast, network operators are by nature national (and, in some cases, multinational, but organized around country operating units) and face a high degree of regulatory scrutiny from the national regulator of all their activities, not a predefined subset of infrastructure-related activities.

However, the boundaries of the different players are blurring, with traditional network operators now commercializing a strong content and services offering and vice versa. The policy framework needs to evolve along with the industry it regulates.

The Three Freedoms

Our recommendation to national and European policymakers is therefore to focus on providing the industry with what we call the ‘Three Freedoms’:

- 1.** The freedom to develop retail pricing propositions that are customer-centric and unconstrained by regulations on bundling or restrictions on rebalancing
- 2.** The freedom to innovate on the same terms as a non-telecoms operator
- 3.** The freedom to pursue scale in operations, whether in-country or cross-border

On pricing, operators need the ability to be flexible, and we suggest reviewing policies for cross-subsidy and value-based pricing, both in retail and wholesale markets. A more robust understanding of the implementation of margin squeeze tests would contribute to a more effective regulatory landscape. These tests should not lead to a new regulation of retail markets and should be—as is also the case in competition law—driven by responses to legitimate complaints. We also believe that allowing ‘shared risk’ models in wholesale, or offering returns that reward the investment risk and underlying costs, will further stimulate growth. Current practice of national regulatory authorities and competition authorities often ignores the different risk profiles of incumbents and competitors.

The debate over net neutrality is relevant here too. Telecoms operators should be able to differentiate services on the basis of value and quality (for example, assigning higher value to those services that might be offered beyond the ‘best-effort’ Internet and by making targeted offers to different groups of consumers). Commercial agreements involving end-to-end quality-of-service delivery between telecoms operators, OTTs, and content providers should also be encouraged. These possibilities should not be precluded in individual EU countries, or at EU level, by following a restrictive interpretation of ‘net neutrality’. Imposing an excessively rigid interpretation of net neutrality to ban differential pricing for differential service quality—as is the case in the Netherlands—is counterproductive. Operators need the freedom to offer differentiated services and pricing packages.

Service innovation remains the core driver of future industry growth in Europe. The freedom to innovate includes enabling entry into other retail markets on terms similar to those that new entrants currently have to enter the telecommunications sector, and not to disadvantage players simply because they are operators. At the same time, incentivizing innovation in both the network and new services must include a level of protection that rewards the investment, not one that enables free or uncompetitive access to others that take no part in the idea generation or risk taking but still seek to benefit from such investments.

The European regulatory environment should also facilitate fair and equal competition for services, with regulatory intervention limited to genuinely ‘monopolistic’ situations. To achieve this goal we suggest: defining markets in a technology-neutral manner and lifting regulation where competition between platforms provides a competitive service environment; the freedom for players to compete on even terms with OTT players by standardizing regulation (for example, by applying the same data protection regulations to them as to other players); offering the freedom to bundle services across segments; having a default ex ante attitude in favour of

inter-operator collaboration on service innovation; and promoting a digital Single Market for services that currently face 27 different national regulations but would benefit from a pan-European or even global proposition. Ultimately, the industry needs the ability to collaborate and to partner to compete in the global market for services.

Regulation can also offer a powerful tool to unlock economic efficiency and scale. A more responsive regulatory regime would acknowledge that infrastructure is a scale business and that multiple infrastructures can be costly for all if market demand does not justify them. Consolidation offers benefits to all participants in the telecommunications value chain, including customers. Regulators could also create a more efficient marketplace by permitting the sharing of infrastructures. Allowing consolidation where it makes economic sense, including greater cross-border integration and the freedom to structure and to reorganize operations, will offer scale synergies that consumers will benefit from in the long run.

The right policy framework for growth

Ultimately, these three freedoms add up to one: the freedom to compete that is central to Europe's Single Market and was at the heart of the industry's original growth phase in the 1990s. The competitive forces between operators themselves and the many other players within the value chain would then foster a level of innovation that would meet the diverse range of customer needs and strengthen the wider economy.

The dynamism, diversity, and breadth of talent within the European telecommunications industry offer compelling potential for growth and innovation. To achieve this true potential, however, the industry must ultimately enjoy not simply the freedom to compete, but the freedom to compete explicitly within those domains where the industry has lost pace with other global players. The right policy framework for growth, then, includes stronger price competitiveness, enhanced capacity to innovate, and the freedom to operate more efficiently; importantly, it needs all three of these to succeed.

We would emphasize that neither A.T. Kearney nor any of the operators interviewed for this study believes that the policy framework is the sole factor determining the future growth of the telecommunications sector in Europe. To reverse the slow decline in revenues with more competitive offers in core and new services, to deploy and commercialize next-generation networks effectively, to consolidate and transform company operations to grow cash flow and fund investment—this a very ambitious agenda for the leadership and employees of many important European companies. The right policy framework will support their work and thereby unleash the next wave of innovation, investment, and growth in a sector at the heart of the European economy.

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Appendix: Approach and Methodology

Operator interviews

As part of the research for this paper, we spoke to a broad range of European operators, including members of ETNO and non-members, operators with fixed networks (including cable) and mobile networks. The interviews were with a mix of regulatory and strategy executives.

The interviews were structured around three primary themes, aligned with the chapters of this report.

1. Trends in core services. The first part of each interview was centred on the trends within the operator's market and their view of the market as a whole, and not necessarily their own experience as an operator. No specific data was collected from operators, but we tested our own forecasts for markets and refined these based on the feedback as appropriate. While forecasts are always subjective, we checked that ours were directionally correct and aligned with operators' experiences in the market. Particular trends we tested were:

- At what rate are fixed/mobile revenues growing/declining?
- What is driving this? Traffic volumes? Customer numbers? Price pressures/increases?
- Service mix: How is usage and revenue source changing between voice, messaging, and data?

We used the insights gained through this part of the interviews to refine our own market forecasts and assessment of the underlying drivers within markets that are affecting these trends.

2. Opportunities for growth. In the second part of the interview we focused on the potential opportunities operators see to grow revenues incrementally given the trends discussed in part 1. Given the strategic sensitivity of these plans to operators, the discussion of these topics was necessarily high level, but it allowed us to test and gain insights on four aspects:

- What is the spectrum of growth opportunities operators are considering?
- Of this long list, which are the opportunities operators are prioritizing and where do they see the greatest potential?
- Which parts of the value chains of these opportunities are operators expecting to play in, from connectivity to the more advanced data-processing and platform-operation roles?
- Cost transformation: What plans exist to transform the cost base more radically than the current trend and thus enhance margins?

Naturally, there was a wide range of responses that reflected different strategic priorities and ambitions, as well as differences in national markets and competitive dynamics that each operator faces. Through the discussions and responses, we were able to develop a qualitative ranking of the opportunities the majority of operators were considering. We also developed, for each opportunity, a view of the level of ambition to play a greater role in the value chain above and beyond the connectivity element.

3. Regulatory and policy implications. The third topic covered in the interviews was the regulatory framework. The objective of these discussions was to understand the impact that regulation has on how the market operates and on the incentives and actions of individual

operators—particularly the ways in which they relate to each of the opportunities discussed in part 1. Particular aspects of the regulatory framework that were covered in the interviews include:

- Impact on cooperation in areas such as network sharing, joint marketing, and common platforms
- Development of industry standards for new services
- Implications and restrictions on cross-border integration (for operators with business in multiple countries)
- Differences in regulatory approaches to network operators versus non-network owners in telecoms services market and other markets
- Facilitation/restrictions on cross-industry initiatives
- Instances of asymmetric regulation of telcos versus non-telcos offering similar services

This was not a detailed discussion of individual regulations (although examples were gathered to support the arguments), but rather an assessment of the consequences of the principal regulatory approaches and levers on the commercial activities and options of European operators.

Interview participants. Representatives of the following companies participated in the interviews:

- BT
- Deutsche Telekom
- France Telecom Orange
- KPN
- Liberty Global
- Orange Poland
- Portugal Telecom
- Swisscom
- TDC
- Telecom Italia
- Telefonica
- Telekom Austria
- Telenor
- TeliaSonera
- Turk Telekom
- Vodafone

Where we have made reference to the views of operators in the report we have tried to summarize the consensus view, if one indeed was apparent, but such statements should not be interpreted as necessarily being representative of the view expressed by all operators interviewed. Where there was a range of views and opinions we have tried to express this in the way we describe the inputs received. We thank the participants for sharing their time and ideas.

We should reiterate that the views expressed in this paper are those of A.T. Kearney and do not necessarily represent the views or opinions of ETNO, any of its member companies, or the non-member companies interviewed.

Quantitative analysis of trends and opportunities

1. Revenue and cost trends. We began by using data on historic revenues for fixed and mobile services up to 2011 as stated in published reports. We then used our judgment on market trends to develop a forecast of how revenues will evolve to 2020, broken down by service type. We tested the resulting forecasts with the operators as part of the interview process and refined them where necessary.

One challenge mentioned in the main text is the meaningfulness of the split of revenues between voice, messaging, and data services, particularly for mobile services (but also for fixed). Since these services are very often sold as bundles, the distinction between services has become somewhat arbitrary, although there are clearly underlying costs for each in terms of traffic carried and the platforms supporting each service. We maintained the split, as it can be useful to compare to usage volumes.

To develop the as-is scenario, we took the revenue forecasts of fixed and mobile services separately and then built up a profit-and-loss model for each, with the key opex line items broken out and including depreciation and effective tax rates. For each cost type within the cost model we built in a year-on-year improvement factor, ranging from a 2 per cent per year reduction in IT to flat opex in sales and marketing. These assumptions are based on A.T. Kearney's experience working with operators and also our expectation of the cost areas operators will address in coming years to deliver cost reductions. These improvements are net improvements, after covering the effects of inflation, and so represent even larger year-on-year absolute improvements. We assumed mobile capex to be 12 per cent of in-year revenues and 15 per cent in fixed, aligned with historic trends. By summing these forecasts and allowing for applicable corporate taxes, we determined the resulting cost profiles and free cash flow for each year. The results are shown in figure 8 on page 18.

Using this model as a baseline, we then carried out scenario analyses to simulate the capex and opex reductions that would be needed to maintain free cash flow as a percentage of revenues, with free cash flow declining in line with revenues.

2. Potential growth opportunities. For value-based pricing, to evaluate the impact of additional revenue from the launch of new services in both fixed and mobile, we looked at examples of operators who have launched such services and the price premium they have been able to achieve. We then extrapolated this for the whole market, phasing in the uplift over the years to 2020.

- For mobile, our 2020 scenario assumption is that 35 per cent of clients will upgrade to higher-priced tariffs and that the uplift will be 25 per cent. We applied this uplift to the data portion of mobile operators' revenues.
- For fixed, we again assumed 35 per cent uptake of high-speed services by 2020 and a 10–15 per cent uplift in ARPU for those that do. This is conservative.

For managed services revenue opportunities, we built a forecast of European content distribution network revenues to 2020, including the potential for 'last-mile' distribution services. We then defined a range based on operators being able to capture 20–50 per cent of the total, depending on the scenario.

The basic approach for new services was to first develop estimates for the value of the sector as a whole and build a forecast out to 2020 as necessary. We then made an assessment of what proportion of the opportunity is addressable by telcos. Here we factored in inputs from the interviews regarding operators' own ambitions and used a range to reflect the variety of opinions. We then used an estimate of the margins that operators are likely to gain from these opportunities to determine the potential cash flow generated.

- M-payments. We developed a forecast of mobile transaction values (all technologies, including transactions charged to a mobile user's account and transacted via the mobile device and network to a financial account such as a credit card). We assumed a transaction charge of 2 per cent, and our range of what proportion of these operators could capture was 10 to 50 per cent, which will be partially dependent on the technology platform that succeeds.
- M-advertising. We built a forecast for all m-advertising, which includes banners, video, and mobile search-related. Our expectation is that mobile operators could capture between 5 and 10 per cent of this value at the aggregate level. The actual percentage achieved will depend on the different types of advertising and the mix. For example, operators are unlikely to capture much value from search but will get more than 10 per cent if they develop a location-based push platform.
- M2M. We built a forecast for M2M services broken down to hardware, connectivity, and services. We assume that operators will capture the entire communications element and none of the hardware revenues. For the value-added services, we used a range of 10–50 per cent. The broad range reflects operators' varying expectations and ambitions across very different verticals and business models.
- IPTV. Our forecast for IPTV is based on both an increase in the number of customers and a rise in ARPU. We also included an ARPU uplift from the uptake of video-on-demand services. We then assumed that 60–90 per cent of this revenue will be captured by telecoms operators. Almost all fixed operators already saw this as a growth opportunity with growing total demand; the question is around what impact OTT services will have and how the market will be divided among them. It is worth noting that the variable costs associated with IPTV are substantial, as content providers will expect a high share of the revenues.
- Cloud services. We broke our forecast for cloud services down into software as a service (SaaS), platform as a service (PaaS), connectivity services, servers, and storage. We assumed operators would get 100 per cent of the connectivity services and a proportion of the other services. The range we used was 10–33 per cent of the non-connectivity service revenues.

3. Operational transformation savings. To assess the potential for transformation savings, we divided the model used for the as-is scenario—including the cost breakdown—into component cost types of network, IT, sales & marketing, customer service, and G&A costs forecast out to 2020.

For each transformation lever, we estimated the savings potential against each cost type and identified the incremental savings opportunity over and above the savings already assumed in the as-is scenario. The estimations were based on our experience of individual operator performance in comparable situations, covering radical internal cost transformation, network-sharing deals, and the synergies achieved due to full operator mergers.

Glossary

- **2G:** Second-generation mobile telecommunications standard
- **3G:** Third-generation mobile telecommunications standard
- **4G:** Fourth-generation mobile telecommunications standard
- **ARPU:** Average revenue per user: a measure of the revenue generated on average per mobile user
- **B2B:** Business to business: describes transactions between two businesses, as opposed to between a business and a consumer
- **Capex:** Capital expenditure: expenditure used to fund investments
- **CDN:** Content distribution network: a system of computers containing copies of data, placed at various points in a network, so as to maximize bandwidth from clients throughout the network. A client accesses a copy of the data near to the client, as opposed to all clients accessing the same central server, thus avoiding bottlenecks near that server.
- **Cloud services:** Services that are delivered over a network rather than hosted locally
- **Connected car:** A car that is connected to the Internet
- **Connectivity providers:** Any of the network operators offering Internet connectivity services, whether wholesale services to other telecoms operators, retail services to consumers, or business-oriented services to enterprises
- **Digital Agenda:** A European Union strategy to promote digital technologies and to deliver sustainable economic growth
- **DOCSIS 3:** Data Over Cable Service Interface Specification: an international telecoms standard used to provide high-speed data services over cable TV systems
- **DSL:** Digital subscriber line: technology providing Internet access over copper telephone lines
- **EB:** Exabyte: 1 quintillion (10^{18}) bytes, a measure of digital information storage
- **E-wallets:** A technology that allows the user to easily make digital payments, typically by mobile phone, which is also known as mobile wallet
- **ETNO:** European Telecommunications Network Operators' Association
- **FCF:** Free cash flow: a measure of financial performance (operating cash flow minus capex)
- **GB:** Gigabyte: 1 billion (10^9) bytes, a measure of digital information storage
- **GSMA:** GSM Association: global association of mobile network operators
- **ICT:** Information and communications technology: a term that refers to the wider information technology world, including (amongst other things) telecommunications networks
- **IPTV:** Internet protocol television: see 'video over Internet'
- **ISP:** Internet service provider: see 'connectivity provider'
- **ITU:** International Telecommunications Union: United Nations agency responsible for telecommunications services

- **LTE:** Long-term evolution: a fourth-generation standard for wireless communications technology
- **M2M:** Machine to machine: refers to the ability of two devices or systems to communicate with one another, either in a wired or wireless fashion, often taking the form of sensors relaying information back to a system
- **Mbps:** Megabits per second: a measure of data transfer speed
- **M-advertising:** Advertising via mobile technology
- **M-payments:** Making payments via mobile technology
- **MTR:** Mobile termination rates: the charges fixed and mobile operators must pay to another mobile operator for their customers to complete calls on the latter's network
- **Net neutrality:** The principle that all data on the Internet should be treated equally
- **NFC:** Near field communications: a set of standards for a wireless technology that allows devices to communicate with one another
- **NGA:** Next-generation access: refers to high-speed data services
- **Opex:** Operating expenditure: expenditure other than that used to buy or increase the value of fixed assets
- **OTT:** Over-the-top: a variation of name used to refer to the services offered by online service providers. It refers to the fact that the services are offered over the Internet infrastructure.
- **RAN:** Radio access network: part of a mobile telecommunications system that allows mobile devices to connect to the core network
- **SIM:** Subscriber identity module: a card, for use in mobile devices, that stores a user's mobile identity information, including the phone number
- **Smart meter:** A type of energy meter that allows for two-way communication with an energy grid
- **Smart TV:** Describes a TV with integrated access to various Internet and OTT services
- **SMS:** Short message service: text messaging standard used by mobile devices
- **Streaming:** Data being constantly delivered to an end user, typically to provide a music or video service, as opposed to download and storage
- **VAS platforms:** Value-added services platforms: platforms for services that are additional to the core communications services of phone and SMS messaging
- **Video over Internet:** Video-driven content delivered via Internet to PC or TV, instead of a traditional radio frequency broadcast. This includes catch-up TV, video-on-demand, and live television. Excludes contents delivered through managed services such as IPTV.
- **VoIP:** Voice over Internet Protocol: transmission technologies for delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet

Sources of information

Research agencies and research papers

- Alexa (www.alexa.com), September 2012
- Analysys Mason, 'Policy Orientations to Reach the European Digital Agenda Targets', May 2012
- Charles River Associates, 'Costing methodologies and incentives to invest in fibre', July 2012
- Cisco, 'Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2012–2017', 2012
- comScore, 'The 2010 Europe Digital Year in Review', February 2011
- Ecorys, 'Steps Towards a Truly Internal Market for E-communications', November 2011
- European Central Bank, Payment Instruments and Large-value and Retail Payment Systems Statistics Database
- Eurostat, Public Health Statistics Database
- Gartner, 'Forecast: Mobile Payment, Worldwide, 2008-2015', May 2011
- GSM Association and PwC, 'Touching Lives through Mobile Health: Assessment of the Global Market Opportunity', March 2012
- IDC, Europe, Middle East and Africa Telecom Services Database
- IDC, 'European Public Cloud Forecast Update', November 2011
- 'Net Neutrality: Act II', *Communications & Strategies: DigiWorld Economic Journal*, no 84 (2011)

Press articles

- ABI Research, '4G Data is Priced 20% Higher than 3G', press release, 4 October 2012
- Alex Barker and Daniel Thomas, 'Europe Stands Firm on Orange Austria Deal', *Financial Times*, 17 October 2012
- April Dembosky, 'Facebook Mobile Usage a Boon to Network Operators', *Financial Times Tech Blog*, 19 October 2012
- Phil Goldstein, 'AT&T's Stephens: We'll Cash In on LTE Investment', *Fierce Wireless*, 15 August 2012
- Paul Rasmussen, 'France Telecom's Richard: "There Will Be a Premium" for LTE Pricing', *Fierce Wireless*, 3 October 2012
- Paul Rasmussen, 'French SMS Traffic Slumps in Q3, as Bundling and OTT Apps Are Blamed', *Fierce Wireless*, 9 November 2012
- Paul Rasmussen, 'Vodafone, FT Orange Mull Bids for Spain's Yoigo', *Fierce Wireless*, 26 September 2012
- Daniel Thomas, 'Need for Revenue Drives Rise in Telco M&A', *Financial Times*, 10 September 2012
- Daniel Thomas, 'Weve Targets Personalised Mobile Services', *Financial Times*, 6 November 2012

Analyst reports

- Markit Equities Research, 'European Telcoms', July 2012
- Deutsche Bank Research, 'Mobile Payments: On the Shoulders of Contactless Payments', August 2011
- J.P. Morgan Cazenove, 'Wireless Services', March 2012

Annual reports and financial data

- Multiple company annual reports and financial statements, Bloomberg

A.T. Kearney resources

- 'A Viable Future Model for the Internet', December 2010
- 'The Internet Economy in the United Kingdom', January 2012

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