

Redefining the digital divide

A report from The Economist Intelligence Unit



Commissioned by



HUAWEI

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About the report

Redefining the digital divide is an Economist Intelligence Unit report. Kim Andreasson was the author and Laurel West was the editor. Denis McCauley provided advice and guidance throughout the project. The report draws on a survey of 218 government policy-makers and telecommunications executives, all of whom were familiar with discussions of the digital divide in their country. The survey findings were supplemented by wide-ranging desk research and interviews with experts to uncover gaps in digital access and usage in six large countries. The report was commissioned by Huawei. The Economist Intelligence Unit bears sole responsibility for the content of this report. The findings do not necessarily reflect the views of the commissioning organisation. Our thanks are due to the following people for their time and insights (listed alphabetically by last name):

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- John Stanton, CEO, Communications Alliance, Australia
- Gopa Kumar Thampi, founding member, IT for Change, India
- Julian Thomas, chief investigator and project leader in the ARC Centre of Excellence for Creative Industries and Innovation (CCI), and director of the Institute for Social Research (ISR), Swinburne University, Australia
- Barbara Ubaldi, E-government project manager, OECD

Executive summary

As many governments and businesses race to provide ever more advanced digital services, those who can't take advantage of them fall ever further behind in terms of socio-economic opportunities. In many parts of the world, the so-called digital divide of today is an issue that goes beyond a gap in Internet access. It now encompasses access to higher broadband speeds and the willingness and ability to use them, or the degree of "useful usage" in the public and private sectors alike.

In a survey of 166 telecommunications executives and 52 government policy-makers conducted for this report, there was agreement that digital skills—a person's ability to access, adapt and create knowledge through the use of information and communication technologies (ICT)—are very important today and will only become more so in the years ahead.

But how to ensure equality of opportunity among businesses and citizens, which in turn can have implications for a country's growth, is a matter of debate. The strategies for overcoming the digital divide vary among countries, both in terms of leadership, funding and technologies, and do not necessarily address underlying gaps, such as affordability, usage, and relevance of content.

Today, it is time to reconsider the nature of the digital divide. As some gaps have narrowed over

the past decade, others have widened or emerged as new challenges. Redefining the digital divide from a technological problem to one of usage gaps is important to better understand the path towards a more inclusive digital society from which all stakeholders can benefit. This requires an integrated strategy that centres around those who have the most to gain: people.

This report is based on wide-ranging desk research, the aforementioned survey, and interviews with experts from six large countries (Australia, France, India, Russia, the UK and the US) on what is currently being done to bridge existing and emerging digital divides, in particular the challenges of usage.

The key findings of the research are as follows:

- **Redefining the digital divide is necessary to understand its underpinnings.** Efforts to provide basic and higher-speed infrastructure have improved access to ICT around the world, both over fixed broadband and wireless solutions. At the same time, adoption and usage rates, in particular whether businesses and citizens have the capability—and interest—to use digital tools to enhance their socio-economic situation, have been largely ignored, thus widening the usage divide between those who possess digital skills and those who do not.

- **Strategies vary widely as countries aim for a digital society.** In part because the digital divide is a relatively new challenge that continues to evolve, there are few lessons from which to learn, while targets by which to measure implementation outcomes are still years away. In the absence of clear lessons, countries are forging ahead in their own directions. Some have based their strategies on inclusive—but expensive—historical telecommunications policies; others are looking to the private sector to fill gaps in deployment, thus risking uneven development.

- **Government and industry disagree on funding.** Funding is the biggest issue of contention between government and industry in bridging the digital divide, according to survey respondents. In particular, the use of universal service funds (USFs) and investment models for less profitable urban/rural areas are cited as key obstacles to further development. Funding schemes also vary greatly between countries—from heavy government-led investment in Australia to a laissez-faire approach in the US and partial government support in Europe—and it remains to be seen which are more effective.

- **Competition is crucial but a strong regulatory environment is equally important.** A majority of survey respondents say regulation is a benefit rather than a burden in creating greater access to the Internet and ICTs. But in practice the experience in this regard varies. France and the UK have strong regulatory regimes that lead to competitive markets. In France, for instance, 86% of all households are covered by at least two providers. In contrast, a weak regulatory environment in the US has led to agreements between companies not to enter each others' territories and only 14% of households have a choice of cable operator.

- **Affordability remains a key obstacle to ICT adoption.** In a striking illustration that it is also a social divide, affordability is cited by survey respondents as the most serious contributor

to the digital divide. This is reinforced by research from the US and France that shows that broadband penetration levels fall by as much as half among lower income populations. But this can also be an opportunity. In Russia, a discount carrier that successfully targets economically disadvantaged groups illustrates potential commercial benefits for companies bringing affordable access to underserved areas.

- **Policy-makers and telecommunications executives are sharply divided on the key obstacles to solving the digital divide.** Policy-makers are twice as likely as telecommunications executives to cite ability/skills to use ICTs as the primary contributor to the digital divide today; conversely, executives are twice as likely to view the urban/rural divide and speed as key hurdles. This is understandable given that future revenue opportunities for the telecommunications industry are driven by reaching new customers (primarily in rural markets) and selling higher-end services, which require greater speed. Policy-makers, by contrast, are primarily concerned with social inclusion. But given that both groups must work together to solve many aspects of the divide, it also illustrates the need to find common ground between them.

- **The urban/rural divide is a key concern, in particular the need for greater speeds outside of major urban areas.** Almost three-quarters of survey respondents say there is an urban/rural digital divide in the country in which they are located. In the US, about 14.5m of the 19m people that lack broadband access are in rural areas. In areas where access exists, there is also a need for greater speeds in order to take advantage of new digital offerings. But in the UK, for instance, telecommunications companies are reluctant to provide high-speed services to one-third of premises without subsidies.

- **Awareness and relevance of content must be improved.** A key reason for lack of adoption and usage is that many businesses and consumers just

don't see the need for connectivity. According to an American survey, about one-half of people who do not use the Internet say they are just not interested, highlighting a lack of awareness. Businesses also fail to provide accessible services to many customers, including those with disabilities. Non-profit organisations are stepping in to help the public and private sectors, including telecommunications companies, to offer more inclusive services in the hope of raising awareness and promoting usage among underserved groups.

1 Introduction

The digital divide has largely been viewed as an access divide. This basic gap is narrowing. Now questions are being raised over the impact of this improvement on the ability of businesses, consumers, and even entire countries to reap the potential benefits of ICT. Hence, understanding the digital divide requires the term to be broadened to also include underpinning divides, such as quality of access—the speed—and the ability to use it, if efforts to close the gap are to create real benefits.

The issue becomes more urgent as the information society marches on, often led by the public sector itself. The UK government now delivers services “digital by default”, meaning they are conducted electronically in the first instance. By doing this, the government will save between £3.30 and £12 per transaction compared with an offline interaction, according to PwC, a consultancy.¹ Other countries have moved even further. Denmark, for example, has made online government service delivery legally mandatory by 2015, estimating that it will save 160m Euros annually by doing so. In less developed countries, moving to digital service delivery can not only save money but also help reduce the need for citizens to engage with public officials, some of whom may exploit them financially. This way, constituents can access basic services without the need for human interaction. This is the hope in India, where the government is rolling out Common Service Centers (CSC) offering greater access to e-government.

The private sector is also keen on bridging the digital divide, both in order to reach new customers in saturated markets but also to find skilled employees. When asked about the primary benefits to their business if the gap in access to the Internet and ICTs was overcome, executives most often cited greater opportunity to provide advanced ICT services and products (cited by 44%) (see Figure 1).

In the near future 90% of all jobs will require digital literacy, according to the European Commission (EC). In the survey conducted for this report, about three quarters (78%) of 166 telecommunications executives also say digital skills—a person’s ability to access, adapt and create knowledge via use of information and communication technologies—are very important to their organisation today with four in 10 (39%) saying it will be “a lot more important” just three years from now (see Figure 2). Among executives that say their company is “much stronger” than its closest competitors in terms of corporate profitability, 90% say digital skills are important to their organisation today and 48% say they will be a lot more important three years from now.

The need for greater digital skills extends to all levels. According to research conducted by Go ON UK, a non-profit dedicated to bringing people and organisations online, and Lloyds Banking Group, a UK bank, two thirds of all SMEs in the country do not transact online. “But it would be good for them because technology

¹ Champion for Digital Inclusion: The Economic Case for Digital Inclusion: www.parliamentandinternet.org.uk/uploads/Final_report.pdf

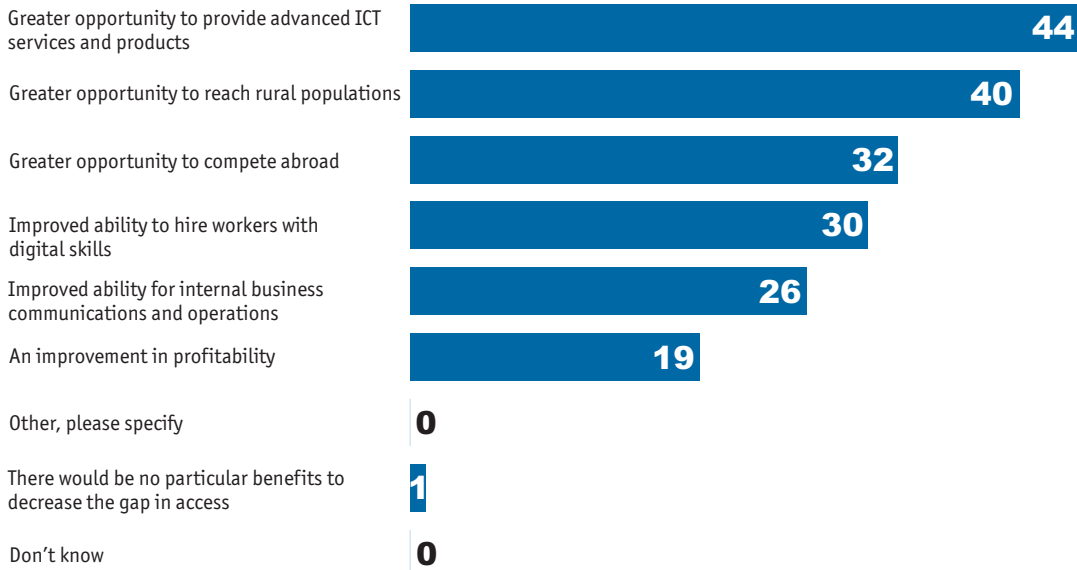
can cut costs and deliver better services,” says Clive Richardson, director of policy, Go ON UK. “It would also be good for the country as small businesses are the engine of growth.”

International estimates illustrate the potential economic benefits of improved Internet access, particularly to higher speeds. A commonly cited example is the World Bank’s 2009 report

Figure 1

Q If the gap in access to the Internet and ICTs in the country where you are located was overcome, what would be the primary benefits for your business?

Select up to two.
(% respondents)

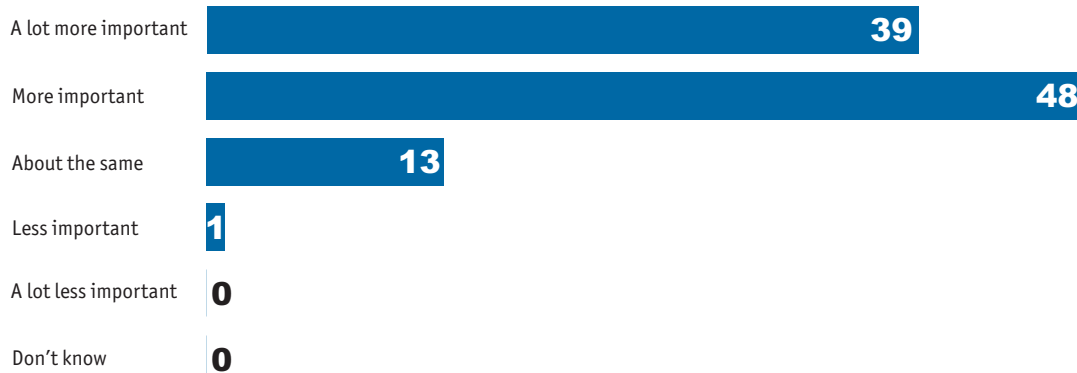


Source: The Economist Intelligence Unit survey

Figure 2

Q How important will digital skills be to your organisation three years from now?

(% respondents)



Source: The Economist Intelligence Unit survey

on Information and Communication for Development, which predicts an increase in economic growth by 1.38% in low- and middle-income countries for every 10% increase in broadband penetration. In Australia, a report from the Allen Consulting Group to the Department of Broadband, Communications and the Digital Economy, estimated that a 10% increase in connectivity would raise GDP by 0.44%.² When asked about the primary benefits to their economy if the gap in access to the Internet and ICT was overcome, policy-makers surveyed for this report cited improved economic growth as the top benefit (cited by 50%).

Narrowing the access gap but deepening the divide

Access rates to mobile subscriptions, mobile broadband subscriptions, fixed broadband subscriptions, and usage of the Internet have all improved significantly around

the world, according to the International Telecommunications Union (ITU). The proportion of people who have never been online continues to fall and groups who remain offline largely mirror social exclusion in general as they tend to be older, less educated, less affluent, or in some way disabled.

Access rates have simply outpaced usage rates. “The divide is getting narrower but it is also getting deeper,” says Julian Thomas, chief investigator and project leader in the ARC Centre of Excellence for Creative Industries and Innovation (CCI), and director of the Institute for Social Research (ISR) at Swinburne University in Australia.

“Great amounts of people are only online in a narrow fashion and not making full use of what’s available on the web,” adds Mr Richardson. His organisation conducted a survey together with the British Broadcasting Corporation (BBC) and

² http://www.dbcde.gov.au/__data/assets/pdf_file/0004/135508/Quantifying_the_possible_economic_gains_of_getting_more_Australian_households_online.pdf

Figure 3: Global access rates to the Internet and mobile devices, as well as usage
Key ICT indicators for developed and developing countries and the world (totals and penetration rates)

	Per 100 inhabitants								
	2005	2006	2007	2008	2009	2010	2011	2012*	2013*
Mobile-cellular subscriptions									
Developed	82.1	92.9	102.0	108.3	112.5	115.0	119.0	123.6	128.2
Developing	22.9	30.1	39.1	49.1	58.3	69.0	78.3	84.3	89.4
World	33.9	41.7	50.6	59.8	68.1	77.2	85.5	91.2	96.2
Active mobile-broadband subscriptions									
Developed	N/A	N/A	18.5	27.5	36.6	42.9	55.1	63.3	74.8
Developing	N/A	N/A	0.8	1.6	3.0	4.4	8.2	13.3	19.8
World	N/A	N/A	4.0	6.3	9.0	11.3	16.6	22.1	29.5
Fixed (wired)-broadband subscriptions									
Developed	12	15	18	21	22	24	25	26	27
Developing	1	2	2	3	4	4	5	5	6
World	3	4	5	6	7	8	8	9	10
Individuals using the Internet									
Developed	50.9	53.5	59.0	61.3	62.9	67.3	70.5	73.4	76.8
Developing	7.8	9.4	11.9	14.7	17.5	21.2	24.5	27.5	30.7
World	15.8	17.6	20.6	23.2	25.7	29.5	32.7	35.7	38.8

Note: * Estimate. Rounded values. N/A: Not available. The developed/developing country classifications are based on the UN M49, see: <http://www.itu.int/ITU-D/ict/definitions/regions/index.html>.

Source: ITU World Telecommunication/ICT Indicators database.

found that over one in five (21%) people in the UK don't have the skills or ability to communicate via email, use a search engine or conduct transactions online. Whether businesses and consumers have the capability—and interest—to conduct useful services or enhance their situation is the next frontier in bridging the digital divide.

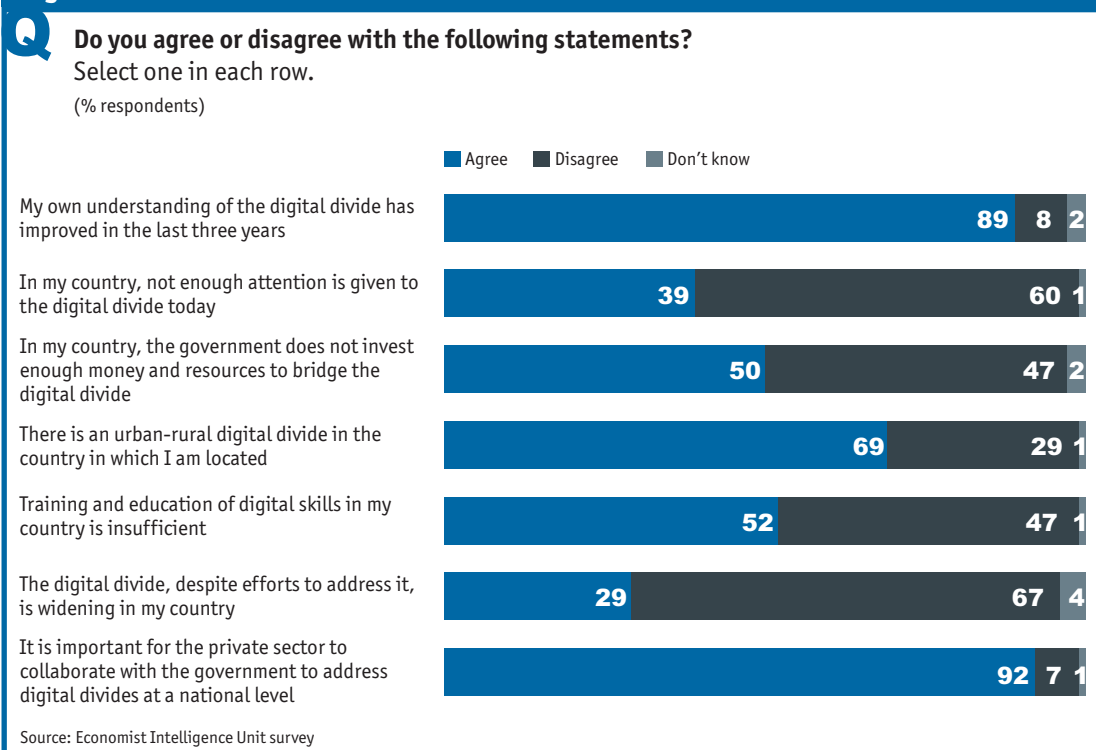
Redefining the divide

Current efforts to bridge the digital divide are primarily centred on improving access and enhancing speed, in part because these are easy to track and improvements can be measured. But today it is clear that the digital divide is closely intertwined with social divides, leading to uneven adoption and questions on whether access translates into benefits of useful usage. “Even if you have access, the question is what you actually use it for, something which is especially prominent in rural areas,” says Vikas Kanungo, chairman of the Society for Promotion

of e-Governance, former policy adviser on mobile governance to the Government of India and senior consultant to the World Bank.

According to the survey of 218 policy-makers and telecommunications executives conducted for this report, nearly one-third (29%) say the digital divide, despite efforts to address it, is widening in their country (see Figure 4). They cite income and affordability as the most serious contributing factor to the digital divide (named by 63%) as well as the area where closing the divide could have the greatest potential economic impact (cited by 48%). The ability/skills to use ICT was rated as the second most important factor (cited by 56% and 44% respectively). Yet, current efforts to bridge the digital divide are primarily centred around improving access and rolling out new services, both areas which intended recipients may not be able to use before the affordability and ability gaps are closed.

Figure 4



In contrast to the general trend showing rural areas to be behind in terms of ICT coverage, in Australia rural populations have long relied on technologies to access education and healthcare information, which today have largely moved online. “People in rural areas understand the benefits of technology because it provides convenience and flexibility,” says Helen Milner, CEO at the Tinder Foundation, a non-profit, noting that adoption rates in such areas tend to be higher than in urban areas despite lower Internet speeds. Yet, despite the obvious advantages of technology to the rural population, in many countries it remains unclear—and many governments do not prioritise—whether people have the ability or interest to use the Internet.

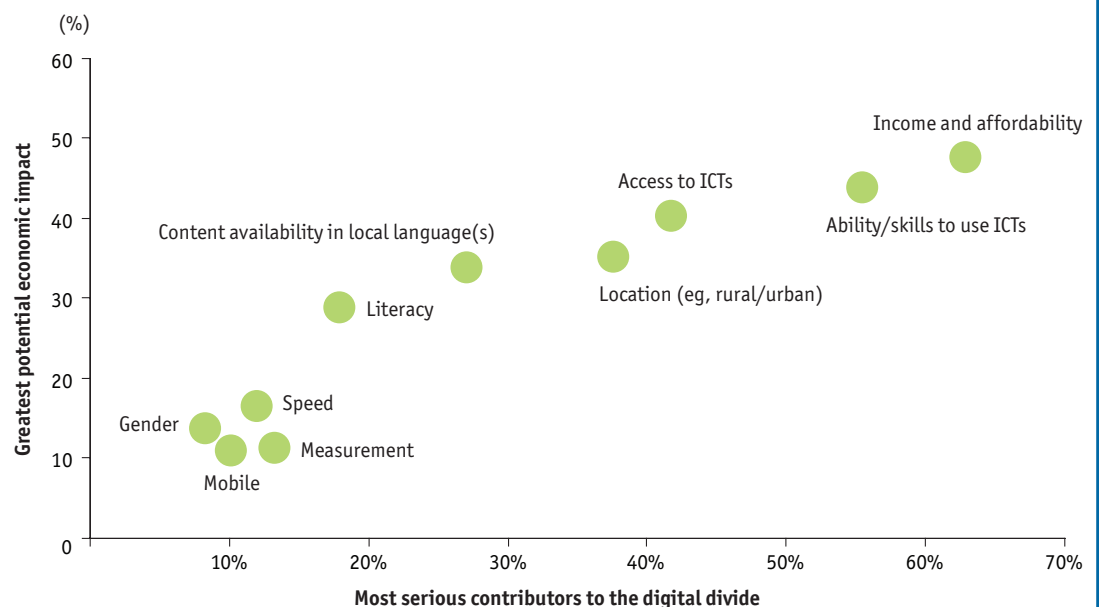
For instance, the OECD recently conducted a survey among its member states on the benefits of their open government data (OGD) initiatives and found that countries rated improved transparency, efficiency and accountability as the primary benefits but do not list stakeholder

engagement or usage among their top priorities. This is a costly omission as the European Union estimates the overall economic gains of opening up public data for re-use in new products and services could reach 40bn Euros a year. Barbara Ubaldi, e-government project manager at the OECD, believes better ICT schooling is important to raise awareness of usage issues in both the private sector and among public servants. To improve the situation, she currently works with OECD members to establish the necessary regulatory conditions for improved policies for information society skills development within the public sector and more broadly within societies.

Worryingly, one-half (51%) of survey respondents say training and education on digital skills in their country are insufficient. [Q8] “The strongest areas of concern today are around digital skills,” agrees Neelie Kroes, vice-president of the EC responsible for the Digital Agenda. To address it, Ms Kroes launched a joint initiative with Androulla Vassiliou, the Commissioner for

Figure 5

Most serious contributors to the digital divide vs areas of the digital divide with the greatest potential economic impact



Source: The Economist Intelligence Unit survey.

Education, Culture, Multilingualism and Youth, in September 2013 to enhance innovation and digital skills in schools, termed “Opening up Education”. Such efforts help broaden the definition of the digital divide, although further work needs to be done to address other underpinnings of the gap, such as affordability, regulation, funding, accessibility and awareness.

Lessons from around the world

The rapid rise of the information society has created new imperatives for policy-makers and executives alike to further bridge the digital

divide, particularly as it affects a broad range of socio-economic areas and because of the potential economic benefits. But progress is uneven—both within countries and across regions—and the process of access, access to higher speeds, usage, and useful usage follows patterns of development.

This report looks at six large countries around the world that comprise about 25% of the world’s population (Australia, France, India, Russia, the UK and the US) to identify what they are doing to further bridge the digital divide, in particular through their broadband strategies.

Definition:

For the purposes of this report, the digital divide refers to the unequal ability to access and use ICT. We consider fixed and mobile networks and devices with equal weight, but also attach importance to the applications and services that run over those networks.

2

Strategies for overcoming the divide

Figure 6: An overview of six countries

Country	Current Internet users (per 100)	GDP per capita (current USD)	Focus area(s)	Funding approach for rural areas	Public funds (USD m)	As % of annual budget
Australia	82	67,036	National fixed and wireless access; telecom reform	Government	31,398	7.08%
USA	81	49,965	Funding reform	Private sector with small government subsidies	15,910	0.69%
France	83	39,772	Enhancing quality of networks	Private sector with large government subsidies	2,784	0.20%
UK	87	38,514	Rural fixed-line access; government digital services	Private sector with large government subsidies	1,811	0.18%
India	13	1,489	Rural fixed-line access; mobile policies	Government through the universal service fund	4,285	2.54%
Russia	53	14,037	Rural fixed and wireless access; telecom reform	Government with private sector wireless investments	No comparable data	No comparable data

Note: Australian funding numbers based on the plan prior to the September 2013 elections

Source: "Broadband business opportunities: Analysis of national broadband strategies in 57 countries," a 2013 EIU Telecoms Industry Briefing, World Bank data and country plans

Governments around the world have initiated a wide variety of plans to connect constituents to the digital society and provide them with higher speeds from which they can gain additional benefits. Countries with a clear broadband strategy are shown to have a penetration rate 8.7% higher than countries without a plan, according to a recent report from the ITU.³ Countries with a strategy also have a 7.4% higher mobile broadband penetration rate.

Beyond the importance of having a strategy in place, there is the question of what it should cover and how to manage implementation. Bridging the broadband divide is in everyone's interest. Government is keen to improve services to constituents, the private sector and foreign investors are interested in making money, and the international community and civil society both recognise the socio-economic benefits

for people across the world. Nine in ten survey respondents (92%) say it is important for the private and public sectors to collaborate in this regard.

Yet, when asked, survey respondents prefer the private sector to take the lead, supported by government subsidies (49%), followed by public-private partnerships (41%), and the central government itself (39%). Despite general agreement that the digital divide is an area in which interests overlap, respondents further differ in the importance they attach to their own group: 54% of policy-makers say the central government should take the lead in closing the digital divide but only 34% of executives agree; conversely, 21% of executives think the private sector should take the lead but only 6% of policy-makers agree (see Figure 7).

³ http://www.itu.int/net/pressoffice/press_releases/2013/27.aspx#Ui9u6s9WBhc

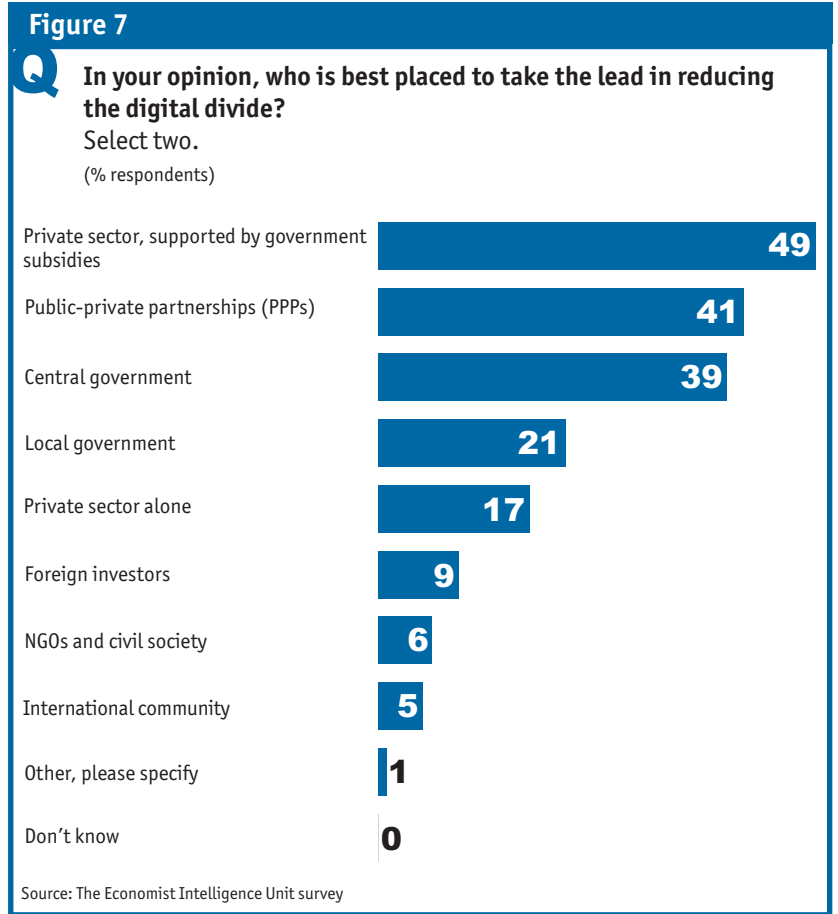
In part, it's a matter of funding, which is cited as the biggest issue of contention between government and industry in bridging the digital divide, according to survey respondents (cited by 30%). But the digital divide is an evolving issue with little in the way of concrete solutions, as illustrated by the variety of approaches that countries take in this regard. Several potential models have emerged: from the heavily government-led National Broadband Network (NBN) in Australia to a more laissez-faire approach in the US.

Australia⁴

Although urban/rural divides are common across countries, few face a challenge such as Australia, which is the third least populated country in the world per square kilometre. Only 30% of the landmass has mobile coverage but covers 99.3% of the population with the rest serviced by satellite. "There's a small rural population and it has shaped telecommunications policy for at least a century," says Mr Thomas.

To tackle the urban/rural divide of today, the country initiated an expensive government-led effort in 2011 to provide high-speed broadband access to all Australians through a combination of fixed, mobile and satellite networks. Although the NBN is designed to address the digital divide, it is less well-known that it is also about telecommunications reform. Once completed, the NBN will operate the wholesale network on a non-discriminatory basis in which prices are set uniformly across the country and Telstra, the current dominant wholesale incumbent, will become a retail provider competing against others.

Although generally viewed favourably by industry and constituents, the NBN has been marred by challenges, including increasing costs and technical delays—such as the discovery of asbestos in many of the country's old pipes that need to be converted from copper to fibre, which



halted implementation schedules—and, most recently, renewed political debate surrounding the details of the plan. The Liberal/National coalition which won Australia's national election in September campaigned on a pledge to implement the NBN faster (but with a slower speed to most consumers). Specifically, it proposed to increase the number of fibre to the node connections, which would yield speeds of about 25-40Mbps as opposed to the previous government's plan of 100Mbps fibre to the home connections. "Although we struggle with what people would do with higher speeds, there is little doubt that a fibre to the home network would be a more durable solution," notes Mr Thomas.

Since taking office, the new government has made further announcements regarding a possible change in direction. Most significantly, in late September, new communications

⁴ The Australian plan: <http://www.nbn.gov.au>

minister, Malcolm Turnbull, announced a 60-day strategic review of the NBN to determine true costs and timeframes for implementation, the results of which will be incorporated in the rollout plan for 2014–17.⁵

India⁶

With about two-thirds of the population residing in rural areas and with 1bn mobile phone subscriptions (in a population of 1.2bn), India is frequently cited as an example of the mobile miracle and how it can supplement the need for fixed-line investment in a developing country. To support this theory, the country established a mobile government (m-government) policy and opted for high levels of mobile competition (there are some 15 operators) to encourage innovation and reduce costs to constituents. But in practice the policy has led to stark differences between urban and rural areas. The former enjoy a range of technologies—such as fixed-line broadband and 4G wireless networks—while many rural areas still lack access to 3G.

“There are two Indias,” says Gopa Kumar Thampi, founding member of IT for Change, India, about the uneven development to date. In an attempt to address the imbalance (fixed-line broadband penetration was at only 1.2%), the government created the National Optical Fibre Network (NOFN) in 2011 to connect all 250,000 villages (*Gram Panchayats*) with fixed-line broadband by expanding the reach of existing networks.⁷ The Bharat Broadband Network Limited (BBNL), a government-led Special Purpose Vehicle (SPV), was set up to establish, manage and operate the NOFN. All telecommunications companies were invited to join as partners. It is an ambitious effort but questions remain regarding actual implementation, which is notoriously difficult in India, and at the moment only a handful of villages have been connected. Funding for extending the fixed-line network to rural areas is provided entirely through the Universal Service Obligation Fund (USOF) to which all operators

must contribute. Spending as a percentage of GDP is higher than in Europe and the US but less than in Australia. Once implementation is completed BBNL intends to operate the network on a non-discriminatory basis.

Russia⁸

About 40% of Russia’s population has fixed-line broadband access, and the government hopes to expand that significantly while lowering costs, primarily in remote regions such as the Republic of Buryatia, from current average connection expenses of about 12,000 to 3,000 rubles (less than US\$100) per month. The Russian information society plan until 2020 is frequently cited but is not specific to broadband, and targets in this area are not as precise as in other countries, in part because officials look to a combination of government-supported and private sector initiatives to accomplish their goals.⁹ For example, given its vast geography, there are concerns that the country will struggle to provide certain segments of the population with fixed-line access and officials are thus looking at high-speed Long Term Evolution (LTE) mobile technology to accelerate broadband deployment through wireless services, which are primarily driven by the private sector.

Hopes are high but efforts in this area have been slow, although it appears that Russia is now on the verge of taking key steps towards an improved regulatory environment. According to Svetlana Skvortsova, strategy director at Tele2 Russia, a local operator, the regulator is considering increasing competition in part by changing the rules surrounding frequency usage. Today operators pay only for the number of frequency permissions but not for the bandwidth they own, which means some companies are holding licences as investments without using them. The regulator is considering steps to make companies pay for the actual licence instead and to provide the right to sell the use of frequencies to others in order to optimise the use of the

⁵ <http://www.theaustralian.com.au/business/in-depth/consultants-called-in-to-aid-nbn-co-strategic-review/story-e6frgaif-1226741525592#sthash.BGHixEVN.dpuf>

⁶ The Indian plan: <http://www.bbnl.nic.in>

⁷ OECD Communications Outlook 2013

⁸ The Russian plan: <http://www.e-society-russia.ru/en/>

⁹ <http://www.thinkrussia.com/business-economy/russia%E2%80%99s-strategy-competition-broadband-internet-access>

limited frequency resources and let wireless carriers take the lead in rural deployments.

France¹⁰

European countries, such as the UK and France, have strong regulatory regimes with government investment focused almost entirely on rural areas and therefore spending only about 0.2% of their budgets on broadband deployment. This is partly attributed to EU funding guidelines which prevent government support for areas where operators plan to invest. In practice, this means telecommunications companies decide whether to service metropolitan regions while the government can use public funding entirely for rural areas.

In France, urban deployment has been slow and a majority of households still lack access to high speeds because there is little incentive for operators to upgrade their networks. "Potentially we could find situations where rural areas will be more advanced than urban areas because operators don't have many initiatives [for urban areas] but rural areas are putting pressure on the government to deliver as they can provide subsidies in line with EU guidance and as people in rural areas can be more demanding for higher speeds," says Laurent Benzoni, a partner at TERA Consultants, a French regulation and competition consultancy. Indeed, local authorities in rural areas have taken the initiative to upgrade their networks with the help of subsidies, although progress has been uneven as—shortly after the 2010 announcement of the ultrafast broadband programme—the European financial crisis forced government to put much public funding on hold.

In February 2013, however, the new government revived the ultra-fast broadband programme and seeks to cover 50% of French households with 100 Mbps fixed access by 2017 and all households by 2022, three years faster than envisioned under the previous government. To do so France intends to spend 20bn Euros over the next ten years.

United Kingdom¹¹

About half of UK properties currently have access to fibre-based broadband and three quarters of UK homes now have broadband with speeds of up to 30Mbps. BT, the country's largest operator, plans to roll out its "superfast" offering with speeds of up to 300 Mbps to about two-thirds of the UK by 2014.¹² Public subsidies are helping to extend the reach into rural areas, which figure prominently in the UK broadband strategy. One-third of the country's premises are outside areas where telecommunications companies would normally invest in high-speed services and debate also centres on how to bring better connectivity to the 10% "hardest to reach areas". The government has set aside £530m for rural funding by 2015.

Despite having their own strategies, both France and the UK are also subject to the EC's biggest telecommunications overhaul in nearly three decades—the single market for telecoms services which was proposed in September 2013.¹³ Although there are benefits, such as potentially free roaming and the abolishing of premiums for international phone calls within Europe, a key provision is a single authorisation for operation in all 28 member states and an improvement in access to networks owned by other companies.¹⁴

Although the initiative is meant to increase competition across the region it could also hamper it, as consolidation is expected. "Telecommunications regulation in Europe is going in the wrong direction," says Susan Crawford, professor at America's Cardozo School of Law and former special assistant to the US President for Science, Technology and Innovation Policy in the National Economic Council. Taking the American experience as an example, she fears that Europe will be left with a handful of operators that will then agree not to enter each others' territories and charge content providers for interconnection privileges.

¹⁰ The French plan: <http://www.arcep.fr/index.php?id=11325>

¹¹ The British plan: <https://www.gov.uk/broadband-delivery-uk>

¹² <http://www.superfast-openreach.co.uk/faq/>

¹³ <http://ec.europa.eu/digital-agenda/en/news/commission-proposes-major-step-forward-telecommunications-companies-single-market>

¹⁴ http://europa.eu/rapid/press-release_IP-13-828_en.htm

United States¹⁵

International data suggest that the US lags behind a number of developed countries in terms of speed and availability of broadband. The US prefers private sector-led development where Congress, through the Federal Communications Commission (FCC), the government regulator, encourages competition but leaves a weak regulatory environment in actual implementation. Private sector operators decide where they want to invest (and where they do not), apart from small subsidies. This has resulted in poor coverage for areas where there is no business case, a point the FCC itself acknowledged in 2012. It also noted that the situation was unlikely to be resolved until there were greater reforms of the USF to increase subsidies in such areas.¹⁶

Although Congress has currently allocated approximately US\$7bn in grants and loans to

expand broadband deployment and adoption in unserved areas, there is practical evidence that this is not enough. Both AT&T and Verizon, the two largest telecommunications companies, rejected FCC funds in 2012 to help bridge gaps in rural access as the amount was not deemed sufficient to warrant their investments.¹⁷ This leaves about 19m Americans without access to fixed-line networks, according to the National Telecommunications and Information Administration (NTIA).

To tackle the issue, the FCC National Broadband Plan calls on government to further support fixed-line broadband deployment through reform of the USF and to craft policies to ensure competition and control. As funding for new initiatives is a key component, progress is unlikely until reforms have been implemented to focus spending on broadband deployment, particularly in rural areas, as opposed to other types of access.

¹⁵ The American plan:
<http://www.broadband.gov/>

¹⁶ 2012 FCC Internet Report

¹⁷ http://www.huffingtonpost.com/2012/07/30/att-verizon-fcc-funds-america-fund_n_1719485.html

A role for NGOs in helping local businesses thrive in the digital age

Only 6% of executives and policy-makers believe NGOs and civil society should take the lead in bridging the digital divide. This is surprising given the on-the-ground work that NGOs do in bringing access and adoption at local levels.

In the UK, Nigel Ashcroft MBE, project director of Superfast Cornwall, a broadband initiative within the Cornwall Development Company, realised in 2006 that there were no corporate broadband investment plans for the region and set out to create his own plan. Rejecting the shared-equity model, in which the private sector puts a portion of the investment required into a consortium on the understanding that it will operate the network later, he opted for the gap approach, which functions as a normal investment model for telecommunications companies whereby public funds cover the gap between what they would build the network for at market price and what it actually costs.

In the case of Cornwall, a rural area in the south-west of the UK where the largest town has about 20,000 people, the gap in funding was 50% in order to reach 80% of homes and businesses. Funding came from the European Union, which views Cornwall as a region—in fact, one of the least developed in Europe, making access to funds easier. After a bidding process, British Telecom was selected to build the infrastructure which is offered as a wholesale network, meaning that it is open to all Internet Service Providers (ISPs) at the same price and monitored by Ofcom, the British telecommunications regulator.

Using this model, Superfast Cornwall has exceeded its targets. Because technologies have evolved during the

course of the project, they have since managed to increase target coverage to 95%. “But we are keen not to walk away from the last 5%,” says Mr Ashcroft. “So we put in the contract for the 5% that wouldn’t be covered, to use an alternative model to increase the speed that they currently have. It may be via satellite or an extension of the copper-based DSL system.” In this way, Superfast Cornwall aims to help 24,000 rural businesses get online access with 10,000 of them actually using broadband.

In the United States, the void between federal policy and private sector implementation is also being filled by NGOs, who often create public-private partnerships to enhance access and adoption rates at local levels. “You might assume it happens organically but in our experience it doesn’t,” says Phillip Brown, director of state and federal policy and broadband planning at Connected Nation, a non-profit headquartered in Kentucky. “We go to a community and the local government is usually the first champion and then we talk to the local broadband provider. We put them all in one room and get them thinking about what they want from broadband.”

In one instance, a large local employer was ready to leave the town of Greenwood, South Carolina, simply because it couldn’t get access to broadband. But once everyone got in a room, the local community realised the potential impact of lost jobs while the local broadband provider saw the benefits of extending their network to a large local business in need. Connected Nation worked with all stakeholders to ensure that broadband arrived, and the jobs stayed.

3

The role of regulation and competition

In competitive markets, broadband penetration is 1.4% higher for fixed-line connections and up to 26.5% higher for mobile broadband, according to the recent study from the ITU.¹⁸ In the US, Ms Crawford cites a weak regulatory environment as a major problem that has encouraged market consolidation, created a lack of competition and left incumbents with no incentive to upgrade their facilities to fibre. Ultimately this reduces both customer choice and uptake.

Conversely, in France affordable broadband services are generally attributed to the presence of its alternative operator, Free, which 10 years ago started offering lower-cost services, forcing incumbents to follow. In addition, strong regulatory action creating a system to allow all companies to use existing wires at the same cost has led to 86% of all French households being covered by at least the incumbent and one alternative operator, according to Mr Benzoni.

In Russia, the Ministry for Communications and Mass Media is working to strengthen competition among Russian telecommunications companies by introducing fair play regulations. "It will be good because operators will lower prices and improve quality of networks," says Ms Skvortsova. According to ComNews, a Russian research company, regions with extended competition (four or more players) have lower mobile prices, increasing affordability.

Although data (and interviewees) point to competition as an important factor in reducing price and bridging the access divide in the

process, laissez-faire approaches are not without problems. In India the battle for mobile frequencies resulted in a major corruption scandal, with the telecoms minister jailed and numerous operators stripped of their licences. "What happened might actually be good because now there are stronger policies," says Rajkumar Prasad, CEO of the Commonwealth Centre for e-Governance in India.

In Australia, it is hoped that the government-operated NBN will also increase retail competition. Telstra, the current dominant wholesale provider of copper networks, is undertaking structural separation under the NBN in which it will be only one of many service providers once the wholesale fibre network replaces copper. "At the same time, there are those who think that only major players will prosper and that we will continue to see consolidation of service providers," says John Stanton, CEO of the Communications Alliance, an industry consortium. The country currently has about 400 service providers and some commentators believe that number will dwindle to five or six.

The US provides a clear example of what can result from unfettered deregulation. The telecommunications sector was liberalised some ten years ago and today only 14% of Americans have a choice between Verizon FiOS and a local monopoly cable operator when it comes to broadband, says Ms Crawford. "They strike deals never to enter each others' territories and Americans are faced with only one operator."

¹⁸ http://www.itu.int/net/pressoffice/press_releases/2013/27.aspx#Ui9u6s9WBhc

Affordability

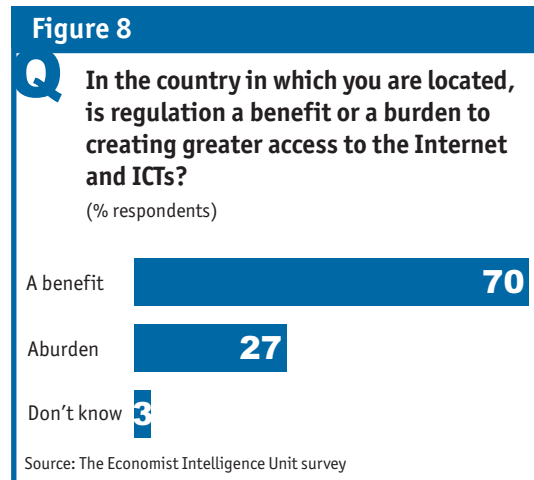
Governments must tackle social divides that affect poor populations and, in the case of the digital divide, proper competition and a strong regulatory environment can make Internet access more affordable, a hurdle viewed as the most serious contributor to the digital divide among survey respondents (cited by 63%).

In the context of India, Mr Prasad says telecommunications companies must compete on price. "Cost is a very important factor in India. If people are not happy, then they change operators." In India, as in Europe, consumers keep their phone number even when switching operators, making it a very competitive market. In Russia, subscribers who switch must also change numbers, although mobile number portability is expected to be introduced in December 2013, according to Ms Skvortsova.

Tele2 Russia has always used the cheapest prices to target economically disadvantaged groups, such as students, retirees and the poor. "We play a social role by bringing competition to regions," Ms Skvortsova says and cites one example in which prices in the far east region of Russia dropped by 40% in anticipation of their entry. Tele2 currently holds licences that cover 42% of the population and a report on the Russian mobile market found that the prices for mobile services come down when the company establishes a presence in a region.

It is clear, therefore, that a competitive market must be accompanied by a strong regulatory environment in order to efficiently decrease costs while increasing usage. When asked if regulation is a benefit or a burden in creating greater access to the Internet and ICTs, survey respondents saying it is a benefit outnumber those who view

it as a burden by more than two to one (70% vs 27%) (see Figure 8).



Not unexpectedly, policy-makers are more inclined to agree—92% said regulation is a benefit. But even among executives, those viewing it as a benefit outnumbered those who did not by a wide margin (63% vs 33%). Still, given the importance of working together in bridging the digital divide, there is great need for further alignment in this area as the affordability gap remains.

In Australia, almost four in ten households in the lowest income group do not have broadband and describe the costs of connection as unaffordable.¹⁹ In France, broadband adoption falls by 50% among groups whose monthly income is 900 Euros or less. According to a 2011 report from the US Department of Commerce, only about 40% of American households with annual incomes below US\$25,000 had fixed-line Internet at home, compared with 93% of households who made USD\$100,000 or more. "There is both an urban/rural divide and a rich/poor problem," says Ms Crawford. According to the FCC, 23.7% of Americans in rural areas simply can't afford access.

¹⁹ CCI Digital Futures 2012

Eye of the beholder

In the survey conducted for this report, 166 telecommunications executives and 52 government policy-makers were in agreement on many issues but there were also significant differences.

Overall, survey respondents cite “competition and regulation” as the third most contentious issue between the private and public sectors, although executives were three times as likely to view it as a problem compared to policy-makers (18% vs 6%). This further translates into a range of other disagreements on priorities.

For example, policy-makers are twice as likely to cite the ability/skills to use ICTs as the primary contributor to the digital divide today while less than half of executives (48%) agree. Policy-makers are also much more concerned with content availability (40%) than the private sector (23%). Conversely, executives view the urban/rural divide (42% vs 23%) and speed

(14% vs 6%) as far more important contributors to the digital divide than do policy-makers. This makes sense since the future revenue opportunities for the industry are driven by reaching new customers (primarily in rural markets) and to sell higher value services, which require greater speed. Moving forward, bridging the gap between executives and policy-makers may be an important task in bridging the digital divide.

On the urban/rural divide there is already a great deal of common ground. Both groups agree that overcoming this gap would have one of the highest potential economic benefits. They would both like to reach rural areas, albeit for different reasons: the public sector view inclusion as a service mandate and value the ability of those constituents to access services—and in the process make it easier for government to deliver them—whereas executives view it as a revenue opportunity to reach new customers.

4 The urban/rural divide

The urban/rural divide has long been a thorny issue for countries in terms of reduced opportunity for citizens and businesses located in rural areas, but also for businesses trying to service the rural market. Almost three-quarters of survey respondents (70%) say there is an urban/rural divide in the country in which they are located and among executives, 44% cite it as the most serious contributor to the digital divide overall.

For example, one-third of UK premises are outside areas where telecommunications companies would invest in faster broadband speeds without public subsidies. In the US, about 14.5m of the 19m that do not have access to fixed broadband reside in rural areas, meaning that nearly one in four rural Americans lack access to fixed broadband.²⁰ But even as rural populations eventually come online, there are questions surrounding requisite speeds to take advantage of today's offerings and what people actually do with their access.

Speed limits

There is broad agreement that speed is generally important but differences abound in target and universal speeds, particularly when juxtaposed against implementation schedules and funding. Countries such as Japan and South Korea now have 1Gbps connections to buildings, in part due to their high urban densities while the six large countries assessed for this report target at most one-tenth of that, about 100Mbps or less.

Despite variation in target speeds, fixed-line access also won't reach everyone, making the lowest universal speed an equally important factor in tackling the digital divide. In France, 99% of all people can access 500Kbps speeds if they want but this can't accommodate today's digital offerings such as triple-play (TV, Internet, and phone), and could inhibit tomorrow's technologies such as cloud computing. Excluding cable TV networks, which cover around 35% of the population and can often provide much higher speeds, only 30% of copper lines

Figure 9: Comparing key data on broadband plans across six countries

Country	Target speed (Mbps)	Household coverage (%)	Coverage target	Universal speed (Mbps)	Universal coverage target
Australia	100	93%	2021	12	2015
USA	100	84%	2020	4	2020
France	100	50%	2017	100	2022
UK	50	90%	2017	2	2015
India	100	N/A	2014	2	2020

Notes: Russia does not appear to have published specific targets; India's universal coverage target is based on 600m households

Source: "Broadband business opportunities: Analysis of national broadband strategies in 57 countries," a 2013 EIU Telecoms Industry Briefing, supplemented by country plans

²⁰ 2012 FCC Internet Report

can support 14 Mbps or more. “Creating the economic conditions for fibre and accelerating its development is the most important issue in France today,” says Jean-Christophe Nguyen van Sang, managing director, de la Fédération des Industriels des Réseaux d’Initiative Publique (FIRIP), an industry consortium.

Similarly in the US, between 1999 and 2010 the FCC considered 200Kbps an adequate connection. But in the 2010 Sixth Broadband Progress Report, the FCC took “the overdue step” of increasing their benchmark to 4Mbps download and 1Mbps upload, targets that are already dwarfed by Australia.²¹ The NBN believes it can achieve a universal target of 12Mbps to all citizens by 2015, with 93% of citizens having access to the top speed of 100Mbps by 2021.

In India—where broadband development has largely focused on mobile networks—there are about 1bn mobile subscriptions, according to the Telecom Regulatory Authority of India. However, only 120m of them are used to access the Internet. Part of the problem, says Mr Prasad, is that although every village is covered

by a mobile network, many rural areas lack 3G coverage, leaving residents to rely on simple and text-based communications. But simply improving 3G coverage won’t necessarily resolve the problem either as it comes back to the issue of affordability and more general cost consciousness. “Price is a very important factor in India and many people won’t adopt 3G unless it is very cheap,” Mr Prasad predicts.

Still, Mr Kanungo views mobile development as a potential “game changer” in India, particularly the introduction of high-speed mobile broadband networks such as 4G and LTE, which have also emerged as potential solutions to bridge the urban/rural divide in Russia. Although such technologies hold great promise, and operators pour money into their development, questions remain regarding rollout, particularly in the least profitable rural areas and in terms of affordability and accessibility. Conducting data services on a mobile phone is simply not as easy as on a computer, although governments, NGOs and businesses are all working to make mobile phones more data friendly.

5

Challenges ahead

In redefining the digital divide policy-makers will recognise that there are numerous challenges that must be tackled using an integrated strategy. But creating a single vision remains an elusive target among countries and there are also differences of opinion about whether one entity or multiple departments are best placed to tackle the various aspects of the divide. As elsewhere, the UK link between infrastructure and broader efforts to solve the emerging digital divide remains a work in progress. “There is silo thinking and silo working,” says Ms Milner, a sentiment shared by Mr Richardson who adds that “they could be more joined up and strategic”. Such sentiment stems from the fact that there are multiple government actors tackling various aspects of the digital divide. The UK plan to provide infrastructure is led by Broadband Delivery UK (BDUK), a team within the Department for Culture, Media and Sport while the Department for Business, Innovation & Skills (BIS) subsumes skills alongside business and enterprise policy. A third agency, the Government Digital Service (GDS) within the Cabinet Office is in charge of deploying online services through digital by default while a new team within GDS handle digital inclusion.

Tackling the social divide, one customer at a time

Turned on its head, bridging the digital divide can help close social divides. When asked about the primary benefits to their economy if the gap in access to the Internet and ICT was overcome, policy-makers primarily cite improved economic

growth (50%), followed by greater socio-economic opportunity for all (39%), a point that the private sector can relate to.

Companies are keen to bridge the digital divide to reach new customers and sell new services to existing ones. Around the millennium, Japan’s NTT DoCoMo realised it couldn’t grow its customer base much further from its 51% market share except to reach new audiences. They targeted retirees, a growing portion of the Japanese market, and introduced universal design services that helped make devices more accessible to seniors. Since the inception of this programme in 2003, they have managed to add 20m new subscribers while bringing digital access to an audience that was previously intimidated by technology or could not use it due to impairments such as hearing, visual, cognitive or physical limitations.

“For the first time in the history of ICT, companies are competing for accessibility in the mobile market, because accessibility features such as voice commands or text to speech, which are critical for persons with disabilities, also help all users interact with their devices,” says Axel Leblois, founder and executive director of G3ict—the Global Initiative for Inclusive Technologies, an advocacy initiative of the United Nations Global Alliance for ICT and Development, who has spent the last seven years helping governments and companies reach vulnerable populations, particularly those with disabilities and the elderly, through better design principles. “Among governments, there has been great focus

²¹ 2012 FCC Internet Report

on expanding the infrastructure to all corners of the world, but less so on promoting actual usage among disenfranchised populations.”

A lack of perceived value

Meagre adoption and usage rates generally stem from a lack of perceived value. In the UK, Ofcom conducted a survey of those who aren't online and found that about half of them simply are not interested as they don't see the potential benefits (others cited cost and a lack of skills). Similarly, according to a 2013 report from NTIA, about one-half of Americans who do not use the Internet say they are just not interested, highlighting a lack of awareness.²² “Without perceived value, people have less incentive to adopt broadband,” says Mr Brown.

Connected Nation is therefore working with local governments to provide relevant services that will make broadband more obviously useful to constituents. “We go to a community and we ask

what they offer constituents in terms of online value, such as their e-government services,” says Mr Brown. A website just doesn't cut it—it has to be something robust, like renewing a car registration online. “That improves value because we all know it takes four hours at the DMV to renew car registration and if you can skip that wait, then people realise the benefits and Internet adoption seems to be worth a bit more.” Once services are in place, it is just a matter of raising awareness of them.

In India, Mr Thampi was part of a team commissioned by the Water and Sanitation Program, a multi-donor partnership administered by the World Bank in South Asia, that transformed a traditional pen and paper citizen feedback survey, in which constituents offer their views on public service delivery to the government, into a mobile phone app, which has cut costs of implementation, speeded up the feedback process and better engages constituents with their policy-makers, in the process increasing perception of technology as valuable in their daily lives. “Access is being ensured and frankly, it's all about impact now,” says Mr Kanungo.

²² <http://www.ntia.doc.gov/report/2013/exploring-digital-nation-americas-emerging-online-experience>

6

Conclusion

There has been significant progress in the past decade in terms of access to ICT and in improving speeds. The rise has been global in nature and many countries are reaching near universal access through a combination of fixed and mobile connections. But at the same time, there has been a lack of awareness surrounding adoption and usage rates. Policy-makers and executives now recognise that those left behind, including in rural areas, are falling ever further behind in a digital society.

Almost nine in ten survey respondents (89%) say their understanding of the digital divide has improved in the last three years. Perhaps because of their own edification, four in ten (39%) also say not enough attention is given to the digital divide in their country today, particularly as two-thirds of policy-makers (67%) say digital skills are now crucial and will become even more important in the years to come.

The strategies of six large countries illustrate that there is no one-size-fits-all solution and indeed, their plans vary depending on coverage,

funding, target speeds, implementation schedule and who is best placed to take the lead. To further bridge the digital divide, fundamental challenges also remain regarding regulatory environments and affordability as well as understanding the associated challenges of the adoption and skills gaps in order to reap the full benefits of the information society.

Given the speed with which access and uptake is evolving in certain segments of society, cheered on by the public and private sectors alike, it is time to redefine the digital divide to broaden the term beyond mere technology and tackle the wide variety of divides that underpin it. To do so, all stakeholders—policy-makers, industry executives, and civil society—must come together to evaluate the progress of the past decade and set new targets for the next. In redefining the digital divide, countries will find that basic access has improved but the nature of the divide has changed. People, in particular their ability and motivation to use the Internet usefully, may well be the next frontier in further bridging the digital divide.

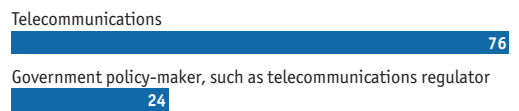
Appendix: Survey results

Note: Percentages may not total 100 due to rounding or the ability of respondents to choose multiple responses

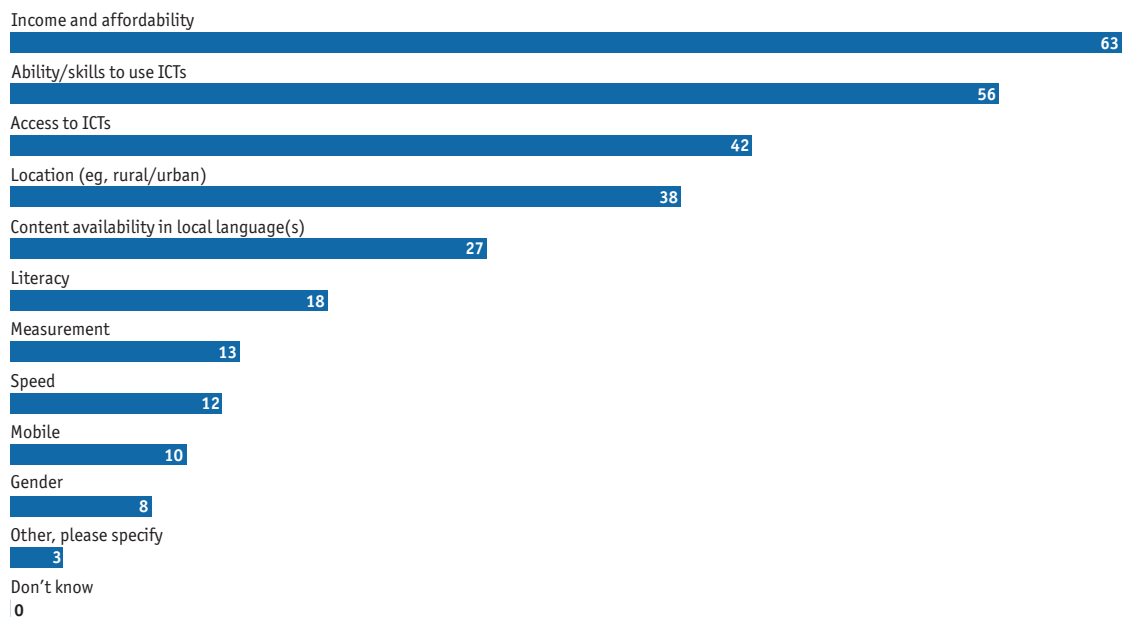
Are you familiar with discussions of the digital divide in your country? (% respondents)



What is your primary industry? (% respondents)

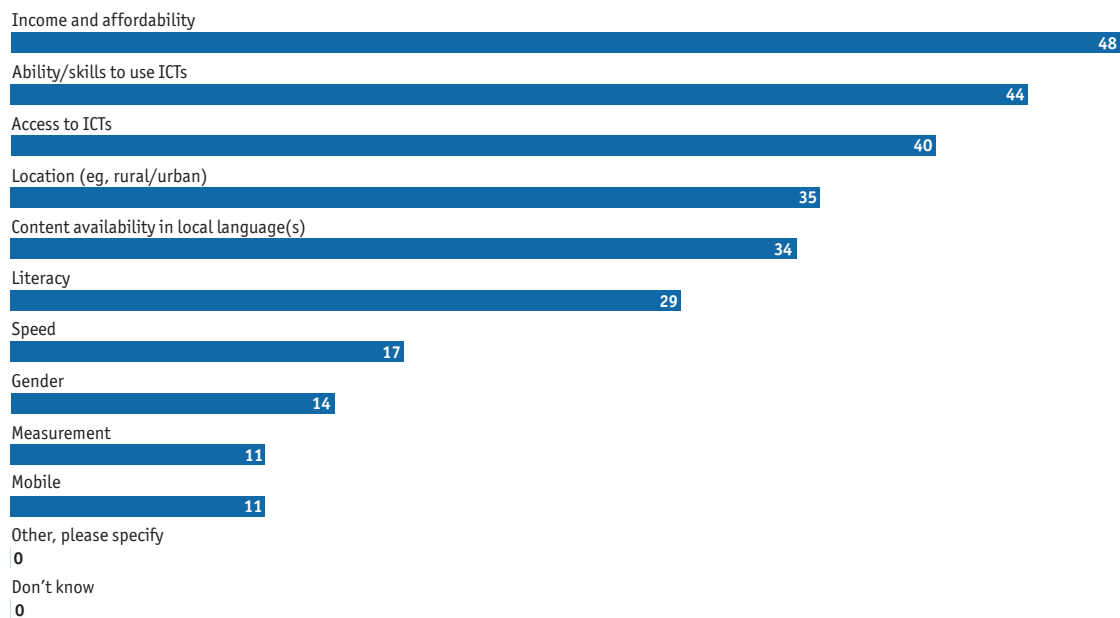


1. What are the most serious contributors to the digital divide in your country today? Select three. (% respondents)



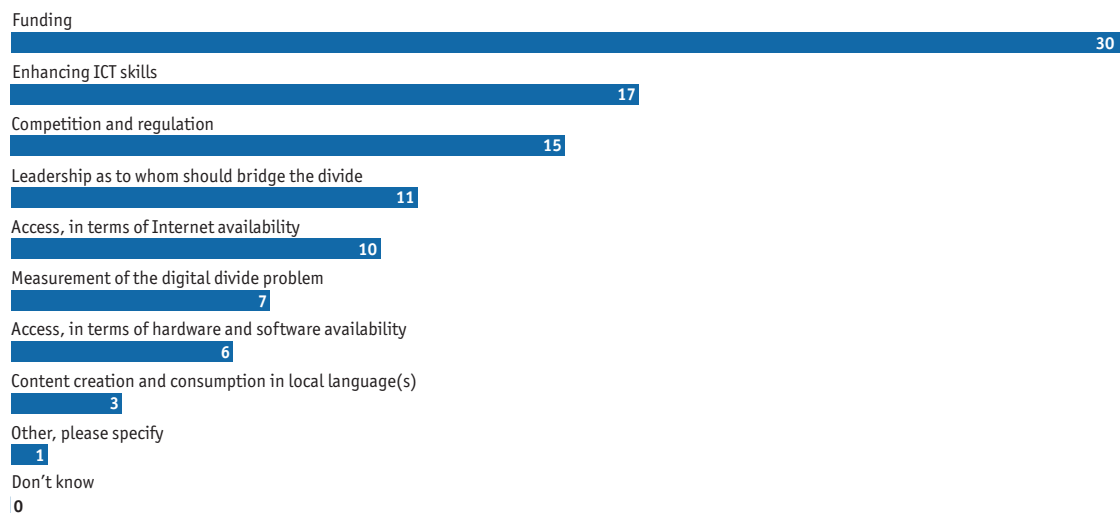
2. To your knowledge, which areas of the digital divide has the greatest potential economic impact on your country today? Select three.

(% respondents)

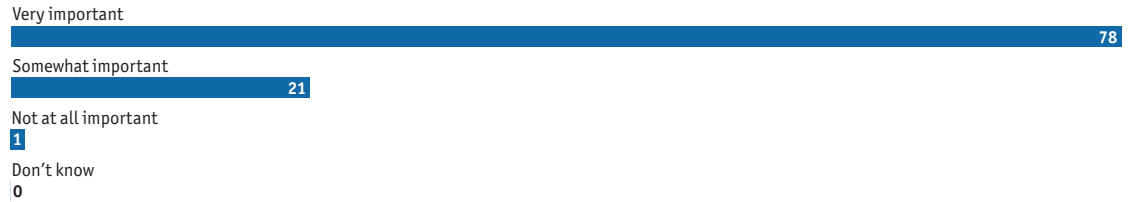


3. In the country in which you are located, what is the biggest issue of contention between government and industry in bridging the digital divide?

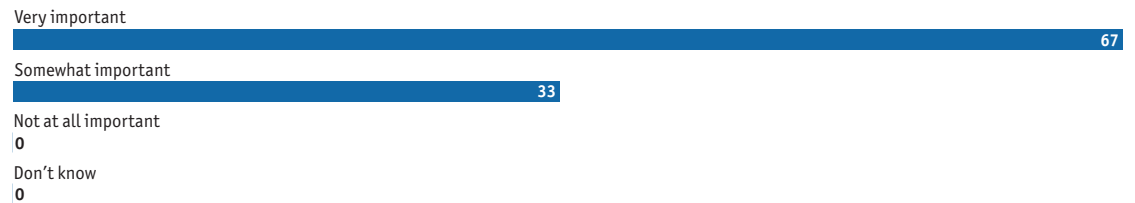
(% respondents)



4a. How important are digital skills—a person’s ability to access, adapt and create knowledge via use of information and communication technologies—to your organisation today?
(% respondents)



4b. How important are digital skills—the ability to access, adapt and create knowledge via use of information and communication technologies—to your country today?
(% respondents)



5a. How important will digital skills be to your organisation three years from now?
(% respondents)



5b. How important will digital skills be to your country three years from now?
(% respondents)



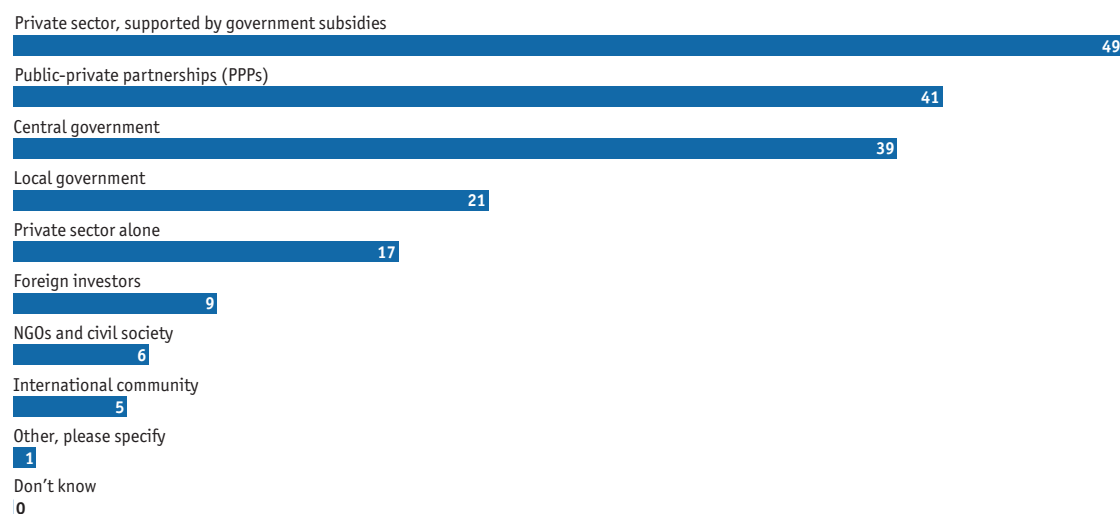
6. In the country in which you are located, is regulation a benefit or a burden to creating greater access to the Internet and ICTs?

(% respondents)



7. In your opinion, who is best placed to take the lead in reducing the digital divide? Select two.

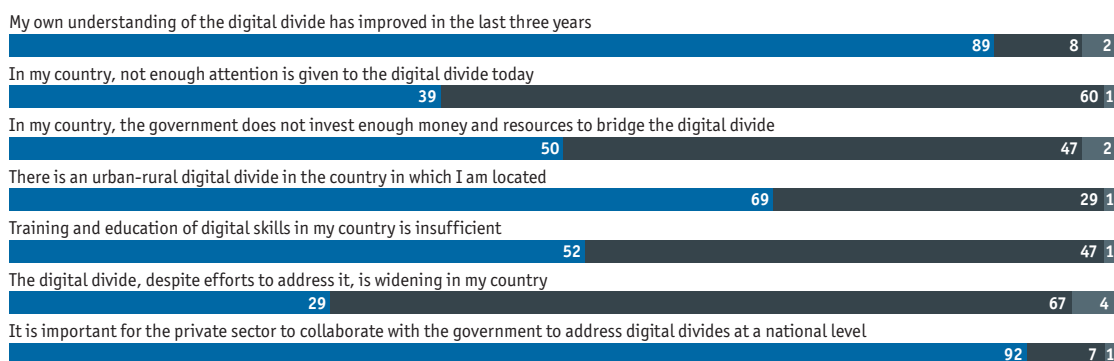
(% respondents)



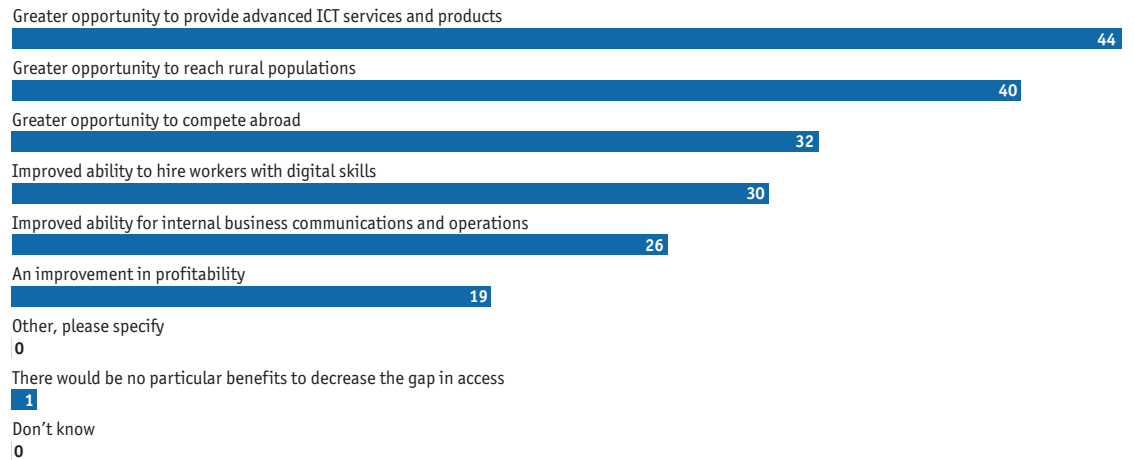
8. Do you agree or disagree with the following statements: Select one in each row.

(% respondents)

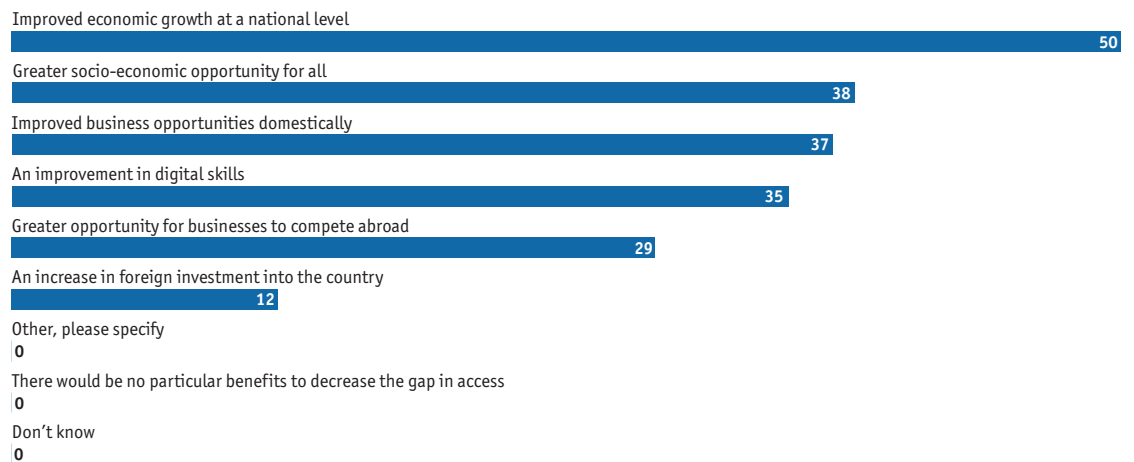
■ Agree ■ Disagree ■ Don't know



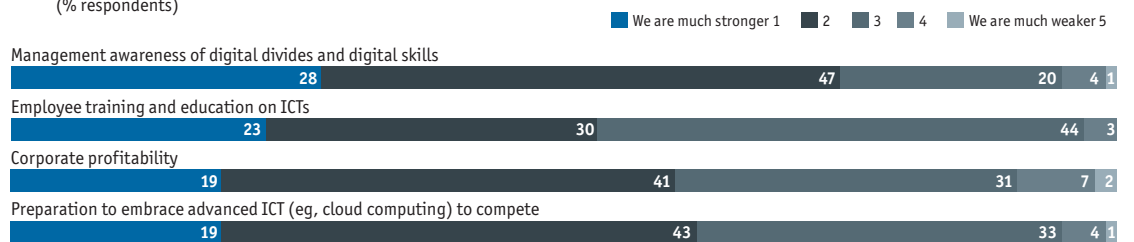
9a. If the gap in access to the Internet and ICTs in the country where you are located was overcome, what would be the primary benefits for your business? Select up to two.
(% respondents)



9b. If the gap in access to the Internet and ICTs in the country where you are located was overcome, what would be the primary benefits for the economy as a whole? Select up to two.
(% respondents)



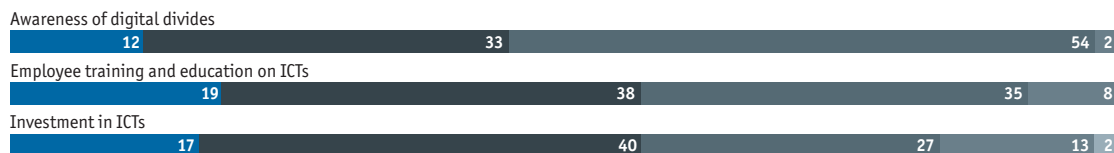
10a. In your opinion, how does your company compare to its closest competitors in the following areas? Rate on a scale of 1 to 5, where 1=We are much stronger and 5= We are much weaker.
(% respondents)



10b. In your opinion, how does your country compare to others? Rate on a scale of 1 to 5, where 1=We are much stronger and 5= We are much weaker.

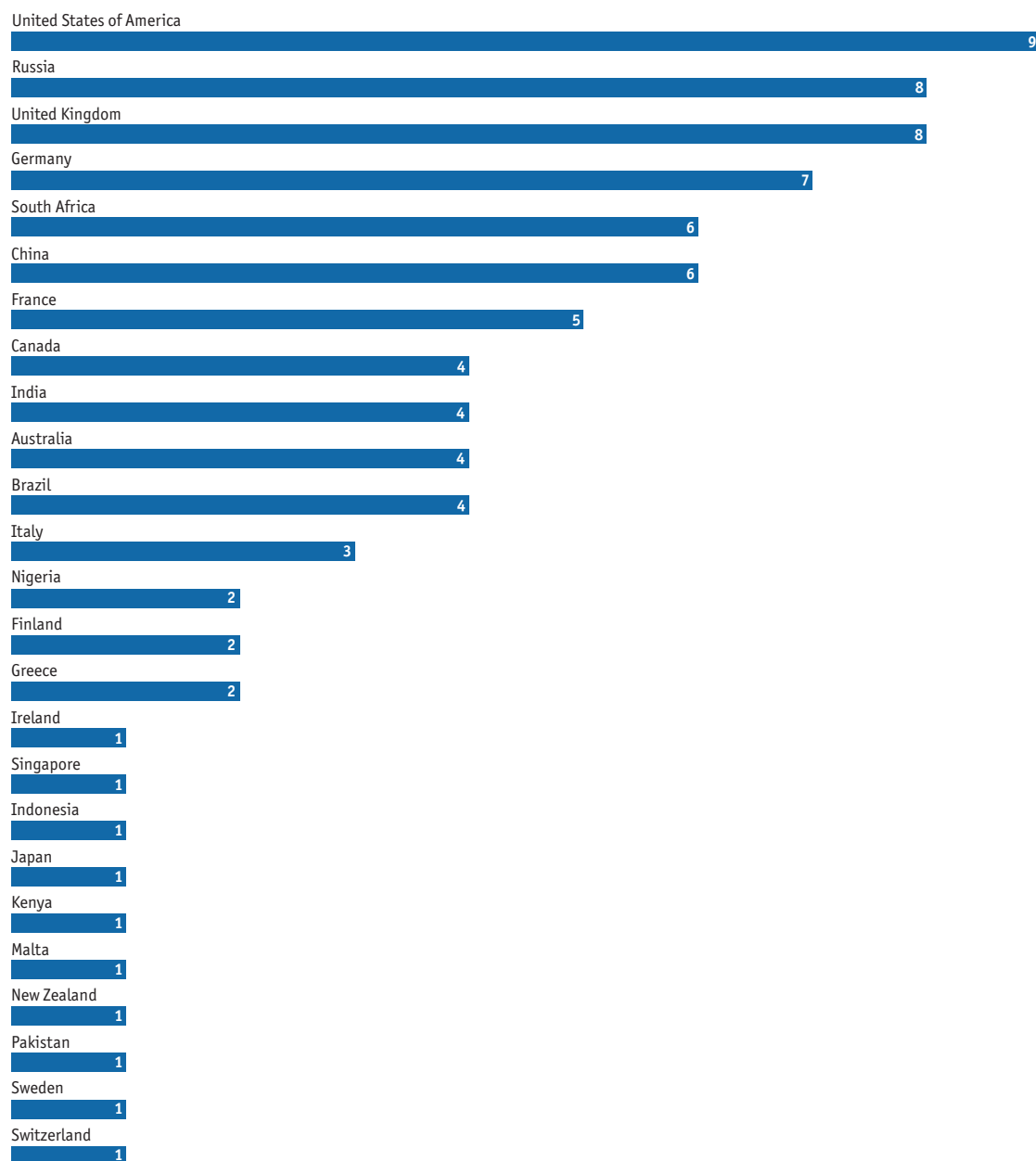
(% respondents)

■ We are much stronger 1 ■ 2 ■ 3 ■ 4 ■ We are much weaker 5

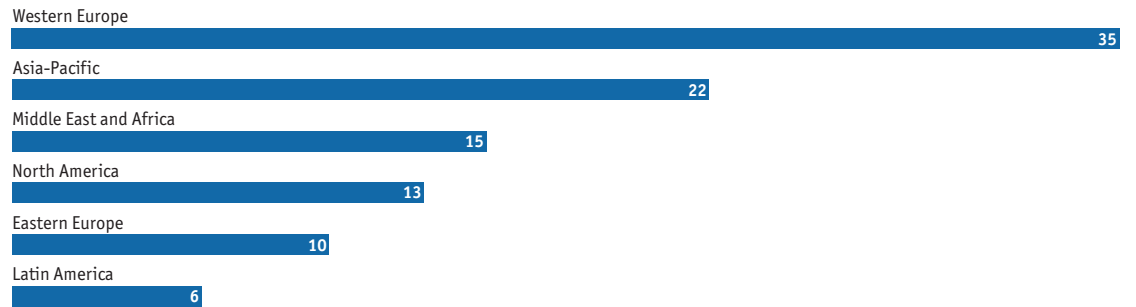


In which country are you personally located?

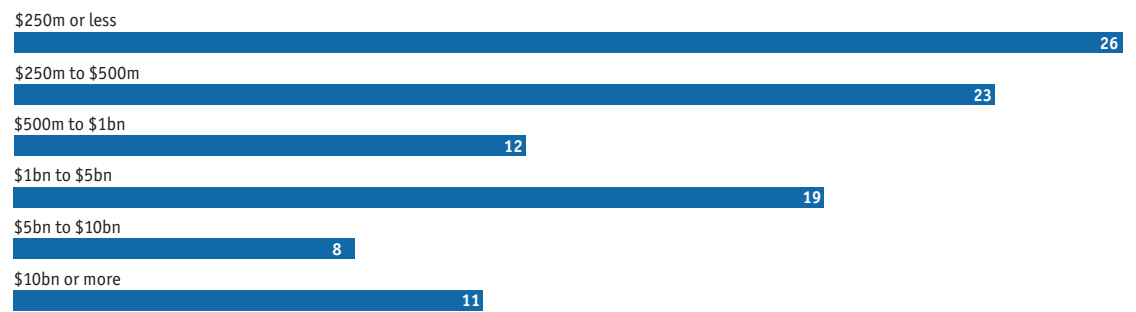
(% respondents)



In which region are you personally located?
(% respondents)



What are your organisation's global annual revenues in US dollars?
(% respondents)



What are your agency's annual budget/expenditures in US dollars?
(% respondents)



Which of the following best describes your title?

(% respondents)



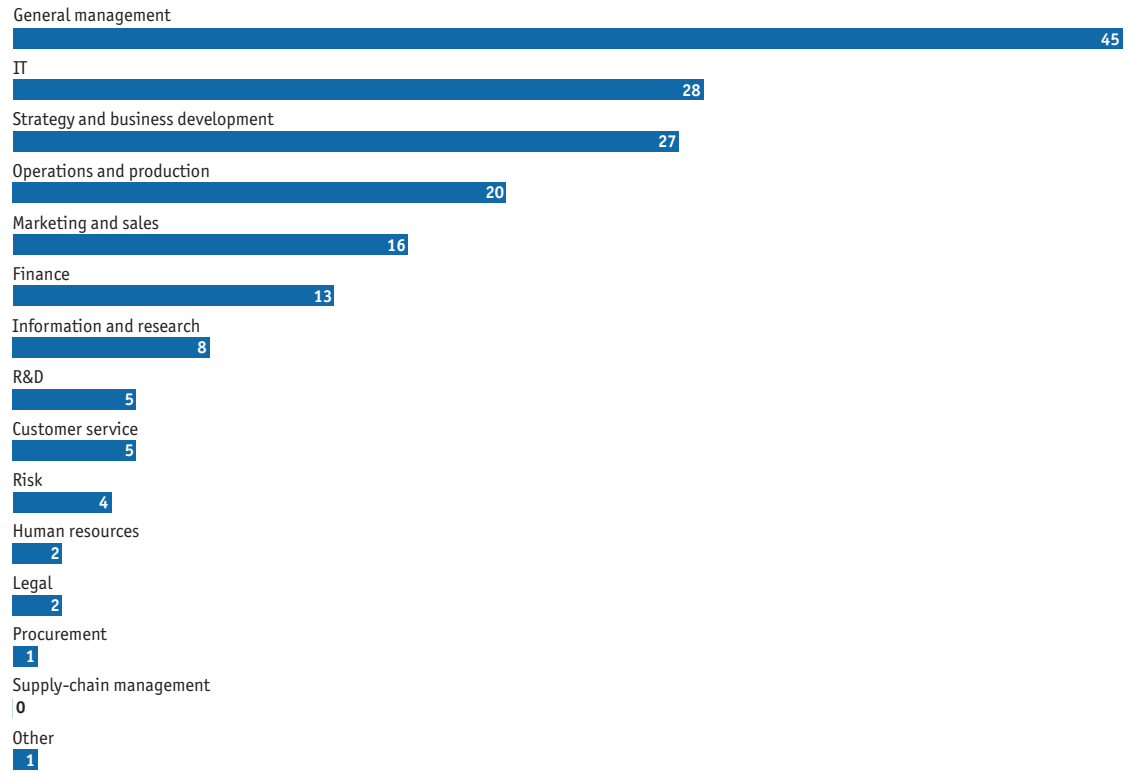
Which of the following best describes your title?

(% respondents)



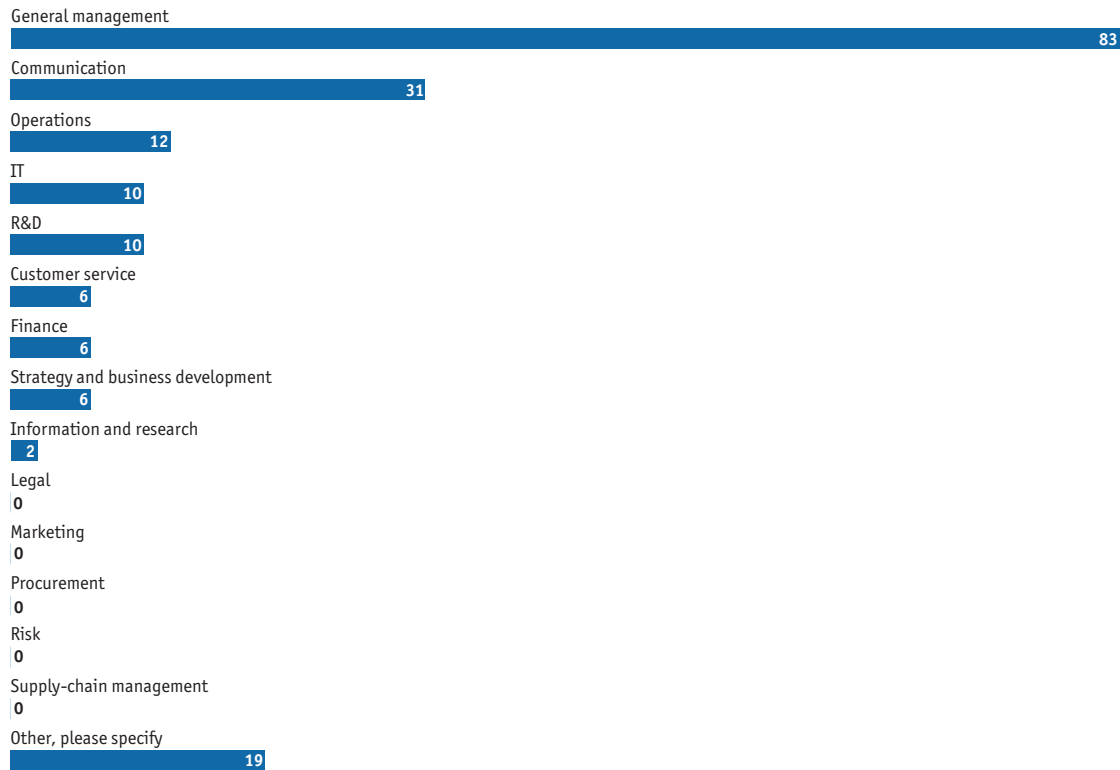
What are your main functional roles? Select up to three.

(% respondents)



What are your main functional roles? Select up to three.

(% respondents)



Is your organisation's headquarters located in an urban or rural environment?

(% respondents)



Which of the following most closely resembles the government department you work for?

(% respondents)



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