

Executive Summary

This tenth edition of the biennial *OECD Communications Outlook* highlights transformations in the sector and investment in next-generation communication networks. It details the strong, steady growth of subscriptions and revenues in the telecommunication sector despite declining prices facing end users. This edition also looks at issues surrounding the expansion of the Internet as well as how broadcasting markets are evolving with respect to high-speed data networks. This edition of the *Communications Outlook* also looks at key regulatory trends designed to encourage competition and growth.

The upgrade to next-generation networks (fixed and wireless)

Telecommunication companies which survived the bursting of the “dot-com bubble” in 2000 generally emerged stronger and more agile than before. This agility has served them well when facing dramatic changes in telecommunication markets. Communication operators continue upgrading their networks in order to stay competitive and increase revenues. Fixed line and cable providers are investing in fibre-optic infrastructure and wireless carriers are paying for new radio-interface upgrades in order to offer higher-speed data services.

This transformation has been fueled by investment. Telecommunications investment reached USD 185 billion in 2007, an increase of 9% each year from 2005. Investment grew over the past four years, in sharp contrast to the strong investment declines observed between 2000 and 2003.

Communication infrastructure investment plays an increasingly important role in total investment within a country. In 2007, telecommunication investment grew to 2.2% of the gross fixed capital formation within the OECD and telecommunication operators are commonly among the largest private investors in their respective economies.

Despite strong growth through 2007, the global financial crisis evolving in 2008-2009 is likely to dampen investment plans of many operators and may slow investment plans in core networks. The crisis may also negatively impact on a number of new entrants who depend on access to capital in order to expand and compete with better-funded incumbents. Some governments, recognising the economic importance of broadband networks within the economy, are investing in extending and upgrading high-speed access as part of fiscal stimulus packages.

Steady revenue growth

People increasingly rely on telecommunication services for social and economic interactions. The percentage of household budget assigned to communication services has increased relative to other budgetary areas over the last two decades. Households devote an average of 2.2% of their budgets to communication services, underscoring demand for services even during times of economic downturn.

Telecommunications is a USD 1.2 trillion market in the OECD. Telecommunication markets have expanded at a fairly constant annual growth rate of 6% since 1990, even during economic downturns. The fact that operators have been able to maintain historical growth levels in the face of declining per-minute calling prices shows an ability to adapt to quickly changing market conditions and to develop new income streams.

Voice remains the largest revenue source for operators despite declines in calling prices for both fixed and mobile. Mobile revenues accounted for 41% of all telecommunication revenues in the OECD in 2007, up from 22% just a decade earlier. Ten countries now have mobile sectors which are larger than the fixed sector in revenue terms.

Subscriptions growing

There have been two major growth areas in telecommunication services in the previous two years — mobile and broadband. Mobile and broadband subscriptions together accounted for 74% of all communication subscriptions in 2007. Mobile alone accounts for 61% of all subscriptions while standard phone lines have dropped to 26%. This is a dramatic turnaround from the year 2000 when there were more fixed line subscribers than mobile.

The total number of fixed, mobile and broadband subscriptions in the OECD grew to 1.6 billion in 2007 for just over 1 billion inhabitants. To emphasise how our ability to communicate has changed, there are seven access paths in 2007 for every access path in 1980. The sheer increase highlights the growth of the telecommunications industry over this time.

Mobile subscriptions grew at a compound annual growth rate of 10% over the previous two years to push the number of OECD mobile subscriptions to 1.14 billion by 2007. This is an effective penetration rate of 96.1 mobile subscribers per 100 inhabitants. Italy had the highest penetration rate with 151 subscribers per 100 inhabitants and only nine countries had less than one subscription per person.

Mobile growth has been strong but transitioning subscribers to third-generation mobile networks has taken longer than originally planned. As of 2007, only 18.2% of reported OECD mobile subscribers were on third-generation networks.

The other prominent growth area has been broadband. Broadband is now the dominant fixed access method in all OECD countries. In 2005, dial-up connections still accounted for 40% of fixed Internet connections but just two years later that percentage had fallen to 10%. Dial-up has practically disappeared in Korea where it now only accounts for fewer than two out of every 1 000 Internet connections.

The growth of broadband subscriptions has also helped protect fixed line operators from much more dramatic line losses and has increased the value of cable networks around the world. The number of broadband access paths has grown 31% per year over the previous

four years. DSL remains the leading broadband technology, accounting for 60% of all broadband subscriptions in June 2008. Cable represents 29% while fibre-based connections are 9%. The remaining 2% of connections are over fixed-wireless, satellite and broadband-over-power lines.

The year 2008 also marked a significant shift in fixed broadband technologies. In June 2008, Japan and Korea became the first two countries to have more fibre-based subscriptions than either DSL or cable.

Prices falling

The impressive subscription growth between 2005 and 2007 in part reflects more attractively priced offers from operators. Prices have tended to fall for communication services over time on all platforms.

Over the previous 18 years, residential users saw the real price of residential fixed-line phone service fall roughly 1% per year while business prices fell 2.5% per year. The widespread availability of voice-over-broadband services continues to push down fixed-line calling prices. Many voice-over-broadband plans now offer flat-rate calling plans nationally or internationally.

Mobile subscribers also benefitted from declining prices between 2006 and 2008. The average prices of the OECD mobile baskets (a set number of calls and messages per year) fell by 21% for low usage, 28% for medium usage and 32% for the highest consumption level over the two year period.

Prices may be falling but the composition of voice calls is also shifting. The number of minutes of communication per mobile phone is increasing while the minutes on fixed networks are decreasing. Data between 2005 and 2007 suggest people are making fewer domestic calls on the fixed network in most countries. When people do use fixed networks they are increasingly making calls to users of mobile phones.

Broadband prices have fallen as well over the same time. OECD broadband prices declined significantly over the previous three years. Prices declined an average of 14% per year for DSL and 15% for cable between 2005 and 2008. Operators have been able to increase broadband revenues through attracting new customers and bundling broadband with other services, particularly voice.

The average price of a low-speed connection (advertising downloads at 2 megabits per second or less) was USD 32 per month in September 2008. At the other end of the scale, broadband connections with download speeds advertised as faster than 30 megabits per second averaged USD 45 per month.

The Internet is expanding but current IPv4 addresses are running short

The growth in broadband subscriptions has helped fuel the expansion of the Internet and also been one source of its growing pains. The number of Internet hosts worldwide grew at 33% compounded annually between 1998 and 2008 to reach 540 million hosts in January 2008. Over half of all hosts (287 million) had a generic, top-level domain rather than one tied to a country code.

Networks in OECD countries comprise the majority of networks attached to the Internet. As a network of networks, OECD countries accounted for 74% of the 26 600 networks present in the global routing tables in 2007. The United States has the largest share of networks with an autonomous system assignment – comprising 43% of the world total at the end of 2007.

This growth in the number of networks, and devices attached to those networks has led to a shortage of unique Internet addresses used to identify individual devices connected to the Internet. As a result, there is a need for all network operators to upgrade to a new Internet addressing scheme, Internet protocol version 6 (IPv6). Based on allocation trends, experts estimate that the addresses in the current scheme (IPv4) will run out in 2011 or early 2012 (January 2009 projections).

Television broadcasting evolving

Operators are investing heavily in new, high-speed broadband networks and this allows a much richer audio-visual experience than early broadband connections were capable of transmitting. As a result, the audio visual landscape is rapidly changing with audio and video now delivered over a range of different networks and devices. Television is no longer the sole conduit for diffusion of video data as consumers now watch video content on an array of devices.

Broadcasters, telecommunication operators (fixed and mobile), Internet service providers, content aggregators, advertisers and users are all active parts of a new, converged market. Content is repackaged to ensure that it is accessible over all available networks and devices. Many electronic equipment providers, from mobile phones to handheld audio/video devices are also trying to ensure that their users can access content directly and away from home.

Traditional linear diffusion of content maintains an advantage over other media because of the near ubiquity of televisions in households. On average, 95% of all households in the OECD have at least one television. Only six countries have television penetration of less than 90% of households. This provides a strong base for terrestrial, cable and satellite broadcasters. At the same time, it represents a challenge to new media operators who try to attract viewers to other devices.

Television has become a lucrative potential market for DSL providers and a historical revenue stream to protect for cable operators. A number of DSL providers have been successful at using television over DSL as a way to boost their revenues.

Regulatory changes to support growth

Broadband, and with it the Internet, is often viewed as a general purpose technology having a wide impact on a large number of industries, on social interaction and resulting in a range of new innovative services which have diffused rapidly across economies. Broadband is viewed as an enabler of productivity and economic growth, but its impact on economies will depend on broadband being used by business and consumers, which requires access to broadband at low prices and good quality. In turn, these factors are closely linked with competition in the market.

Investments in new fibre networks will allow for much higher speeds for end users but consumer benefits may depend on the competitiveness of markets. The high fixed investment costs for new fibre networks to users means a limit to the number of competing fibre networks a specific geographic area may be able to support. Facilities-based competition may be difficult to develop in some markets. Investment in new technology such as next generation access networks, is taking place mainly in urban areas. There are concerns about the implications this may have in creating new digital geographic divides and whether alternative technologies, such as high-speed wireless, are sufficiently adequate to provide rural and remote areas with sufficient capacity for emerging services. With these concerns in mind, regulatory frameworks, which had reached a certain stability and maturity during the last decade, are in many cases being reviewed in order to ensure that competition prevails.