Future network operations
Introduction

Our 2012 global network study confirms that the way communications operators provision and manage their networks will continue to undergo profound change.

In response to challenges including rising cost pressures and dramatic increases in data traffic, operators are making growing use of third-party providers for network roll-out and systems integration projects, and are increasingly turning to managed services suppliers to run all or part of their network operation. Network sharing is also on the increase.

In the coming years, operators expect to face a new wave of capex and regulation as they make the transition to “all-IP” networks. In combination, these pressures will push the industry towards possible further consolidation and a wider spectrum of business/operating models.
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EY conducts an annual study of the market for services purchased by telecoms operators from equipment vendors, with the objective to estimate the size of the global market for these services.
To compile the study, we have collected primary data from telecoms operators each year, using questionnaires and interviews. Since each annual study has been based on data collected the previous year, the report has provided a retrospective snapshot of the market’s size. The research has been conducted under a confidentiality agreement, with only market estimates calculated upon the collected data reported to our client. Over the years, more than 100 operators have taken part in the study, including very large and very small operations on all continents.

Since our study started in 2003, operators’ combined operating and capital expenditure has grown by about 30%. Over the same period, the network-related services market has just about doubled in size, indicating that operators are funneling an increasing proportion of their operating and capital expenditures to third-party providers.

For the 2012 study, we have included forward-looking, qualitative questions in our interviews in order to gain insights into what operators expect in regard to network management in the years to come. During the course of this year’s research program, we have interviewed key decision makers – including CEOs, CTOs, strategists and business controllers – who between them run more than 60 fixed and mobile networks.

This paper summarizes the responses we received. The answers are grouped into three areas: the situation today; how respondents see the market developing over the next two to three years; and views on the longer-term outlook.

The interviews have tended to be free-ranging, with discussions on many interesting aspects of building and operating networks. It is quite clear that operators will face a number of major issues in the coming years, and that they will have to make decisions with far-reaching implications.

We wish to thank all the participants in the study for sharing their time and insights with us.
Network issues today

A daunting array of challenges...

Our 2012 study confirms that today’s telecoms operators face an unprecedented array of issues with profound implications for the future performance of their business – and even its continued survival in its current form. The current issues highlighted by the respondents are shown in Figure 1, led by the need for capital expenditure (capex) to service the growth in data traffic.

There are several drivers behind the capex demands. On the customer side, operators need to manage rapidly changing market conditions and dynamics, including declining fixed subscriber numbers, limited growth in mobile due to near-saturation in mature markets, downward pressure on average-revenue-per-user (ARPU) levels, the widespread move from voice to data, ongoing fixed to mobile substitution and other increased forms of competition such as over-the-top (OTT) players. In combination, these shifts are increasing the need for operating efficiency – a requirement that affects all types of operator in all regions, though the more mature markets are feeling the pressure more keenly. There is also a need for greater focus on subscriber retention.

Meanwhile, on the network side, operators have to manage fast-increasing bandwidth requirements driven by the explosive growth in data traffic – a shift that especially affects mobile operators, given the substantial rise in smartphone penetration. The resulting apparently insatiable hunger for bandwidth is creating a need for massive investment in capacity and backhaul.

Figure 1. Key issues facing operators today

- Increased competition
- Spectrum availability
- Other
- Regulation
- Need to improve margins
- Capex demand due to data growth

Source: EY operator interviews
There are also challenges on the regulatory front, with a lack of certainty in many markets on the regulatory regime for next-generation networks. At the same time, the availability and costs of future high-bandwidth mobile spectrum for LTE/4G are often unclear or only at the proposal stage.

**...with two key impacts on network management**

How are these current issues affecting operators’ network strategies and operations? In most cases, they have had two main effects:

- The first is an increased focus on the business case for next-generation network roll-outs and optimization programs. These projects are no longer regarded as a given in light of the related uncertainties, risks and costs.
- The second is an increased focus on cost containment and reduction, driving efficiency to boost strategic agility and free up resources for value-creating projects and programs.

**Key network capital expenditures in 2011**

Against this background, operators have had to make significant capital investments during 2011. For many, the main focus has been investing in their network assets, including network expansion, upgrade and optimization initiatives.

For mobile network operators, these investments have included roll-out of 3G capacity and coverage, targeted 4G roll-outs in some markets, and implementation of fiber backhaul in those markets where data volumes are significant and growing.

For fixed network operators, the main investment priority during the year was rolling out fiber next generation access. And across the industry, there has been a drive to invest in converged internet protocol (IP) core networks.

Alongside these network-oriented investments, 2011 also saw operators spend significant amounts on enhancing their customer billing and retention, and on acquiring rights to new spectrum.
Current operator approaches to network management

As network roll-outs and upgrades continue, the need to improve operational efficiency is prompting operators in all regions to adopt three specific approaches to network operations.

1. Using vendors or contractors for network roll-out and system integration

Network roll-out and systems integration services relate to the planning, installation and deployment of network equipment. Network roll-out service encompass the design and deployment of the access and transport network infrastructure, while systems integration services concern both the design and integration of network systems, such as IP networks and IP multimedia subsystems (IMS systems), as well as the application development, integration and deployment of the network operating and service provision IT systems.

An increasingly common strategy among our survey respondents is to have network roll-out and systems integration work carried out by vendors or contractors rather than in-house teams. The importance of the third-party expenditure on these services is shown in its rising share of operator capital expenditure, as shown in Figure 2.

Figure 2. Increasing importance of network roll-out and systems integration services in operator capex

Source: EY analysis

The rationale most commonly cited for this approach is greater capital expenditure efficiency. However, it also brings the further advantage that these services are provided by deep subject matter experts and at a faster pace. In general, vendors become involved when the roll-out or integration is especially complex or is being carried out on a very tight schedule. For simpler and more routine projects, operators usually employ smaller contractors.
2. Increased use of managed services

Managed services are long-term outsourcing contracts covering an operator’s entire network operation, or a specific part of it, such as field services. Typically, the vendor acts under a service level agreement (SLA) with full responsibility for the activity specified in the contract. The outsourcing services provided under these contracts can range from a number of functions (such as field force maintenance) to full network operations transfer to the managed services provider.

A further response to the need for operational efficiency is increased use of managed services contracts. Over the past three years, some 81 of these contracts have been entered into or renewed. Given this relatively high number of managed services contracts, it is clear that most operators today are open to managed services of varying scope: 80% of the respondents to the survey say they outsourced at least one network function, with most having some field maintenance functions outsourced.

![Figure 3. Scope of outsourcing agreement](image)

Source: EY operator interviews

However, as Figure 3 shows, some operators have gone further, opting for full outsourcing of network operations spanning areas including end-to-end service management, optimization, network management, operational engineering, and construction and integration.

In setting up these managed services contracts, operators’ main goal has been improved cost efficiency – a result of the outsourcing vendor’s ability to realize economies of scale, and the global knowledge and experience of the delivery partner. In general, the decision to contract for managed services is made at operating-company level based on local circumstances.

While managed services contracts have cost efficiency built in, operators still need to see hard evidence of major cost advantages before they will be convinced to outsource more activities. As Figure 4 confirms, not all the respondents’ experiences of managed services are positive, and many remain uncertain over the results.

![Figure 4. Has outsourcing achieved its goals?](image)

Source: EY operator interviews

Future network operations
3. Adoption of network sharing and alternative ownership models

The pressure for huge investment in networks is also seeing mobile operators increasingly consider network sharing and alternative ownership options as potentially more cost-effective ways to manage their networks. Most of the participants in our survey are now involved in network sharing, primarily in sharing of passive infrastructure. In light of the ongoing constraints on investment in new network roll-outs, passive sharing of tower and related infrastructure is continuing to increase, as is sharing that also includes active equipment. The increase in the number of network sharing deals since 2007 is shown in Figure 5.

Figure 5. Cumulative number of announced network sharing deals: 2007-2012 (YTD)

Sources: Telecom Finance, Thomson, company press releases
There is also a trend toward sale and leaseback of tower infrastructure. Operators’ use of this technique varies on a regional basis, reflecting a lack of infrastructure players in some markets, and the fact that some regulatory authorities do not allow it. There is also a degree of uncertainty over the extent of the benefits to operators – and over whether the tower companies will share the same objectives as the operators in the future. In tower transactions, the contract and counterparties involved vary from an outright sale to a third-party infrastructure provider, to a transfer of assets to a tower company created and wholly owned by the operator itself, either on a stand-alone basis or in a joint venture.

Figure 6. Cumulative total number of announced tower deals: 2005-2012 (YTD)

Sources: Telecom Finance, Thomson, company press releases
Network issues in the medium term

Key trends in the telecoms industry over the next two to three years

The next three years, through 2015, promise to be a period of intense activity for operators, during which the industry will undergo the transition to next generation and “all-IP” networks. Above all this transition needs to be rapid, together with the related trade-off with capital expenditure.

Operators will also see a continuation of the migration from voice to data, requiring them to tackle the rumbling questions around how to monetize data. Fixed and mobile services will converge fully as consumers seek a true multi-screen presence and experience. And this convergence at the service level will be mirrored by ongoing consolidation of market players, often with the aim of combining complementary capabilities and portfolios. The trend toward saving costs and risks through asset sharing will also continue.

Throughout all this network-focused activity, there will be an increased emphasis on customer service, accompanied by a greater focus on brand building and customer retention. And the source of differentiation will move decisively from the network to customer service, a shift that has already happened in mature markets, and that will now increasingly occur in emerging markets as well.

However, across the whole industry landscape, a vital area of uncertainty remains the direction that regulation will take. Tracking and responding effectively to regulatory change will be key priorities for all operators worldwide.

All of these trends are reflected in operators’ views of the medium-term issues they will face (see Figure 7) – with respondents anticipating that capex will remain the biggest challenge, followed by regulation and then issues related to network migration, margin improvement and customer experience.

**Figure 7. Issues facing operators in the next 2–3 years**

- **Need for improved customer experience**
- **Continued margin improvement**
- **Network migration/evolution**
- **Regulation**
- **Capex requirements**

Source: EY operator interviews
Capital investments in the medium term

The industry’s capital investment profile over the coming two to three years will largely be “more of the same,” with a continuation of current investments in fiber, as well as in roll-outs of IP-based core converged networks (both mobile and fixed), and mobile backhaul, transmission and coverage. In many markets, there will also be a need to invest in mobile spectrum.

However, one significant change will be an increase in IT capex, focused particularly on upgrading customer support systems and enhancing service provision.

Anticipated impacts of capex trends

Most respondents believe that the continued need to fund heavy capital investment in their networks in the medium term will have two main effects.

The first will be greater interest in new and different operating and ownership models, especially around network sharing and other infrastructure deals. Some respondents also raised the possibility of more joint ventures and outsourcing in the IT domain.

The second impact of ongoing capex pressures will be new and renewed managed services contracts with increased scope, as operators decide to outsource ever more elements of their network infrastructure and operations.

However, it should be noted that the operators in our study raise a number of questions about further outsourcing, leading some to consider in-sourcing services that have previously been outsourced. This trend is being driven partly by frustration with the lack of control and flexibility over outsourced network operations, and partly by a belief that the major cost efficiencies have now been achieved, meaning the operator can take back a streamlined operation.

A further aspect arising during our interviews is that operators wish to have better control over the customer-facing parts of the operations. As fiber is rolled out, the third-party providers of services such as roll-out support have become responsible for installations in customer premises, including set-top boxes in people’s homes. This area is seen as key to the customer experience, and operators are wary of entrusting it to external suppliers.
As Figure 8 illustrates, the issues that the telecoms industry expects to face over the longer term are largely those it is currently grappling with. However, these all-too-familiar issues are set to intensify and escalate as competition increases and consumers continue to migrate toward digital behaviors.

The industry will see a continuing long-term increase in demand for IP-based services – especially ubiquitous mobile broadband access. To help free up the necessary capital for investment in these services, operators will take steps to optimize their investment returns, including carefully managing the timing of closing old networks, while simultaneously executing plans to reduce the cost base and improve the customer experience. For fixed operators in particular, a key challenge will be finding an economically viable solution to mass-market fiber build to the home.

In combination with these ongoing trends, operators expect to face acceleration in mobile sector consolidation, along with further consolidation among industry vendors. The availability of spectrum to meet demand will also continue to be an issue for the long term.

Source: EY operator interviews
Impact of long-term trends

In the years to come, the long-term trends outlined above will significantly affect the industry’s ownership structures and operating models. Figure 9 illustrates what survey respondents expect the effects to be.

These effects will emerge against a background of evolving market dynamics and changing economics that will increase the potential for new network ownership models based on joint ventures. However, the extent to which these models are adopted will depend on three unpredictable variables:

- The readiness of industry regulators and competition authorities to grant approval for such deals
- Operators’ perception of the value and importance of ownership, which is likely to differ by market
- The level of investment required in next generation networks, which will also differ by market

Over time these variables may push the industry towards possible further consolidation and a wider spectrum of business/operating models. Policymakers and regulators could well play an important role in such a development, as they may seek to ensure universal access to high-speed networks for all parts of the population. This in turn could result in a push toward a national broadband infrastructure, owned either by the state or by pure infrastructure providers.

Figure 9. Impact of long-term issues on telecoms market

![Bar chart showing percentage of participants citing issues](chart)

Source: EY operator interviews
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