# Bridging the digital divide

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## 6.1. Introduction

Today 1.2 billion people of the world living in extreme poverty account for only one per cent of the consumption as compared to the richest 1 billion people which consume 72 per cent.[1] The United Nations Secretary-General's High Level Panel on Post-2015 Development has called for a new agenda which "must tackle the causes of poverty, exclusion and inequality. It must connect people in rural and urban areas to the modern economy through quality infrastructure—electricity, irrigation, roads, ports and telecommunications."[2] In outlining his vision for the way forward on Post-2015, the United Nations Secretary-General stated that "in order to leave no one behind and bring everyone forward, actions are needed to promote equality of opportunity."

One key area which can allow for leapfrogging in development outcomes is to think in terms of the benefits derived from mitigating the digital divide as opportunities for wellbeing. The digital divide is inextricably linked to social equity in today's information world. This involves recognition that addressing the multivariate causes of the digital divide go beyond connectivity and capability issues to include human, economic and social wellbeing, lack of which impinge on developmental outcomes, including those for the Post-2015 development agenda.

The emerging imperative today is to re-think the scope of e-government in order to understand the opportunities offered by new technologies for better development outcomes. Governments can enhance the role of e-government in bridging the digital divide by embedding interconnected and holistic technological solutions in policy frameworks.

This chapter looks at trends in digital divide to identify issues which needs ICT and e-government policy redress for

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greater economic, social and environmental sustainability and overall wellbeing for all. The 2014 *Survey* questionnaire includes a set of questions assessing the digital divide in e-government development (see Survey Methodology). All sources of data used in this chapter come from this questionnaire, unless otherwise stated.

While the chapter aims to offer an overall picture of digital connectivity its specific focus is on e-services for vulnerable and disadvantaged populations at the national level, including persons with disabilities, older persons, women and youth. In doing so it seeks a better understanding of the challenges to Member States stemming from this disparity at a time when ICT is at the core of productivity growth and participation in the world economy.

## 6.2. Characteristics of the digital divide

Initially the digital divide was considered primarily an issue of access to relevant information technology infrastructure compounded by the prohibitive cost of access, especially in the developing countries. As technology has proliferated, the physical and financial access barriers have given way to challenges which stem more from capacity and capability of individuals. Digital divides exist even within seemingly connected populations where access to digital information is impeded for some due to language barriers or lack of culturally-relevant content. A lesser form of disparity in connectivity can also be the result of the 'quality' of connectivity depending upon whether access is through fixed or mobile device, or the Internet or a telephone connection. These are issues of national policy and priority since the quality of usage in terms of access, retrieval, interactivity or digital social inclusion for many depends on political, economic, investment and regulatory policies, among other things.

At the basic level, the digital divide stems from a lack of physical access to technology between groups and individuals. This can be in terms of Internet connection, availability of broadband, computers, smart phones, mobile devices and in general a disparity in access to the communication infrastructure. In many countries this is mainly a supply side issue stemming from differences in the level of development of the country; government policy; priority of the technology regime in the country; IT regulatory environment; private sector involvement; and investment in ICT infrastructure, among others. It is also aggravated by prohibitive pricing of ICT devices.

The digital divide also arises from a disparity between individuals and populations in the levels of education and skills needed to use the technology. The lack of ability to use the technology may stem from differences among Internet users in the capacity to efficiently and effectively find information on the Web to take advantage of the medium in a variety of ways. Disparities in the appropriate use of the information and e-services is particularly relevant to social equity inasmuch as it impacts everything from the ability to gather and use information on an urgent health issue in a faraway village to finding the right government documentation, to emergency announcements at the time of a natural disaster, to participation in elections. Whereas the earlier concept of the digital divide was primarily

about access to technology, the successive levels of the digital divide are about capability and ability. As such digital divide is prevalent in both developed and developing countries.

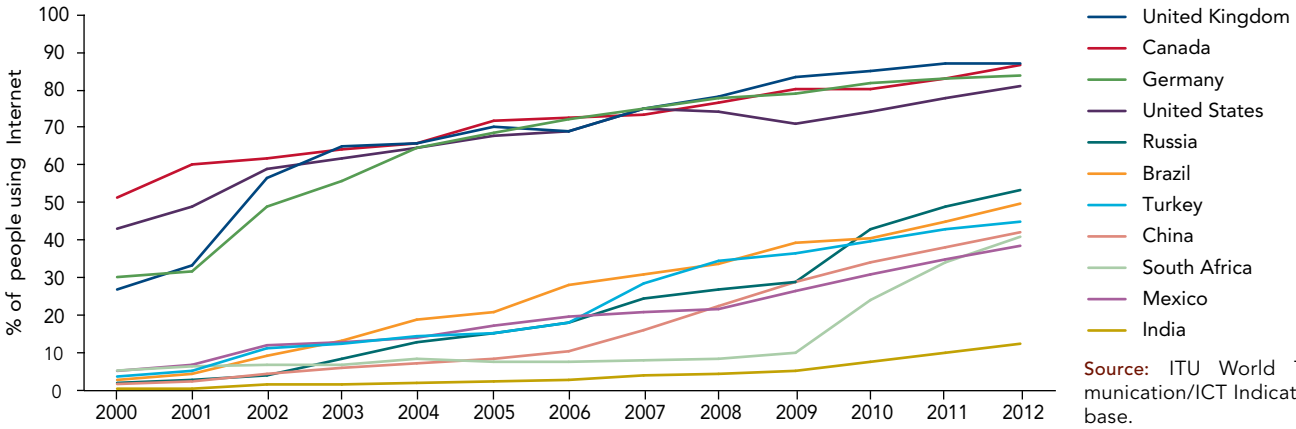
## 6.3. Disparity in technology access: trends in the digital divide

In the globalized world, whereas technology proliferation and advancement may have allowed for an Internet enabled device in the hands of many, the distance between governments, businesses and the citizen with real access and those with limited access and skills has increased in many countries.

Considerable progress has been made in mitigating the digital divide. As highlighted in Chapter 2, in 2014 for the first time all United Nations Member States demonstrate an online presence. Despite an overall trend towards progress in the past decade, the difference within high income economies, middle and low income developing countries are stark. Even among the G20 economies,[3] which, together comprise 90 per cent of global GDP and two thirds of the world population, the digital divide, as measured by the change in percentage of Internet usage, is apparent. A subset of the G20 counties are illustrated in Figure 6.1. The figure shows that on one hand, countries such the United Kingdom, Canada, Germany and the United States of America are far in advance; and on the other hand, other emerging economic power houses such as Brazil, Russia, China and South Africa have experienced a catching up phenomenon, starting around 2008–2009.

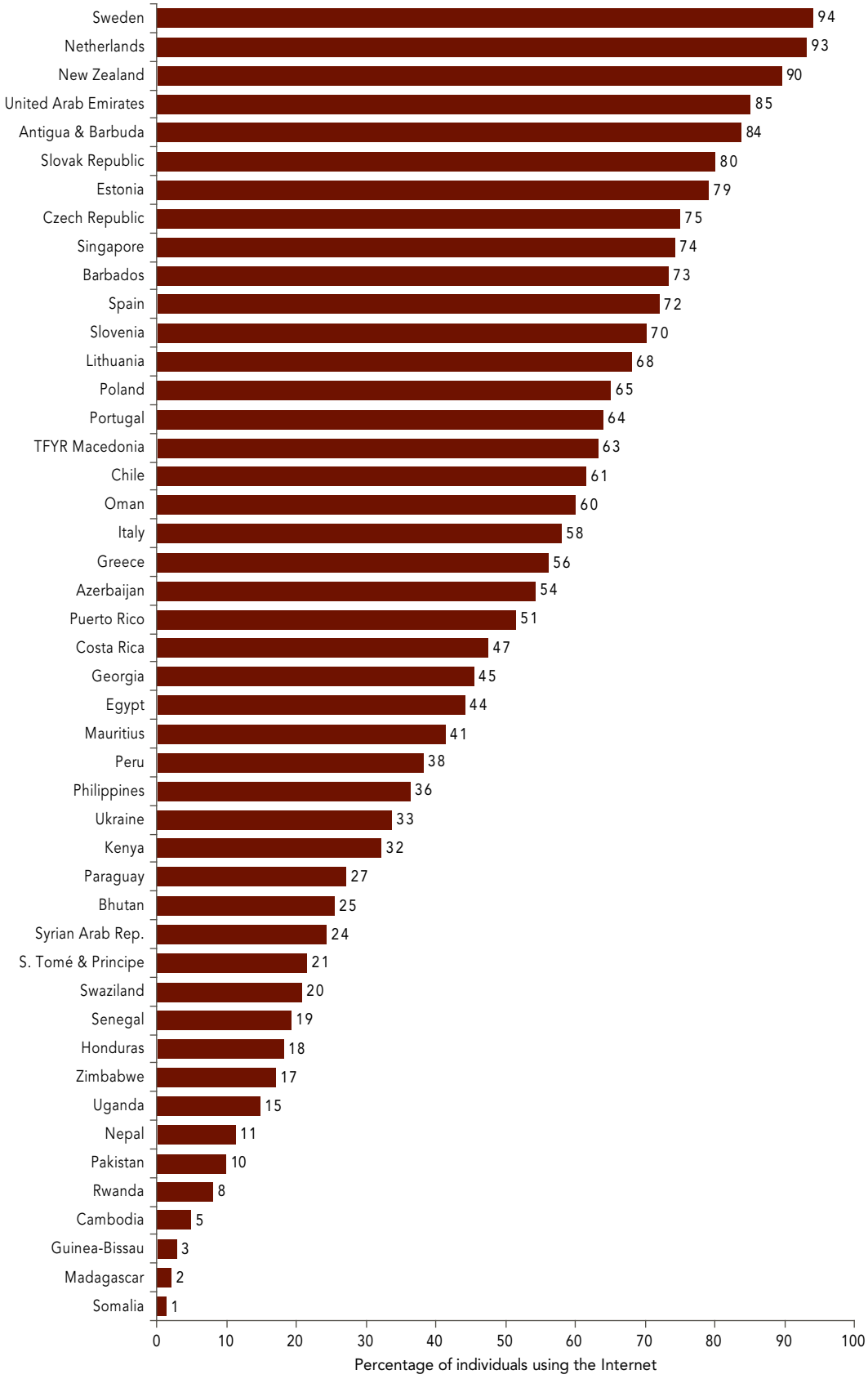
The digital divide between other high and low or middle income countries is substantial too, as measure by the percentage of population using the Internet. For example in 2013, in Sweden (94 per cent), Estonia (79 per cent) and Singapore (74 per cent) a vast majority of the population used the Internet. This is in contrast to Costa Rica, Georgia or Egypt where less than half of the population had access to the Internet. This disparity becomes particularly acute with low income countries such as Guinea-Bissau (3 per cent), Madagascar (2 per cent) or Somalia (1 per cent) (see Figure 6.2).

Figure 6.1. Change in percentage of people using the Internet, selected countries




Source: ITU World Telecommunication/ICT Indicators database.

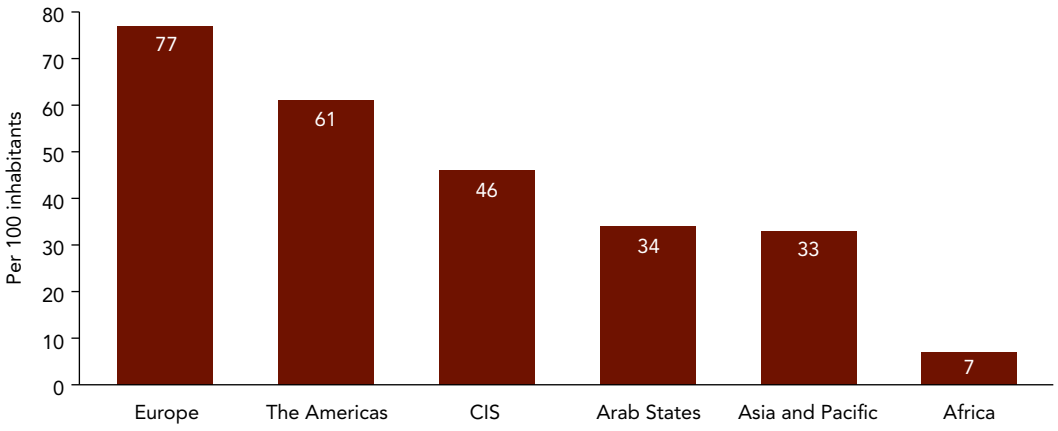
Figure 6.2. Disparity in use of Internet between developed and developing countries, 2013




Source: ITU World Telecommunication/ICT Indicators database. http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

In addition to the lack of infrastructure, there are other characteristics of the digital divide such as the institutional access where individual access is available only through group spaces such as schools, community centers, or cybercafés because of a high cost or a low level of personal income. This is especially true of millions in the developing world where access is limited by a lack of availability of devices and connection at home or work and, in particular, in Africa which remains minimally wired compared to other regions (see Figure 6.3). Despite over a billion people living in Africa, making up around 15 per cent of the world population, only 7 per cent of the households have Internet access. In Europe, which has 12 per cent of the world population, more than 75 per cent of the households have access to the Internet. In tracking these countries, the *United Nations E-Government Survey* has consistently highlighted that Africa as a whole remains far behind other continents.

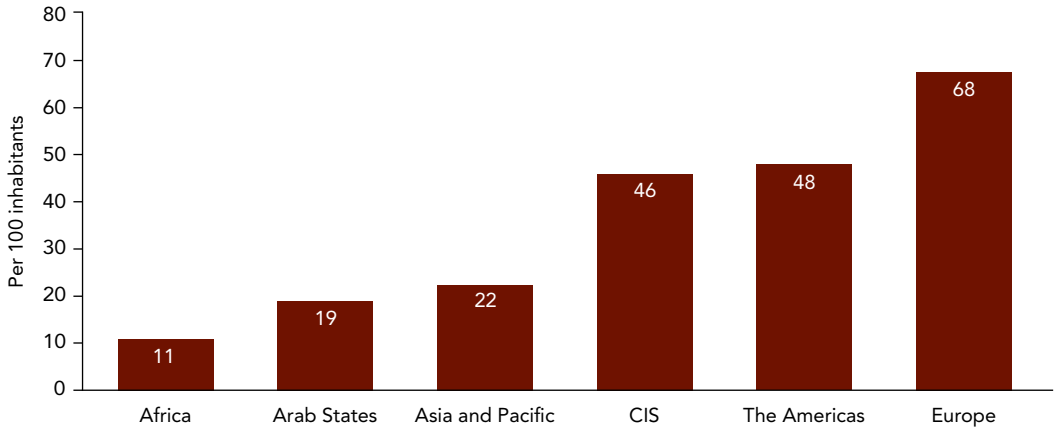
Figure 6.3. Percentage of households with access to Internet in 2013, by region




Source: ITU World Telecommunication/ICT Indicators database. http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

In many developing countries, among other government policies, telecommunication and regulatory policies have not yielded a fully competitive telecom market resulting in barriers to broadband diffusion. For example, in terms of access to citizens, 68 out of 100 inhabitants in Europe enjoyed an active mobile broadband compared to only 22 out of 100 inhabitants in Asia and the Pacific and 19 in the Arab states (see Figure 6.4).

Figure 6.4. Active mobile broadband subscriptions in 2013, by region




Source: ITU World Telecommunication/ICT Indicators database. http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

## 6.4. National income as a determinant of socioeconomic digital disparity

Though proliferation of technology, especially mobile telephony, has caused a burst of digital participation in general, income remains a key determinant of access to technology. Those who are lower on the socioeconomic ladder may face multiple access barriers to engaging in economic, social and political participation. This holds true especially for the most disadvantaged and vulnerable groups who are less wired to the digital economy, even in the advanced economies of the world. A study of 18 European countries found that low income was the single most important barrier to acquiring basic technology with a high-income household 4 times more likely to have access to a computer and the Internet than a low-income one. In the Netherlands and Norway, the probability is around 2.5 times higher and in Portugal, where the high income household is 14 times more likely to possess a computer and Internet than a poor home, the gap is particularly acute (Montagnier & Wirthmann, 2011).

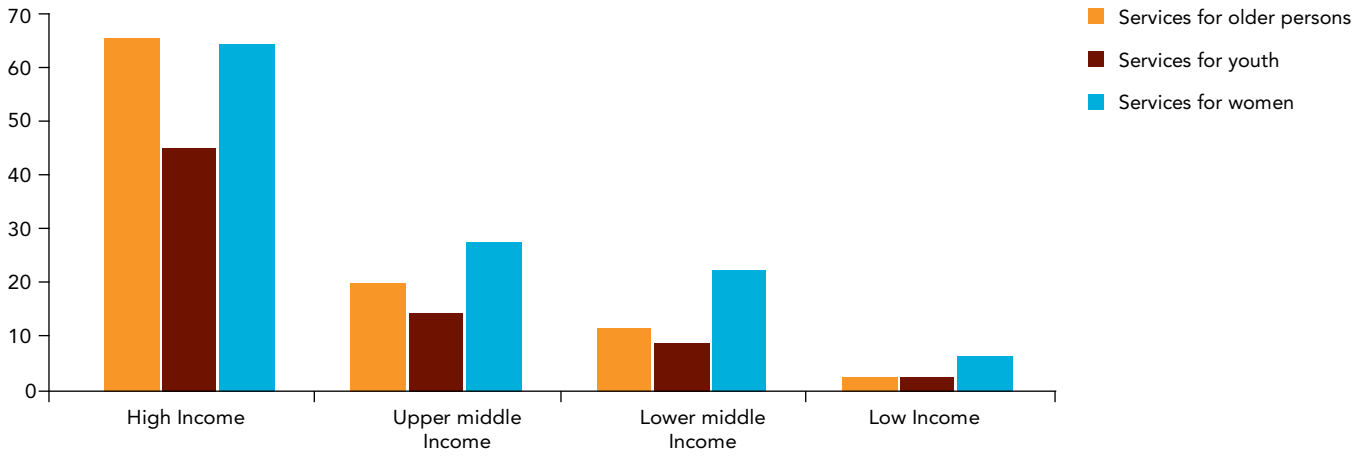
Prohibitive costs to Internet or technology use also prevents populations from access. In Mexico, despite multiple telecommunication providers entering the market, the country has one of the highest connectivity costs among OECD countries resulting in 40 per cent of users accessing the Internet only in public places. In contrast, 90 per cent of households in the upper socio-economic strata in Mexico possess a computer at home.[4]

These trends are especially accentuated for disadvantaged and vulnerable groups. The phenomenon is not limited to countries with lower levels of development but also among the advanced economies. According to Pew research, one in five American adults who does not use the Internet is more likely to be an individual with no high school degree, earning less than US $30,000 per year, older persons or persons with disabilities.[5]

The United Nations Convention on the Rights of Persons with Disabilities in its Article 21 requires that countries 'Promote access for persons with disabilities to new information and communications technologies and systems, including the Internet'.[6] But progress in digitally connecting persons with disabilities and other disadvantaged and vulnerable groups has been slow, especially in the developing countries. As Figure 6.5 depicts, the proportions of key online services for persons with disabilities, older persons, women and youth were far more readily available among the high income and upper middle income countries than in countries with a lower tier of gross national income per capita.

Some of the 36 high income countries providing services for older persons are Australia, Austria, Bahrain, Belgium, United Arab Emirates, United Kingdom and the United States. Eleven countries from the upper middle income group providing for older persons are Azerbaijan, Belize, China, Colombia, Ecuador, Hungary, Kazakhstan, Malaysia, Mexico, Peru and Tunisia. Among the lower middle income only four countries, Bolivia, Georgia, Mongolia and Morocco provided the same while Rwanda is the only low income country providing any services directly aimed at older persons.

Figure 6.5. Services for disadvantaged and vulnerable groups, by income




Income is only one contributory factor, albeit a major one, in provision of services which also depend on government priority, policy and focus on e-inclusion. These patterns are witnessed across subregions as well. For example in South-Eastern Asia, Singapore—a high income country—provides more than 70 per cent of the services to disadvantaged and vulnerable groups far in advance of Indonesia (36 per cent); Vietnam (29 per cent) and Cambodia (14 per cent). As can be seen from Table 6.1, Thailand, Indonesia and the Philippines, though at lower per capita income level, offer a higher level of services to disadvantaged and vulnerable groups compared to Brunei Darussalam—a high income country. This is also apparent in the case of some middle income countries of Central America. Mexico, Panama and Costa Rica in the middle income range of US$ 13,000–17,000 nevertheless provide varying levels of services with Panama and Costa Rica far less than Mexico as well as Belize—a country with a much lower GNI per capita at US$ 7,529.

Table 6.1. National income and provision of services to disadvantaged and vulnerable groups in South-East Asia

| | *Percentage of services* | *GNI per capita (2013)* |
|---|---|---|
| Malaysia | 86% | 17143 |
| Singapore | 86% | 61803 |
| Indonesia | 36% | 4956 |
| Brunei | 29% | 53348 |
| Philippines | 29% | 4413 |
| Thailand | 29% | 9815 |
| Vietnam | 29% | 3635 |
| Cambodia | 14% | 2494 |
| Lao | 14% | 2926 |
| Myanmar | 14% | 1300 |
| Timor-Leste | 14% | 1709 |

Table 6.2. Downloadable forms for disadvantaged and vulnerable groups

| | *Total number of countries* | *Downloadable forms for disadvantaged and vulnerable groups* |
|---|---|---|
| High income | 55 | 46 |
| Upper Middle Income | 56 | 30 |
| Lower Middle Income | 46 | 20 |
| Low income | 36 | 1 |

**Box 6.1. Brazil's efforts at mitigating the digital divide: universal access to the web**

The government and civil society have teamed up to bridge the digital divide for the millions of Brazilians. The Rede Marista de Solidariedade—a Porto Alegre-based non-profit organization focused on social inclusion and solidarity through social projects—seeks to help bridge the digital gap in Brazil by promoting universal access to the web. New in the community of Nova Santa Marta—located in the Rio Grande do Sul city of Santa Maria—the region with the lowest human development indexes of the state, the Marista network established a Center for Digital Inclusion which focuses on areas such as meta-recycling, free robotics and tele-centers. The initiative was first implemented in a Computer Refurbishment Center in Brazil in 2005 with the support of the municipality of Porto Alegre, the Hospital Conceição healthcare group, development organization Avina Foundation and drinks producer Vonpar. The work carried out by the Computer Refurbishment Center has so far benefited thousands of users in tele-centers and schools with the donation of refurbished computers. The project offers training in hardware and free software to about 100 young apprentices from among the socially vulnerable populations.

Source: http://itdecs.com/2011/06/case-study-brazilian-ngo-fights-digital-divide/

A key useful service for disadvantaged and vulnerable groups would be the facility to download forms. Of the 55 high income countries, 46 or 84 per cent, provided downloadable forms specifically for services aimed at older persons, women and youth compared to around half of the upper middle income countries. Some of the upper middle income countries which provided online forms were: Angola, Argentina, Azerbaijan, Belize, Bosnia and Herzegovina, Botswana, Brazil, China, Dominican Republic, Ecuador, Islamic Republic of Iran and Malaysia. It is notable that the number of countries providing the same became much less in the case of lower middle income and was negligible among low income where only Burkina Faso provided any downloadable forms.

## 6.5. ICT skills, language and content barriers

Educational disparity is another contributory factor of the digital divide. A strong correlation exists between the education and literacy on the one hand and the ability to use technology on the other. Education is the most important determinant of the intensity of Internet use. This allows advanced countries with a solid human resource base to remain far ahead of others. According to one study the probability of an individual using the Internet everyday increases by 2.4 times in Europe and by 3.6 times in the Republic of Korea if he has a university degree and above (Montagnier & Wirthnann, 2011). A first step to being ICT literate in today's information age is the availability of a computer and a certain level of information literacy.[7]

Whereas a basic level of technology and its use may allow for some integration into a digital economy, digital inclusion will still require an enhanced set of skill tools. For example, though smartphones have ushered in innovative means of providing those with no access, no education and no skills in many developing countries with opportunities to transact and participate, a smartphone is not a substitute for a wired connection because of the limitations of what it can do such as filling up a form which is hard to do on a hand-held device. Further, not all websites allow for smartphone optimization, so some cannot be accessed, or if they can, they may not show all the content.

### Language and content barriers

The ability to understand, use and deploy the Internet content determines the extent to which one can participate in the economy and the society. Conversely, inability to use one's language on global information networks affects the capability of populations to avail of the benefits of technology and adds to the digital divide. As can be seen from Table 6.3, even in 2012, barriers from inaccessibility to own-language content remain, with 56 per cent of the Internet content in English which, though, only a quarter of the total users can understand.

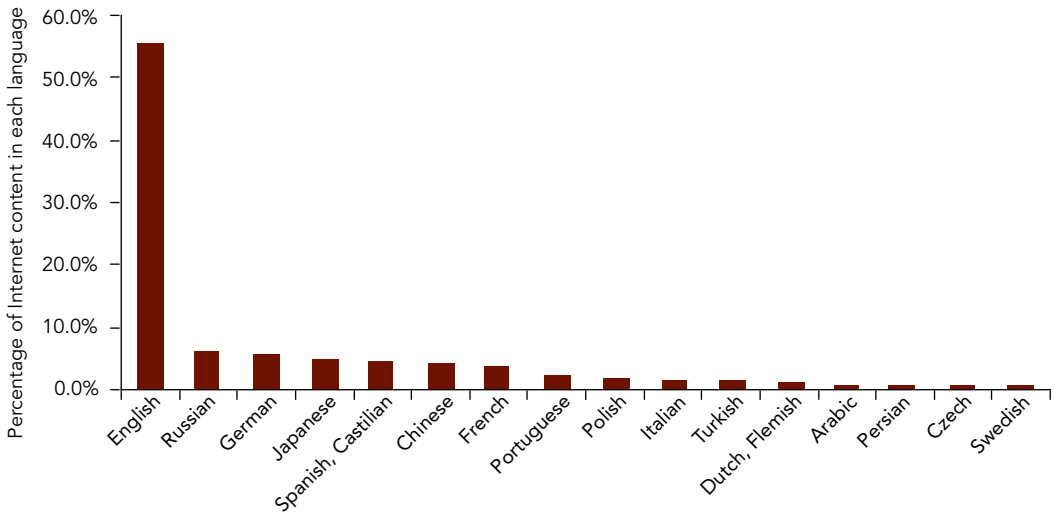
Whereas some progress has been made to offer other languages in the last decade, the overwhelming content still remains in English as seen in Figure 6.6.

Table 6.3. Disparity in Internet content and language

| *Language* | *% of Internet users by language* | *% of content on the Internet* |
|---|---|---|
| English | 27 | 56 |
| Chinese | 25 | 4 |
| Spanish | 8 | 4 |
| Portuguese | 4 | 2 |
| German | 4 | 6 |
| Arabic | 3 | 1 |
| French | 3 | 4 |
| Russian | 3 | 6 |

Source: Language by content statistics from W3Techs. Web technologies Surveys. http://w3techs.com/technologies/overview/content_language/all. accessed 13 September 2013 Data for Internet users from: World Internet Users Statistics. 30 June 2012. http://www.internetworldstats.com/stats7.htm

Figure 6.6. Lack of content in own language as a barrier to accessibility, selected countries



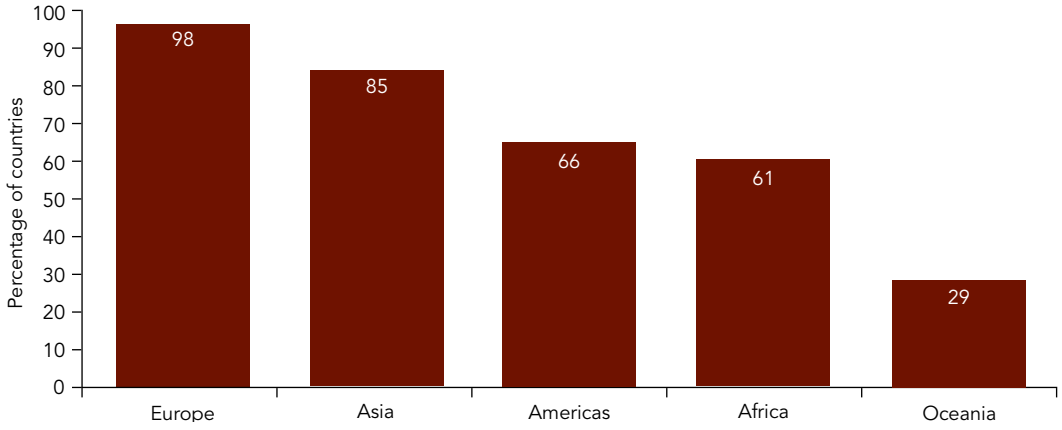

Source: Language by content statistics from W3Techs. Web technologies Surveys. http://w3techs.com/technologies/overview/content_language/all. accessed 13 September 2013

The adverse impact of lack of relevant content contributes to the digital divide in two ways. First, for example, despite the fact that India had manifold increase in Internet users from 5 million in 2000 to 137 million in 2012,[8] literacy is comparatively low at 74 per cent.[9] This means barriers to Internet access remain for over 300 million people. Secondly, of those who can access the Internet, the majority cannot speak English. Unless users have some knowledge of the English language—regardless of how good machine translators become—they will be barred from the vast reservoir of information available in the electronic world.

The increase in the use of more than one language on national portals is particularly notable. This convenience is likely to draw in special populations such as immigrants who may not be fully conversant in the widely spoken national language. In 2014, 74 per cent of the national portals offered the facility of information in more than the national language compared to 54 per cent in 2012. The progress is regionally spread with almost all of the European countries; 85 per cent in Asia; 66 per cent in the Americas and 61 per cent in Africa (see Figure 6.7). In Africa, around two thirds of all countries offered more than one language. Though Oceania is the least accessible in this regard, as a whole, special efforts have been made in Australia where among others, a special programme has taken a holistic approach to community building and economic development using new technologies as tools to provide equal access to all (see Box 6.2).

There has been much progress in the design of websites to allow for configuration and options of font size, font type, font and background color to increase the flexibility and appeal of national portals to greater users. In 2014, 40 per cent of countries allowed for flexible font size and type compared to 31 per cent in 2012.

Figure 6.7. Online services in more than one language, by region




Source: Human development data from UNDP International Human Development Indicators, http://hdr.undp.org. Accessed: 9/15/2013

## Box 6.2. e-ACE Project in Australia: providing language content to integrate communities

The electronic Atherton Community Enterprise, or e-ACE, is Infoxchange Australia's first and longest running digital inclusion project. It focuses on worldwide communications, alongside education, skills development, improved health and well-being, access to health and community services and employment opportunities. Local information has been made available in multiple languages and residents are easily able to access local employment and training opportunities through the e-ACE intranet, as well as connect with their family and friends on the other side of the world. Without the technology made available to them through the e-ACE project, most Atherton Gardens residents, mainly low income earning, migrants or the children of migrants, would have not been able to access a computer at all.

Source: http://www.infoxchange.net.au/welcome-digital-inclusion-program/

Figure 6.8. Accessibility attributes on national websites, by region

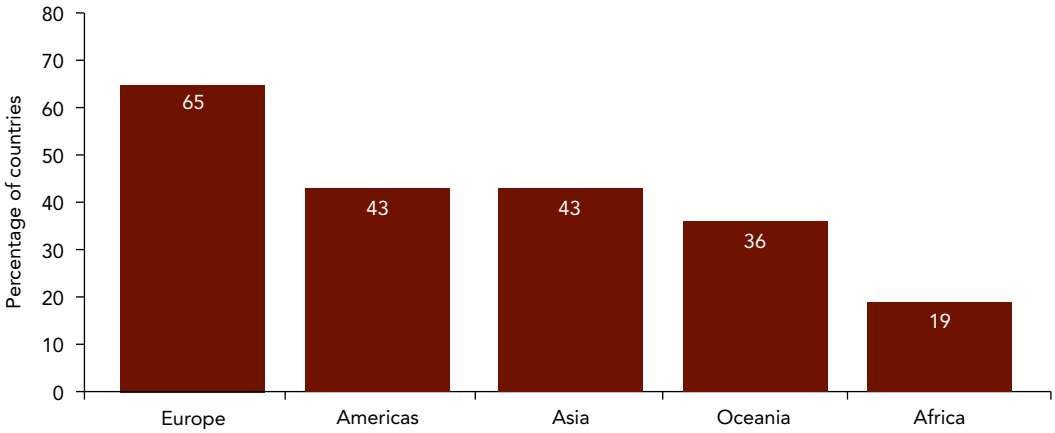
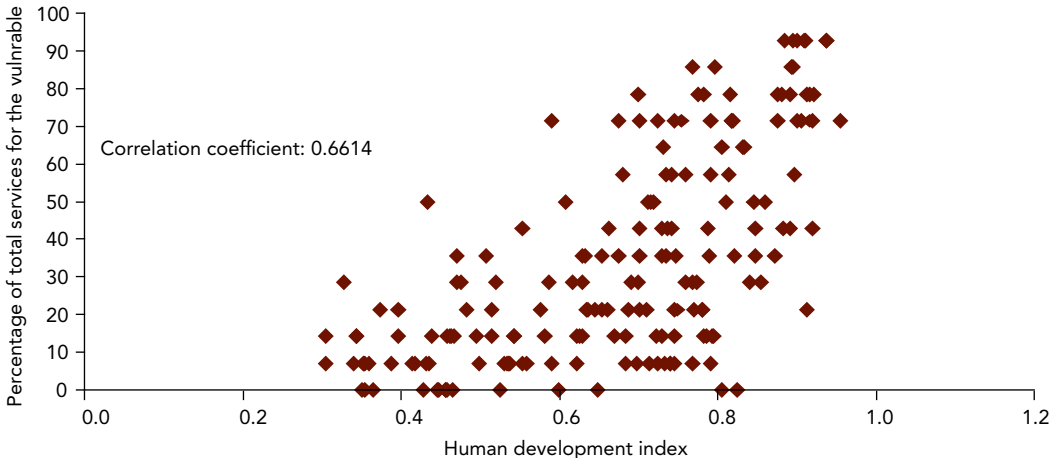


Figure 6.9. A higher percentage of total services are aimed at disadvantaged and vulnerable groups in high human development countries




## 6.6. Lack of e-services for disadvantaged and vulnerable groups compounds digital disparities

There has been progress in e-services aimed at disadvantaged and vulnerable groups. In 2012, the *United Nations E-Government Survey* assessed that 28 per cent of the national government websites contained specific sections on at least one of these groups; by 2014, 64 per cent of the national government portals and websites provided integrated links to sources of archived information (policies, budget, legal documents, etc.) related to disadvantaged and vulnerable groups, namely people living in poverty, persons with disabilities, older persons, immigrants, women and youth.

Clearly understanding the link between the burgeoning online opportunities and human wellbeing, many of the developed countries have a stated policy of e-inclusion of the disadvantaged and vulnerable groups in society which are generally the last to come on board the technology train. Cross country comparisons show evidence of this divide for the disadvantaged and vulnerable groups among countries of the world. Figure 6.9 indicates that countries with higher human development index pay greater attention to e-inclusion of vulnerable groups. Programs aimed at building skills for the vulnerable groups have encompassed special ease-of-use features for persons with disabilities, older persons, women and youth.

In Africa, online services for disadvantaged and vulnerable groups remains lower than in other regions, with only 4 per cent of countries offering services for the poor and the persons with disabilities. In Asia, the disabled and vulnerable group that receives most online services is the immigrants with 38 per cent of countries offering this service. Oceania has 14 per cent of countries offering services to the older persons, persons with disabilities and the immigrants. Services for the poor are available in 21 per cent of the countries in Oceania. Finally, in the Americas, 31 per cent of countries present services for the persons with disabilities and the older persons (see Table 6.4).

Table 6.4. Overview of online services for disadvantaged and vulnerable groups

| *Region* | *Services for poor* | *Services for persons with disabilities* | *Services for older persons* | *Services for Immigrants* |
|---|---|---|---|---|
| | *Per centage of total countries in the region* | | | |
| Africa | 4 | 4 | 6 | 7 |
| Americas | 20 | 31 | 31 | 17 |
| Asia | 34 | 32 | 30 | 38 |
| Europe | 47 | 53 | 53 | 44 |
| Oceania | 21 | 14 | 14 | 14 |

**Box 6.3. US portal devoted to disability providing comprehensive services**

The US portal on disability states 'We are committed to ensuring that Disability.gov is accessible to all visitors'. Under US Section 508 of the Rehabilitation Act of 1973, which was enacted to eliminate barriers to information technology for people with disabilities by requiring federal government agencies to provide comparable information and data to individuals with or without disabilities, the site provides a plethora of features for ease of use of People with Disabilities, Caregivers, Children & Youth, Employers & Human Resources Specialists, Health Care Providers, among other. The site is regularly monitored to ensure that it meets and exceeds the requirements of Section 508.

Source: https://www.disability.gov/

The disparity between regions is replicated between countries of a region and sub region indicating differential in approach, policy, programme, investment and focus on bringing disadvantaged and vulnerable groups into the fold of technology benefits. Figure 6.10 presents the disparity in provision of online services for disadvantaged and vulnerable groups in selected subregions.

Among selected economies of Eastern Europe, Hungary, Russian Federation, Czech Republic and Poland are far in advance of provision of online services to disadvantaged and vulnerable groups as compared to Belarus and Ukraine. Similarly, in Southern Asia, India and the Islamic Republic of Iran provided 43 per cent followed by Bangladesh, Nepal, Pakistan, Maldives and Sri Lanka at 21 per cent of online services to vulnerable groups (see Figure 6.10).

The *United Nations E-Government Survey 2014* for the first time tracked specific services for immigrants as a group. As Figure 6.11 shows, 44 per cent of the countries in Europe and 38 per cent in Asia have some services earmarked for immigrants. In Asia, China, Kazakhstan, Japan, Mongolia, the Republic of Korea, Pakistan, Maldives and Sri Lanka offered services while in Europe, Czech Republic, Lithuania, Norway, Sweden, United Kingdom were among those putting out information and services for the immigrants.

Figure 6.10. Online services for disadvantaged and vulnerable groups in Eastern Europe and Southern Asia, selected countries

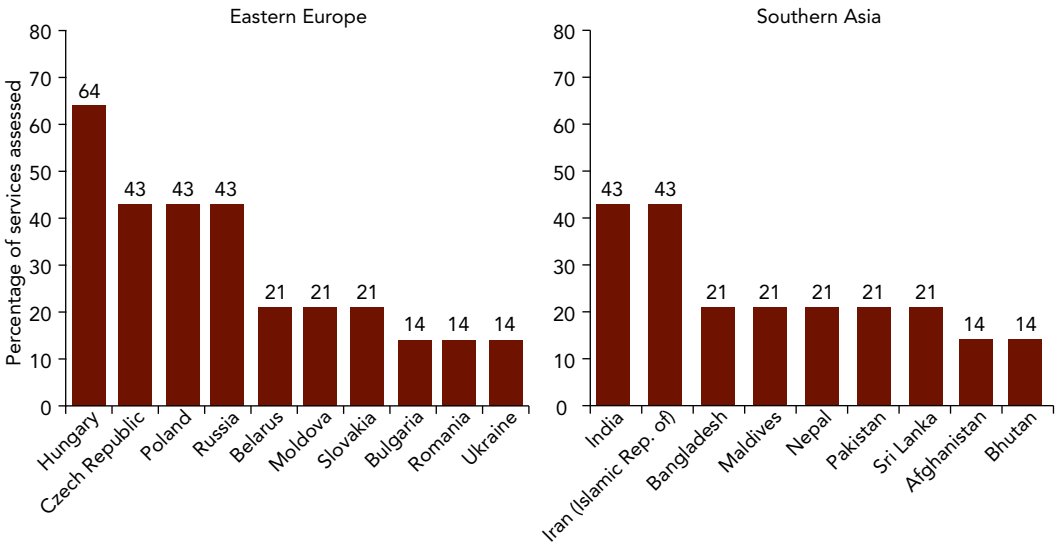
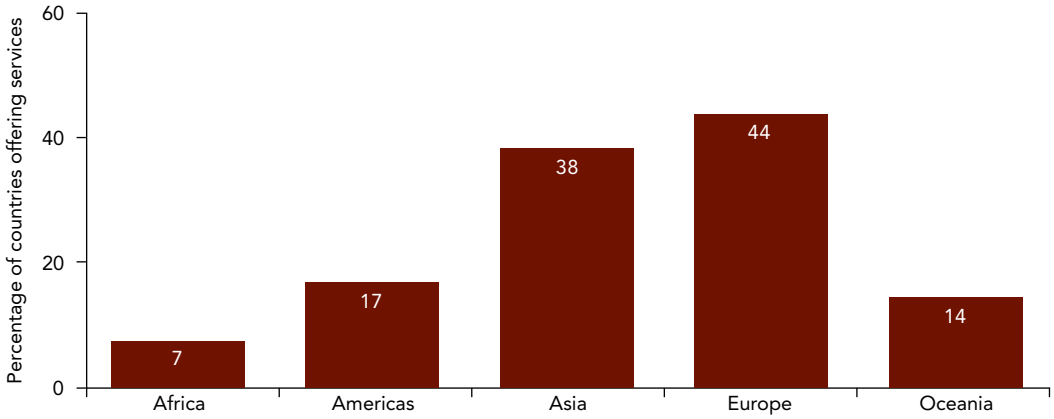
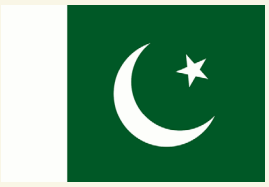



Figure 6.11. Online services for immigrants, by region




As in the case of other services national priority and policy plays an important role in provision of services. In Pakistan immigrant services are among the first and foremost reflection on the national portal (see Box 6.4).



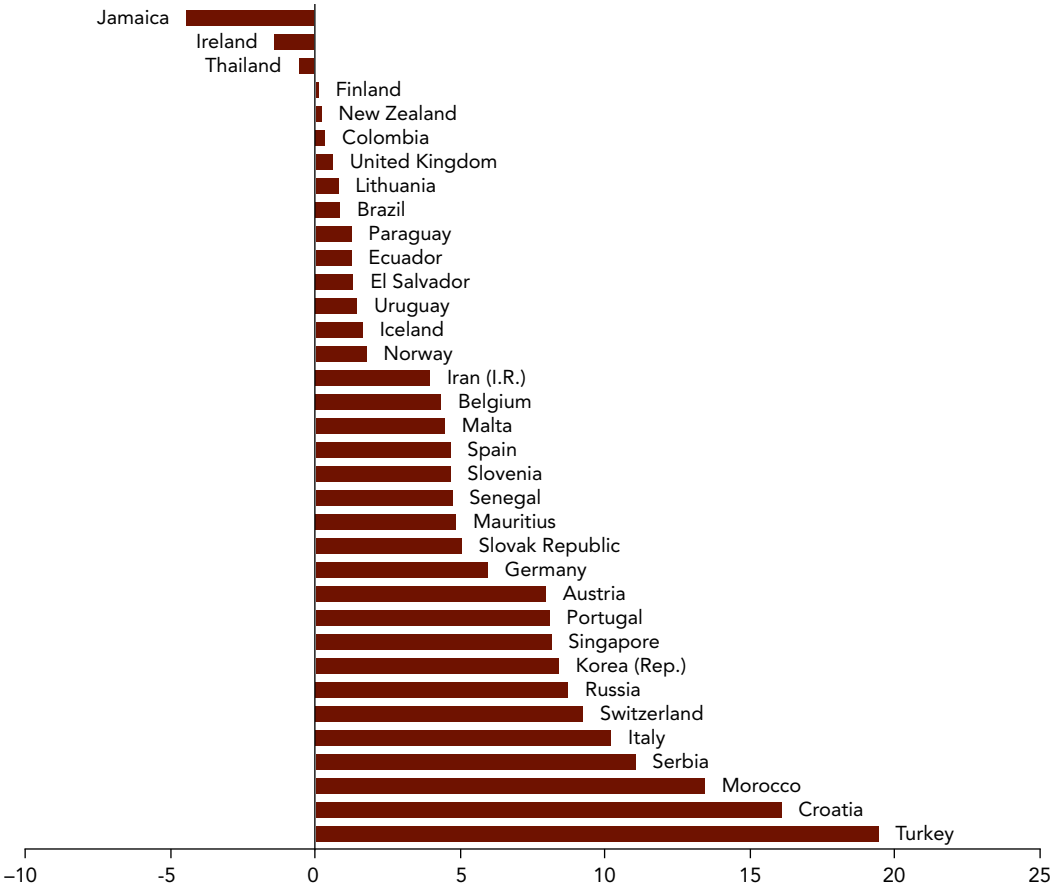
### Box 6.4. Pakistan puts immigrant services among the top popular searches

Among other causative factors in the provision of specific services for disadvantaged and vulnerable groups is the focus and priority of a government. In the case of Pakistan a newly revamped national portal puts immigrant services among the top under popular searches.

Source: National portal of Pakistan. http://www.pakistan.gov.pk

The digital divide is also a function of existing disparities in access by gender, demographics, rural-urban and of marginal groups on the fringes of mainstream society. Barring a few countries such as Jamaica, Ireland and Thailand, where there are more women users of the Internet than men, the majority of countries display the norm where men have an edge over women (see Figure 6.12). It is notable that in Jamaica 29.8 per cent of women are Internet users compared to 25.4 per cent of men. In Finland and New Zealand it is pretty much equal while in the Russian Federation (47.5 for men and 38.8 for women): the gap is much higher in countries such as Croatia (71.9 per cent for men to 55.8 per cent for women) and Turkey (52.9 per cent for men and 33.5 per cent for women). Though the differences have become smaller, they still remain large in several countries contributing one more factor to the overall digital divide. Because educational levels in general are lower for women in developing countries than men, their access opportunities are likely to be lower.

Figure 6.12. Disparity in use of Internet between men and women

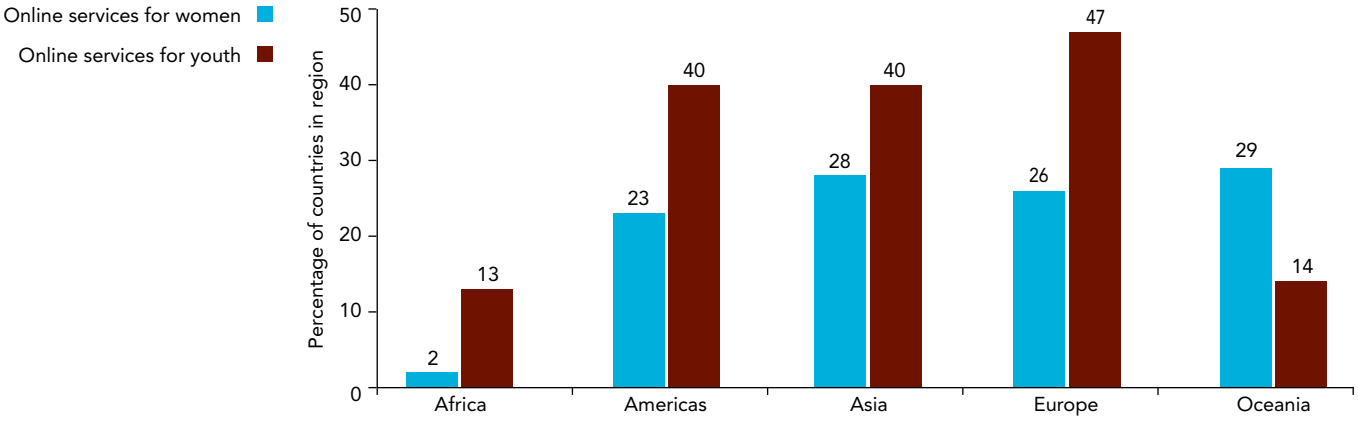



Source: Data from the ITU, based on national sources and Eurostat. http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

The causes of this gender divide can stem from disparities between men and women in terms of a lack of education, lack of income, social attitudes towards female usage of technology, women having to balance their roles of mother and worker and lack of Internet content relative to women's needs.

Despite the fact that young people are far more likely to be online, as compared to women as a group as well as the overall population, national government online services geared specifically towards the youth are still taking off. Disparities abound across all regions and are likely to be linked to the policy, level of development and national income of a country. In the more advanced regions, such as Europe and the Americas, 47 per cent and 40 per cent of the countries provide specific services geared to the young on their national websites (see Figure 6.13).

Figure 6.13. Countries providing online services for women and youth, by region




Among upper middle income countries Belize, China, Islamic Republic of Iran, Kazakhstan are among those providing specific services for women while Argentina, Belize, Colombia and Cuba are among those providing services for youth. Around a quarter of the countries of Europe and the Americas had specific information aimed at these groups on their websites.

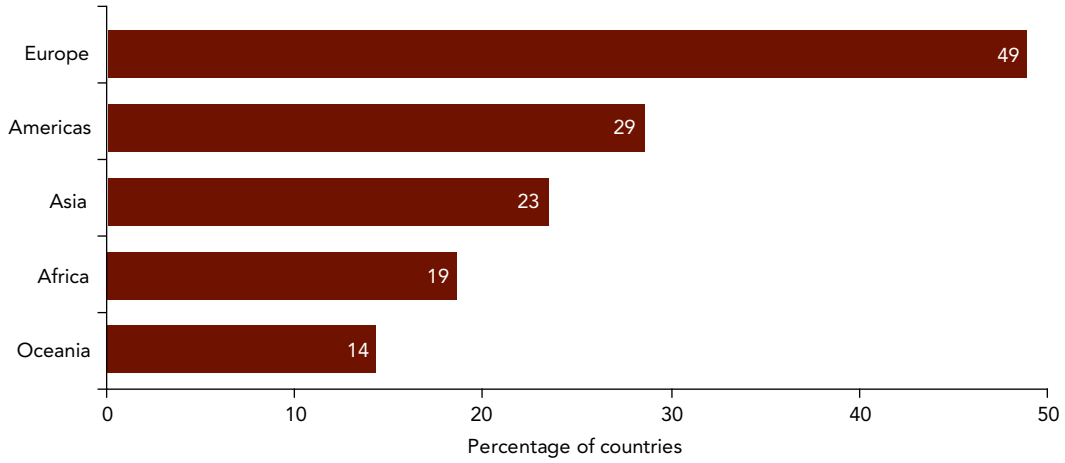
It is also notable that a large number of countries are now providing more archival information related to government policies and programs (see Table 6.5). In 2014 more than 50 per cent of the countries in the world regions, except for Africa, provided some data pertaining to disadvantaged and vulnerable groups. Despite not keeping up with the world averages in general, in terms of data, Africa was behind other regions with 28 per cent of the countries providing data pertaining to disadvantaged and vulnerable groups. Among these were Egypt, Gabon, Kenya, Madagascar, Mauritania, Mauritius, Morocco, Niger, Nigeria, Rwanda and Zimbabwe.

Table 6.5. Online archived information and data for disadvantaged and vulnerable groups

| *Region* | *Archived sources of information* | *Data* |
|---|---|---|
| | *% of countries* | *% of countries* |
| Africa | 41 | 28 |
| Americas | 69 | 69 |
| Asia | 68 | 51 |
| Europe | 86 | 60 |
| Oceania | 57 | 57 |

About half the countries in Europe and around one third in the Americas offered email or Really Simple Syndication (RSS) services to disadvantaged and vulnerable groups while the same in Africa was 19 per cent (see Figure 6.14). Among the sub regions of Africa, six countries in Eastern Africa—Kenya, Mauritius, Mozambique, Rwanda, Tanzania and Zimbabwe—offer the user the option to subscribe to updates via email or RSS feed on services related to disadvantaged and vulnerable groups, namely people living in poverty, illiterate persons, persons with disabilities, older persons, immigrants, women and youth. While Morocco in Northern Africa, Nigeria in West Africa and Sao Tome and Principe in Central Africa were alone in their sub regions. No country in Southern Africa provides RSS feeds aimed at these disadvantaged and vulnerable groups.

Figure 6.14. Updates via email and RSS source, by region




SMS services for disadvantaged and vulnerable groups were even less readily available with only about eight per cent of the countries of the world offering mobile apps or SMS service in regards to any of the disadvantaged and vulnerable groups.

## 6.7. Conclusion

The global disparities in digital access have socioeconomic implications in today's world, contributing to barriers to information and knowledge on the one hand and access to services on the other. With increasing online opportunities of employment, jobs, entrepreneurship and personal development, large groups are deprived through a lack of basic access to technology.

The digital divide has implications for the Post-2015 development agenda. While national governments have moved beyond connectivity parameters to employ ICT and e-government for service delivery aimed at e-inclusion, a broadening of the scope of these efforts is required to capture innovative technology solutions for poverty reduction and other development outcomes in the Post-2015 agenda. Meaningful access to ICT has gone beyond connectivity issues to embrace

human, economic and social resources, institutional structures and governance networks, which are central to developmental outcomes. A number of recommendations can be inferred from this Chapter.

- From a policy standpoint, efforts at bridging the digital divide must be broad based across the policy spectrum and include government leaders at the highest levels. At the national level, it is important to provide for policies that are aimed at equal opportunities for ICT access and inclusion.
- Formulation of a coherent and coordinated ICT policy at the national, regional and local levels should include a strategic framework identifying costs and benefits to the persons living in poverty and other disadvantaged and vulnerable groups.
- New ICT policies should address gender sensitive issues, including women's and girls' access to education, as well as to higher levels of decision-making at all levels.
- Governments also need to revisit the strategic framework of ICT access for the disadvantaged and vulnerable groups in terms of both increasing the level and reducing the cost of connectivity, which in some countries is prohibitively expensive.
- Following the example in some countries, governments in developing countries can support research and development to encourage the production of low-cost ICTs to enable the vast majority of people to have access.
- Finally, particular attention needs to be paid to the development of culturally relevant online content and services, especially aimed at supporting access for indigenous peoples.