# Target 4: Connect public libraries, cultural centres, museums, post offices and archives with ICTs[1]

## Introduction

Target 4 deals with highly knowledge- and information-intensive institutions, such as libraries, museums and archives. Therefore, it fits neatly into the overall WSIS objective, namely: "*to build an inclusive information society; to put the potential of knowledge and ICTs at the service of development; to promote the use of information and knowledge for the achievement of internationally agreed development goals.*"[2]

However, the target encompasses several "subtargets," covering aspects related to both access (institutions providing access to the Internet) and content (institutions with websites, providing access to information, and contributing to the preservation of cultural heritage). Because of this dual aspect of providing Internet access and generating content online, it is especially relevant for the following WSIS action lines:

- Action Line C2 (Information and communication infrastructure), specifically:
  *c) In the context of national e-strategies, provide and improve ICT connectivity for all schools, universities, health institutions, libraries, post offices, community centres, museums and other institutions accessible to the public, in line with the indicative targets*.[3]

- Action Line C3 (Access to information and knowledge), specifically:
  *h) Support the creation and development of a digital public library and archive services, adapted to the information society, including reviewing national library strategies and legislation, developing a global understanding of the need for "hybrid libraries," and fostering worldwide cooperation between libraries.*
  *i) Encourage initiatives to facilitate access, including free and affordable access to open access journals and books, and open archives for scientific information.*[4]

- • Action Line C8 (Cultural diversity and identity, linguistic diversity and local content), specifically:
  *b) Develop national policies and laws to ensure that libraries, archives, museums and other cultural institutions can play their full role of content — including traditional knowledge — providers in the information society, more particularly by providing continued access to recorded information.*
  *c) Support efforts to develop and use ICTs for the preservation of natural and cultural heritage, keeping it accessible as a living part of today's culture. This includes developing systems for ensuring continued access to archived digital information and multimedia content in digital repositories, and support archives, cultural collections and libraries as the memory of humankind.*
  *e) Support local content development, translation and adaptation, digital archives, and diverse forms of digital and traditional media by local authorities. These activities can also strengthen local and indigenous communities.*[5]

It is also related to Target 1 insofar as some of the institutions concerned, notably libraries, cultural centres and post offices, can also serve to provide public Internet access; and to Target 9, as they contribute to promoting the development of online (local) content in local languages.

Last but not least, Action line C4 (Capacity building) is an important enabler in this context, especially in regard to the need for training programmes for the use of ICTs by information professionals, who will include archivists, librarians, museum professionals and postal workers.[6]

Even though the institutions covered by these subtargets have some points in common in that they all tend to provide highly information- and knowledge-intensive services, they are also quite different in other ways, in terms of the specific purpose they serve and the role they can play in contributing to providing Internet access or online content. Therefore, this chapter will deal with each of the five subtargets separately, proposing indicators and monitoring and evaluating each subtarget individually, before wrapping up with an overall conclusion.

## Public libraries

The information society is about "information," so it is logical that traditional repositories of tangible information — libraries — should be a key player. Public libraries provide a venue for the community to read and learn and, like the community access points referred to in Target 1, are ideally positioned to extend their mission by also providing Internet access for people without easy or affordable access. One study found that 78 per cent of public libraries in the United States are the sole location providing free access to computers and the Internet in their communities.[7]

This community connectivity aspect of libraries is emphasized in the WSIS Geneva Plan of Action. Libraries are specifically referenced in Action Line C2 as institutions to be provided with connectivity as part of the national e-strategy. They are also important in several ways in the context of Action Line C3. First, they are repositories of information and knowledge with their collections of books, journals and other items, so connecting libraries is therefore of direct relevance, since it facilitates access to the information and knowledge they contain. Second, they are also cited as candidates for housing community public access points. Finally, the action line specifically encourages the development of a digital public library (and archives, see later in this chapter) and online access to journals and books.[8]

Libraries around the world have rich collections of historical documents that are an important source of cultural and linguistic diversity and identity, which are thus highly relevant to Action Line C8, and strongly related to WSIS Target 9 which includes encouraging the development of local content. Libraries promote cultural diversity, linguistic diversity and local content given that their collections feature national works in the language of the country.

It is imperative for libraries to digitize and document their holdings and create websites to provide online access to this information for the global community. There are various aspects to library digitization, including digital books, the digitization of key national heritage documents and the availability of a digital or electronic card catalogue. Several initiatives to digitize libraries are described in Box 4.1.

**Measuring the subtarget — Proposed indicators**

According to the UNESCO Institute of Statistics (UIS), a library is an "*Organization, or part of an organization, the main aims of which are to build and maintain a collection and to facilitate the use of such information resources and*

**Box 4.1: Digital libraries**

There are a number of significant initiatives to improve the digital offerings of libraries and enhance their website presence. The *European Library* groups 48 national libraries across the region through an online portal (www.theeuropeanlibrary.org). Its vision is the "*provision of equal access to promote worldwide understanding of the richness and diversity of European learning and culture.*"[9] Key sections are available in the 35 languages of the participating libraries, with other pages in English, French and German. In addition to coordinating multilingual aspects, participants are also working on standardizing and integrating card catalogues.

The library includes items that have been digitized including books, journals, photographs and paintings; sound and movie files and "born digital" files that were originally created in a digital format like e-books. The quality of the site is ensured through the expertise of the professional national librarian staff.

Among the many features of the European Library is the ability to quickly identify and link to collections and exhibitions across all libraries using various search criteria. For example, one can link to a special digital exhibit at the National Library of Sweden about Dag Hammarskjöld, a Swedish diplomat and second Secretary-General of the United Nations. The multimedia exhibit features photographs, key documents such as newspaper articles and television interviews structured across key periods in his life. The National Library of Sweden is well advanced with digitization in order "*to make its collections available to citizens throughout all of Sweden via the Internet.*"[10] One example is the "Codex Gigas" (Devil's Bible), supposedly the largest (by size) surviving European manuscript. The National Library website features digitized pages of every page of the book as well as documentation about the book's history, comments about the text, a bibliography and a glossary. The Internet is the only way the public at large can see the Codex Gigas since due to its age and condition it is stored in a climate-controlled room and not available for display.

The European Commission, which has provided funding for the European Library, sees it as a flagship project for digital access to Europe's heritage, using ICTs to "*...enable you to tap into Europe's collective memory with a click of your mouse.*"[11]

The *World Digital Library* (WDL) provides an example of using information technology to share the world's historical heritage in digitized format over the Internet. The concept was proposed by U.S. Librarian of Congress James H. Billington in 2006. The Library of Congress worked with UNESCO and other libraries (Bibliotheca Alexandrina, the National Library of Brazil, the National Library and Archives of Egypt, the National Library of Russia, and the Russian State Library) in a consultative process along with the International Federation of Library Associations (IFLA) and around 40 countries, in order to develop a prototype.

A WDL Experts Meeting held in 2006[12] noted problems to be overcome: "*... little cultural content was being digitized in many countries and that developing countries in particular lacked the capacity to digitize and display their cultural treasures. Existing websites often had poorly developed search and display functions. Multilingual access was not well developed. Many websites maintained by cultural institutions (including libraries) were difficult to use and, in many cases, failed to appeal to users, particularly young users.*"

Features of WDL include a user interface in seven languages and extensive information about the works. The project also worked with digitization centres in Brazil, Egypt, Iraq and Russia to convert holdings to digital format. WDL was launched in April 2009 and is available at: http://www.wdl.org.

Another initiative to digitize books is Google's "*Google Books,*" launched in October 2004, which scans books and makes them available online. If a book exists in Google's database that matches a user's search query, the results are returned. If the book is not subject to copyright or the copyright has expired, the user can view the full text. Otherwise, there are links to where the user can purchase it from. Currently, some seven million[13] titles are available through Google Books.

Google has faced thorny copyright issues with its book service. One problem is knowing when the copyright has expired, since this can vary by country. Google has also been sued by publishers and authors over perceived copyright violations. However, a settlement has been reached that should make millions of additional books available online,[14] helping progress towards the quest to create "*...the digital ... library of the future, making humanity's entire body of knowledge accessible to everyone.*"[15]

*facilities as are required to meet the informational, research, educational, cultural or recreational needs of its users; these are the basic requirements for a library and do not exclude any additional resources and services incidental to its main purpose.*"

The aims include facilitating the use of information resources to meet the needs of users. In that regard, UIS defines electronic services of libraries as: "*Electronic library services, which are either supplied from local servers or accessible via networks, include online catalogues, the library website, electronic collection, electronic document delivery (mediated), electronic reference service, user training on electronic services and Internet access offered via the library.*"

The target states the aim as being to "connect libraries." This could mean equipping libraries themselves with Internet access. However, there are two further aspects to consider. One is providing users with Internet access at libraries, as a public Internet access point (PIAP). The second would be making library content available online. Accomplishing the latter would then permit access to computerized collection catalogues, digital documents and other online library services. Thus, the following indicators are proposed:

1. Percentage of public libraries with access to the Internet, by type of access

2. Percentage of public libraries providing users with Internet access

3. Percentage of public libraries with a website.

These indicators have been used by UIS in a pilot survey on libraries for Latin America and the Caribbean.[16] Out of the 22 indicators in the survey covering various aspects of libraries (i.e. not just ICTs), the percentage of libraries providing Internet access had the highest fulfilment rate and the percentage of libraries with a website had the sixth highest. These indicators are emphasized because of their public-service orientation, but libraries equally need to computerize their own internal workings by providing staff with computers and computer training, and using ICTs to inventory and catalogue their collections. In fact, it is likely that libraries providing Internet access and having a website will have a certain level of ICT use and competencies to apply to their internal operations. It might also be useful to ascertain other details about a library's public ICT services, such as whether computers or wireless Internet access are available for library users.

There is a lack of comprehensive data coverage on the overall number of public libraries in countries, let alone the number with Internet access or websites. The International Federation of Library Associations (IFLA) and the Committee on Free Access to Information and Freedom of Expression (FAIFE) compile a biennial yearbook that contains data on the number of libraries in a country along with what proportion of libraries offer Internet access, in broad ranges.[17] The 2007 edition features data for 115 countries. Apart from the limitation of not covering all United Nations Member States, the statistical data are presented in an aggregated form. Country data can be obtained from the text of the individual country reports, but the data on Internet access availability are presented in quintiles rather than the exact percentage of libraries. There are also no data on the proportion of libraries with a website. Nevertheless, the publication is a valuable starting point for measuring public-library connectivity.

One fundamental problem with monitoring the subtarget is defining the universe of public libraries. In some countries, public libraries are centrally administered while in others the library system is decentralized. It is not clear whether surveys are capturing all of the relevant public-library units and whether branches and mobile units are being included. For example, in the UIS data for Latin America and the Caribbean, there were only 27 public libraries reported for Argentina compared to 167 for Uruguay, a much smaller country.[18]

A related issue to the uncertainty surrounding the number of public libraries is measuring the number of public libraries with a website. In some countries, there is a network of public branches that are administered by a central library. While the central library may have a website, the branches might not. Therefore, the percentage of libraries with a website can be misleading, since it might be sufficient for the main branch to be online. On the other hand,

each individual library having a website would have advantages in terms of the potential ability to offer a full suite of online services about information relevant to that particular library.

A few countries publish statistics on public-library connectivity. For example, Australia measures the number of Internet workstations per public library, the percentage of libraries with a website and the percentage with their catalogues on the web.[19] The U.S. National Centre for Education Statistics publishes a report that includes the percentage of public libraries providing access to the Internet and the number of Internet terminals in public libraries for public use per inhabitant and per library.[20]

The European Union includes the availability of electronic card catalogues in public libraries as one of the 20 policy indicators comprising its e-government indicator. The percentage of public libraries with a website could be a proxy for this indicator, because it would then be possible to access the catalogue online.

In the future it might be useful to obtain more detailed information about library ICT connectivity aspects such as the number of terminals with Internet access available or the number of users of library Internet services.[21]

**Status of the subtarget**

There is no comprehensive international database on global library connectivity presented in a format that adequately suits monitoring of the target. ITU carried out an ad-hoc survey in 2009 in the context of tracking the WSIS targets. It included questions on access to the Internet for public libraries, by type of access, and whether libraries had a website. The results point to large differences across countries (Table 4.1), reflecting at least in part some of the measurement challenges described above.

The number of libraries varies widely, reflecting country size and population differences, as well as difficulties related to the measurement unit mentioned above (central library, branches, etc.). Thus, the figure ranges from over 7 000 in Mexico and over 5 000 in Czech Republic and Brazil, to just 4, 3 and 2 libraries in Djibouti, Lesotho and Bhutan, respectively. Not all of these have access to the Internet, though. For example, only 32 per cent of the reported 7 283 libraries in Mexico have access to the Internet, 23 per cent with a broadband connection. There is only one library with a website. In Djibouti, three of the four libraries have access to the Internet, although each with a broadband connection, and two have a website. Overall, connectivity is high in developed countries. Furthermore, those libraries with access to the Internet tend to have broadband access. The percentage of libraries with a website can be somewhat misleading since, as mentioned above, there may be a single website covering a network of libraries and/or branches.

The IFLA/FAIFE data, though not complete in terms of coverage and with limitations in terms of data clarity, provide some indication of the recent status of the provision of public Internet access in libraries (Table 4.2). According to the data, only about a third of the respondent countries reported that at least 80 per cent of their public libraries offered Internet access, whereas around 40 per cent of the respondent countries reported that less than 20 per cent of their public libraries offered Internet access. No region reported that at least 80 per cent of all public libraries provided Internet access. The lowest numbers reported were for Africa, where 71 per cent of the respondent countries reported that less than 20 per cent of public libraries offered Internet access.

The UIS survey provides fairly comprehensive coverage for the Latin America and Caribbean region (Table 4.3). The number of public libraries per 1 000 inhabitants ranges from 0.001 to 0.228. There is a wide range of library connectivity achievement in the region. It is easier to provide Internet access to only a few libraries, so most of the small island states in the Caribbean have a relatively high ratio of libraries providing Internet access. Fewer data were available for public libraries with a website. Where data are available for this indicator, the figure tends to be lower than for libraries providing Internet access. This may be due to the structural issue alluded to above, i.e. branches of main libraries where only the main branch has a website. Even though some of the connectivity rates are fairly low, there are a number of initiatives in place in all parts of the world to connect libraries (Box 4.2).

**Table 4.1: Public libraries with access to the Internet, by type of access, and with a website, by country, 2009***

| Country | Number of public libraries | Number of public libraries with access to the Internet (any type of con-nection) | % of public libraries with access to the Internet (any type of con-nection) | Number of public libraries with access to the Internet (broadband only) | % of public libraries with access to the Internet (broadband only) | Number of public libraries with a website | % of public libraries with a website |
|---|---|---|---|---|---|---|---|
| Albania | 50 | 20 | 40 | 20 | 40 | 3 | 6 |
| Andorra | 9 | 8 | 89 | 8 | 89 | 9 | 100 |
| Bhutan | 2 | 2 | 100 | ... | ... | 1 | 50 |
| Bolivia | 2134 | 40 | 2 | 4 | 0 | 20 | 1 |
| Bosnia and Herzegovina | 790 | 340 | 43 | 201 | 25 | 157 | 20 |
| Botswana | 27 | 4 | 15 | 4 | 15 | ... | ... |
| Brazil | 5232 | ... | ... | ... | ... | ... | ... |
| Brunei | 9 | ... | ... | ... | ... | 1 | 11 |
| Bulgaria | 47 | 47 | 100 | ... | ... | ... | ... |
| Croatia | 202 | 194 | 96 | ... | ... | 197 | 98 |
| Czech Republic | 5438 | ... | ... | ... | ... | 1637 | 30 |
| Denmark | 97 | 97 | 100 | 97 | 100 | 97 | 100 |
| Djibouti | 4 | 3 | 75 | 3 | 75 | 2 | 50 |
| Egypt | 2256 | 676 | 30 | ... | ... | ... | ... |
| Finland | 1660 | 1660 | 100 | ... | ... | ... | ... |
| Haiti | 195 | ... | ... | ... | ... | ... | ... |
| Hungary | 2073 | 1521 | 73 | 1391 | 67 | 601 | 29 |
| Iraq | 470 | ... | ... | ... | ... | ... | ... |
| Korea (Rep.) | 626 | 626 | 100 | 626 | 100 | ... | ... |
| Latvia | 874 | 874 | 100 | 874 | 100 | ... | ... |
| Lesotho | 3 | 3 | 100 | 1 | 33 | 0 | 0 |
| Lithuania | 1347 | 1021 | 76 | 598 | 44 | 144 | 11 |
| Malta | 56 | 8 | 14 | 2 | 4 | ... | ... |
| Mexico | 7283 | 2335 | 32 | 1650 | 23 | 1 | 0.01 |
| New Zealand | 317 | ... | ... | ... | ... | ... | ... |
| Paraguay | 37 | 5 | 14 | 5 | 14 | 3 | 8 |
| Singapore | 22 | 22 | 100 | 22 | 100 | 22 | 100 |
| St. Lucia | 18 | 12 | 67 | 12 | 67 | 0 | 0 |
| St. Vincent and the Grenadines | 23 | 10 | 43 | 10 | 43 | 1 | 4 |
| Sweden | 1286 | 1286 | 100 | ... | ... | 290 | 23 |
| Thailand | 1393 | ... | ... | ... | ... | ... | ... |
| Turkey | 1150 | 673 | 59 | 673 | 59 | 33 | 3 |
| United Kingdom | 3500 | 3500 | 100 | 3500 | 100 | ... | ... |

Note:    *Or latest available year. "...": data not available.
Source:  ITU Survey on the WSIS Targets.

**Table 4.2: Percentage of public libraries offering Internet access, by region, 2007**

| | Africa | | Asia | | Europe | | Latin America & Caribbean | | North America | | Oceania | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coun-tries | % | Coun-tries | % | Coun-tries | % | Coun-tries | % | Coun-tries | % | Coun-tries | % | Coun-tries | % |
| 81-100% | 2 | 7.1 | 4 | 20 | 16 | 47.1 | 6 | 27.3 | 2 | 66.7 | 4 | 50 | 34 | 29.6 |
| 61-80% | 1 | 3.6 | 1 | 5 | 3 | 8.8 | 4 | 18.2 | 0 | 0 | 0 | 0 | 9 | 7.8 |
| 41-60% | 2 | 7.1 | 4 | 20 | 8 | 23.5 | 1 | 4.5 | 0 | 0 | 1 | 12.5 | 16 | 13.9 |
| 21-40% | 3 | 10.7 | 3 | 15 | 1 | 2.9 | 3 | 13.6 | 1 | 33.3 | 0 | 0 | 11 | 9.6 |
| ≤20% | 20 | 71.4 | 8 | 40 | 6 | 17.6 | 8 | 36.4 | 0 | 0 | 3 | 37.5 | 45 | 39.1 |
| Total | 28 | 100 | 20 | 100 | 34 | 100 | 22 | 100 | 3 | 100 | 8 | 100 | 115 | 100 |

Note:    % refers to the percentage of countries responding. For example, in two African countries, between 81 and 100 per cent of public libraries offer Internet access. These two countries make up 7.1 per cent of the African countries that replied to the survey.

Source:   IFLA/FAIFE.

**Table 4.3: Percentage of public libraries with Internet access for users, and websites, 2006 or latest, Latin America and the Caribbean**

| Country | Number of public libraries | % of public libraries offering Internet access to users | % of public libraries with websites |
|---|---|---|---|
| Antigua and Barbuda | 1 | 100 | 100 |
| Argentina | 27 | 51.9 | 51.9 |
| Bahamas | 32 | 81.3 | 9.4 |
| Brazil | 4 801 | 9.3 | ... |
| British Virgin Islands | 5 | 40 | 20 |
| Chile | 428 | 2.3 | 1.4 |
| Colombia | 1 595 | 15.2 | 2 |
| Costa Rica | 57 | 66.7 | ... |
| Dominica | 4 | 50 | ... |
| Dominican Republic | 398 | ... | ... |
| El Salvador | 16 | 25 | ... |
| Guyana | 21 | 28.6 | 4.8 |
| Honduras | 116 | 6.9 | ... |
| Jamaica | 615 | 14.8 | 14.8 |
| Mexico | 7 210 | 37.1 | ... |
| Montserrat | 1 | 100 | ... |
| Netherlands Antilles | 1 | 100 | 100 |
| Peru | 826 | ... | ... |
| St. Kitts and Nevis | 3 | 100 | ... |
| St. Lucia | 18 | ... | ... |
| St. Vincent & the Grenadines | 20 | ... | 5 |
| Suriname | 7 | 14.3 | ... |
| Trinidad and Tobago | 23 | 100 | 8.7 |
| Uruguay | 167 | 19.2 | ... |
| Venezuela | 728 | 100 | 0.1 |
| Percentage of each indicator availability for all countries | 100% | 84% | 48% |

Note:    "...": data not available.

Source:   UNESCO Institute of Statistics.

**Box 4.2: Examples of initiatives to connect libraries**

A number of countries have made progress in connecting their public libraries with ICTs. Some examples are discussed below, including the United States, which has used universal service funds to extend connectivity to public libraries; Venezuela, where public libraries are an important element of the country's public Internet access programme; Singapore, which has implemented information technology in libraries through a series of plans; and Trinidad and Tobago, where public libraries are an important location for extending Internet access to the community. Philanthropy organizations may also play a role in providing Internet access for public libraries.

The 2006 Telecommunications Act in the **United States** created a provision for schools and libraries to benefit from reduced service charges for Internet access, financed with subsidies from the country's universal service fund (all licensed telecommunication operators contribute a portion of their revenue to the fund). The discount, referred to as the "e-rate," has made Internet access more affordable for public libraries, and the proportion of libraries with Internet access has risen from 28 per cent in 1996 to over 95 per cent today.[22]

**Venezuela** is the only country in Latin America with all of its public libraries providing Internet access to library users. This was achieved as part of the country's "*Infocentro*" project launched in 2000 for creating public Internet access centres.[23] Libraries are a logical place in which to provide access, since they are already public places and in Venezuela they are spread throughout the country, with at least one in each state. The National Library of Venezuela has a website and a digital collection of Venezuela's historical documents, as well as an online card catalogue.[24] It also participates in regional digital library initiatives.[25]

Information technology has played a key role in transforming **Singapore**'s public libraries from "*mediocre at best to world class.*"[26] The transformation began with the establishment of the National Library Board (NLB) in 1995 to implement the nation's *Library 2000* plan.[27] From 1998, broadband was rolled out to the two dozen public libraries, and all of the libraries have Wi-Fi Internet access for users with their own laptops. In 2007, there were 38 million physical library visits, 7 million logins to the NLB website and 72 million electronic retrievals.[28]

The public-library system in **Trinidad and Tobago** is recognized as one of the best in the Caribbean. The libraries are administered by the National Library and Information System Authority (NALIS).[29] As of 2007, all 24 public libraries provided Internet access through 250 computers [Watson and Ramlal, 2007]. Some 17 000 people a month use the Internet facilities, where they can log on for one hour a day free of charge. A number of libraries also have Wi-Fi Internet access. The libraries' websites provide an array of digital content, including exhibitions that have been held at NALIS; card catalogues showing, among other things, how many copies of a book exist, in which branch they are located and whether they are checked out or not; and digital versions of important historical collections and newspaper clippings.

The Bill and Melinda Gates Foundation has been active in supporting Internet access in U.S. public libraries. It has expanded this activity overseas through the *Global Library Initiative*.[30] The Foundation has granted over USD 200 million to libraries in ten countries (Chile, Mexico, Latvia, Lithuania, Romania, Viet Nam, Poland, Botswana, Bulgaria and Ukraine) to provide computers and Internet access.[31] In 2006, the *Public Library Development Project* in Latvia received a grant of USD 16 million from the Foundation, along with USD 21 million from the Latvian government and USD 8 million from Microsoft to equip all 874 Latvian public libraries with broadband Internet connections, provide Wi-Fi access and furnish around three computers per library.[32]

## Cultural centres

The concept of a "*cultural centre*" is not well defined, and even the Geneva Plan of Action does not specify what is meant by the term. It is used only in the wording of the target itself.[33] The Plan of Action does refer to "*cultural institutions*," which can be assumed to include cultural centres, under Action Line C8.[34]

Depending on the definition adopted, there could be a public Internet access consideration, as cultural centres are typically places where the public gathers,[35] as well as a cultural heritage and local content aspect. Cultural centres

could include places for arts, educational and recreational activities, exhibitions, shows, social gatherings and so forth (see below for definitions provided by countries). The subtarget would then be in line with Action lines C2, C3 and C8, in particular through promoting the diversity and preservation of cultural heritage. As such, it is also strongly linked to WSIS Targets 1 and 9.

**Measuring the subtarget — Proposed indicators**

Given the dual aspect of public Internet access and local (cultural heritage) content, indicators that could be relevant in the context of this subtarget include:

1. Percentage of cultural centres with access to the Internet, by type of access

2. Percentage of cultural centres with a website

3. Percentage of cultural centres providing public Internet access.

The first indicator deals with Internet access, and could constitute a first indication of the use of ICTs in cultural centres, in this case as a first step, or basic indicator, towards providing Internet access to users and visitors of the centre. The second indicator focuses on providing online content, looking at whether or not the cultural centre has a website, a prerequisite for providing online information and access to content. The third indicator deals with public Internet access, which could also be monitored under Target 1.

However, there is currently no organization or institution that collects data to construct such indicators, and as cultural centres are not defined, and are extremely diverse (related to culture, arts, sports and other recreational activities, health, religion, etc.), it is extremely difficult to track this target at the international level.

**Status of the subtarget**

ITU carried out an ad-hoc survey in 2009 in the context of monitoring the WSIS targets. It included questions on Internet access in cultural centres, including by type of access. The results point to large differences in connectivity, and highlight the difficulties in measuring this subtarget. Indeed, the absence of a clear definition of the term "cultural centre" makes it difficult to collect data. Several countries have reported statistics on the number of cultural centres, though this may vary with the size of the country and its population, and the definitions provided highlight not only the problem of circumscribing the concept, but also the diverse interpretations across countries.

The responses to the first question on the number of cultural centres already indicate differences across countries, both in the number and the definition (if provided). Some countries reported very large numbers of cultural centres, such as:

- *Bulgaria*: 2 895.

- *Egypt*: 969 — distinguishing between a culture palace, which is a multi-activity complex aiming to upgrade the cultural awareness of the public in different fields and located in the capital and major cities, and a culture house, which is a culture complex that serves villages, hamlets and the smaller districts.

- *Lithuania*: 856 (in 2008), where a cultural centre is defined as a legal institution whose aim is to foster ethnic culture, promote amateur art, develop educational and recreational activities and meet the cultural needs of the community.

- *Latvia*: 534 (in 2008), where a cultural centre is defined as a multifunctional institution whose aim it is to maintain and develop Latvian cultural diversity, to promote national and local cultural values and inheritance of traditions and to facilitate intercultural dialogue and cooperation and help establish an environment that encourages creation, social participation and lifelong education.

- *Korea*: 390, where the term (public) cultural centre may refer to a "cultural and arts centre" or a "local cultural centre." The term "cultural and arts centre" refers to a cultural complex with a main auditorium established by

the central or local government. The term "local cultural centre" refers to a public corporation established to carry out local cultural programmes for local culture promotion.[36]

At the other extreme, Nauru reported zero cultural centres, but did provide a definition (an organization, building or complex that promotes Nauruan culture and arts). A single cultural centre was reported by Botswana, Brunei (an attraction centre for ecotourism showcasing Malay culture and tradition), Lesotho, Mexico (where a cultural centre is defined as a site or group of art spaces developed for entertainment and conducting exhibitions, shows, social gatherings and reading practice, and designed to hold activities to promote culture among its inhabitants that supports education and updating knowledge) and St Lucia (where a cultural centre is defined as an institution for presenting and developing cultural arts and a venue for the stimulation of national pride).

Remaining responses were provided by Djibouti (three — where a cultural centre is defined as a place for shows, conferences, exhibitions and socio-cultural animations), Andorra (eight), Bhutan (21, including Dzongs which are centres where traditional cultures are preserved), Paraguay (60), Bolivia (71) and Singapore (91 — including performing arts centres, i.e. black boxes, prosceniums, theatres, multipurpose halls, auditoriums and concert halls; and visual arts exhibition halls, i.e. exhibition halls, public galleries (excluding commercial galleries), dedicated art museums and mega-trade exposition halls).

Among the countries that responded to the ITU questionnaire, few provided information on access to the Internet for cultural centres (Table 4.4).[37] The available information again points to substantial differences among countries. All of Korea's 390 and Singapore's 91 cultural centres have broadband Internet access. In Egypt, 60 per cent of the 969 cultural centres have broadband Internet access. In Hungary, 70 per cent of the 3 487 cultural centres have Internet access, but only 29 per cent have broadband Internet access.

These data are insufficient for measuring or monitoring the subtarget in a comprehensive manner, and for evaluating progress or the likelihood of achieving the subtarget by 2015. Nonetheless, there are initiatives in countries to promote the connectivity of cultural centres (Box 4.3), suggesting that at least some progress has been made.

**Table 4.4: Cultural centres with Internet access, by country, by type of access, 2009***

| Country | Number of cultural centres | Number of cultural centres with access to the Internet (any type of connection) | % of cultural centres with access to the Internet (any type of connection) | Number of cultural centres with access to the Internet (broadband only) | % of cultural centres with access to the Internet (broadband only) |
|---|---|---|---|---|---|
| Brunei | 1 | 0 | 0 | 0 | 0 |
| Djibouti | 3 | 3 | 100 | 3 | 100 |
| Egypt | 969 | 586 | 60 | 586 | 60 |
| Hungary | 3 487 | 2 451 | 70 | 1 023 | 29 |
| Korea (Rep.) | 390 | 390 | 100 | 390 | 100 |
| Latvia | 534 | 103 | 19 | ... | ... |
| Mexico | 1 | 1 | 100 | 1 | 100 |
| Paraguay | 60 | 9 | 15 | ... | ... |
| Singapore | 91 | 91 | 100 | 91 | 100 |
| St. Lucia | 1 | 1 | 100 | 1 | 100 |

Note:   * Or most recent available. "...": data not available.
Source:  ITU Survey on the WSIS Targets.

**Box 4.3: Examples of initiatives to connect cultural centres**

In Kharkov, *Ukraine*, the computer laboratory in the Israeli Cultural Centre (ICC) was opened on 12 January 2001. It offers PCs, server, printers and other office equipment. The main audience of the centre includes the participants in ICC programmes, both adults and children. The centre offers various computer qualification courses, and the computer lab is also home to the ICC's Publishing Group which developed the centre's website and the newspaper "*Our news*" ("*Nashi novosti*").[38]

The *Communication Cultural Centre* in Banda Aceh, the capital of Aceh province (*Indonesia*) focuses on providing ICT training. The centre was established by the UNESCO Jakarta office, under the project funded by United Nations Office of Coordination for Humanitarian Affairs (UN-OCHA). A Jakarta-based NGO, *Nurul Fikri Foundation*, is the implementing partner in the project. The centre became operational late June 2006 and is used by the communities to access and exchange information and to preserve and develop Acehnese culture.

The centre provides an FM radio station (producing and broadcasting a variety of news, current affairs and music programmes, as well as talk shows and other interactive programmes), a place for art and culture activities, and an Internet café equipped with 10 computers, printer and scanner, offering free Internet access and ICT training courses. So far, participants in these training courses have come from diverse backgrounds, including Nasyid's singers (a group of singers who sing religious songs), journalists, writers and Acehnese traditional dancers.[39]

Connecting cultural centres can be useful in preserving cultural heritage. For example, in *Western Australia* as part of the "*Saving traditions*" project, between 1980 and 2003 a small group of the indigenous Ngalia people generated a lot of cultural research material, including a full Ngalia language dictionary and thesaurus, digital song archives, complex databases of genealogy records, and maps of culturally significant resources — using GPS receivers to plot locations such as waterholes, rock formations and rivers. In 2006, the Ngalia community expanded their work to a youth participatory video project, in order to build on the interest shown by young people in using ICTs. The video project yielded many positive outcomes, including young people using traditional language, referring to plants of cultural significance and explaining their traditional uses. A second video, filmed and edited entirely by four Ngalia boys, further raised interest in the cultural history and provided a marketable product for the community. The Ngalia have continued to take advantage of new technologies to improve their communication facilities, notably by connecting the community cultural centre to a wireless network in 2007. Furthermore, an advocacy-related group around the Ngalia movement — the "*Indigenous Land Justice: Ngalia Foundation Appeal*" — was created using Facebook.[40]

Connecting cultural centres can also be driven by public-access considerations, as shown in an example from *Egypt*, where the Ministry of Communication and Information Technology (MCIT) supports the creation of IT clubs in hosting organizations, including community centres. As the early pilot projects (in 1997) had limited reach (mainly children under 15 and local professionals), the ministry subsequently launched the *IT Club* initiative, designed to promote awareness and provide affordable access to ICTs for all Egyptian citizens, including those in underprivileged areas and those with little or no prior experience of ICTs. At least 40 per cent of the IT clubs have been established in youth centres, sports clubs, cultural centres, schools, mosques, churches and NGOs in every governorate. MCIT selects and supports hosting organizations, notably by providing the necessary equipment (computers, printers, LAN, Internet access, server, etc.) on the basis of a three-year lease. If the IT club is successful, it retains ownership of the equipment on lease maturity. Private-sector partners provide space, infrastructure, utilities, furniture and security.[41]

## Museums

Providing museums with information and communication technology is essential for digitization and electronic dissemination of the world's cultural heritage. WSIS highlights the importance of connectivity for museums in the Geneva Plan of Action, emphasizing that museums must "... *play their full role of content ... providers in the information society*...."[42] Putting museum collections online extends their reach to a much broader audience than those that can physically visit the museum.

Another reason for connecting museums is to improve the linkages between content and context. Many museums and museum pieces are already on the Internet, whether voluntarily or not, through tourist blogs, travel agencies or photos of the collection posted on social networking sites.[43] In most cases there is only a superficial, if any, explanation of the work, and the unofficial depiction of museum pieces is often unprofessional. Only museums posses the curatorial skills required for documenting and providing professional insights into the significance of the pieces in their collection.

Action Line C2 recommends that providing connectivity to museums be included in countries' national e-strategies.[44] Action Line C4, relating to capacity building, is also important in this context, especially the following provision: "*Design specific training programmes in the use of ICTs in order to meet the educational needs of information professionals, such as archivists, librarians, museum professionals, scientists, teachers, journalists, postal workers and other relevant professional groups. Training of information professionals should focus not only on new methods and techniques for the development and provision of information and communication services, but also on relevant management skills to ensure the best use of technologies. Training of teachers should focus on the technical aspects of ICTs, on development of content, and on the potential possibilities and challenges of ICTs.*"[45] Action Line C8 is also again relevant, advocating that countries "*Develop national policies and laws to ensure that libraries, archives, museums and other cultural institutions can play their full role of content — including traditional knowledge — providers in the information society, more particularly by providing continued access to recorded information,*"[46] thus linking this target also to Target 9.

**Measuring the subtarget — Proposed indicators**

The International Council of Museums (ICOM) defines a museum as: "*... a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.*"[47] The interpretation of including "connect" in the target is that museums should have Internet access. The benefits of online access to a museum's resources are highlighted by statistics from the Smithsonian Museums in the United States, which were visited by some 25.2 million people in 2008, eight times less than the 172.8 million who visited its websites.[48]

In addition to the percentage of museums with access to the Internet, by type of access, the proportion of museums with a website could be a useful indicator towards measuring the online content availability of museums. Having said that, the information featured on museum websites varies greatly, from just the address and opening hours to interactive features showing museum collections.

Thus, the two indicators proposed to measure this subtarget are:

1.      Percentage of museums with access to the Internet, by type of access

2.      Percentage of museums with a website

It could also be useful to expand on the basic indicator on the percentage of museums with a website to include demand-side indicators that reflect how often and in what way the websites are being used. A number of museums publish statistics on the number of hits their websites receive each year. The Prado in Spain surveys visitors to find out their impressions of the museum's website. Some 18 per cent of visitors consulted the museum's website prior to their visit. The Musée d'Orsay tracks the percentage of website visitors by language. Mexico asks visitors how they found about the museum, with the Internet being one of the choices. Australia publishes data on the percentage of pieces in museum's collections that are accessible online.

**Status of the subtarget**

A major weakness of museum statistics is that there is no official source for recent data on the number of museums broken down by country.[49] One problem is the lack of a satisfactory framework for cultural data within national statistical systems, as pointed out by the European Commission: "*The field of culture defined in this way does not equate to any particular economic sector and therefore is not covered by sectoral surveys. It includes activities in numerous areas of social and economic life, which are not always identifiable in economic classifications. As a result, statistics are missing for a number of activities which cannot be singled out and examined from national and European surveys or data collections*" [Eurostat, 2007].

**Table 4.5: Museums with access to the Internet by type of connection, and with a website, selected countries, 2009***

| Country | Number of museums | Number of museums with Internet access (any type of connection) | % of museums with Internet access (any type of connection) | Number of museums with Internet access (broadband only) | % of museums with Internet access (broadband only) | Number of museums with a website | % of museums with a website |
|---|---|---|---|---|---|---|---|
| Albania | 28 | 27 | 96 | 18 | 64 | 12 | 43 |
| Andorra | 19 | ... | ... | ... | ... | 4 | 21 |
| Bhutan | 4 | 4 | 100 | ... | ... | 2 | 50 |
| Bolivia | 68 | ... | ... | ... | ... | ... | ... |
| Bosnia and Herzegovina | 26 | 16 | 62 | 12 | 46 | 13 | 50 |
| Botswana | 7 | 1 | 14 | 1 | 14 | 1 | 14 |
| Brazil | 2618 | ... | ... | ... | ... | ... | ... |
| Brunei | 1 | ... | ... | ... | ... | 1 | 100 |
| Bulgaria | 222 | 154 | 69 | ... | ... | 85 | 38 |
| Croatia | 225 | 191 | 85 | ... | ... | 140 | 62 |
| Czech Republic | 491 | ... | ... | ... | ... | 351 | 71 |
| Denmark | 124 | 124 | 100 | 124 | 100 | 123 | 99 |
| Egypt | 104 | 20 | 19 | 20 | 19 | ... | ... |
| Hungary | 671 | 279 | 42 | 227 | 34 | 230 | 34 |
| Iraq | 16 | ... | ... | ... | ... | ... | ... |
| Korea (Rep.) | 310 | 310 | 100 | 310 | 100 | ... | ... |
| Latvia | 128 | 115 | 90 | ... | ... | 45 | 35 |
| Lesotho | 1 | ... | ... | ... | ... | ... | 0 |
| Lithuania | 106 | 106 | 100 | 7 | 7 | 67 | 63 |
| Malta | 33 | 19 | 58 | 19 | 58 | 23 | 70 |
| Mexico | 135 | ... | ... | ... | ... | ... | ... |
| Singapore | 8 | 8 | 100 | 8 | 100 | 8 | 100 |
| St. Vincent and the Grenadines | 1 | 1 | 100 | 1 | 100 | 0 | 0 |
| Sweden | 205 | 205 | 100 | ... | ... | 205 | 100 |
| Thailand | 1123 | ... | ... | ... | ... | ... | ... |
| Turkey | 188 | 188 | 100 | 188 | 100 | 10 | 5 |

Note:     * Or latest available year. "...": data not available.
Source:  ITU Survey on the WSIS Targets.

ITU included questions on the connectivity of museums in its 2009 ad-hoc survey carried out in the context of monitoring the WSIS targets. The results point to substantial differences across countries in the number of museums, their connectivity and the percentage of museums with a website (Table 4.5). The reported number of museums ranges from over 2 000 in Brazil and over 1 000 in Thailand, to a single museum in Brunei, Lesotho and St Vincent and the Grenadines. Connectivity tends to be higher in developed than in developing countries, but the percentage of museums with a website lags almost everywhere.

In spite of the point made by the European Commission above, the only region with comprehensive data for museums is Europe. The European Group on Museum Statistics (EGMUS) provides a number of statistics by country, including on the number of museums with a website (Table 4.6).[50] Data are available for 28 countries, reporting some 18 500 museums.[51] Among the countries reporting website data, 66 per cent of museums had a website.

ICOM supports an online directory of museums (the Virtual Library museums pages — VLmp).[52] Theoretically, the links could be aggregated at country level to determine the number of museums with a website. However, the directory is not

**Table 4.6: Museums with a website, European countries, latest year available**

| Country | Year | Number of museums | Number of visits | Number of museums with a website | |
|---|---|---|---|---|---|
| | | | | Total | % |
| Austria | 2006 | 399 | 11 579 900 | ... | ... |
| Belarus | 2008 | 145 | 3 977 205 | 68 | 47 |
| Belgium | 2004 | 162 | 3 706 139 | 114 | 70 |
| Croatia | 2007 | 222 | 2 563 700 | 131 | 59 |
| Czech Republic | 2008 | 455 | 9 586 707 | ... | ... |
| Denmark | 2004 | 258 | 10 077 458 | ... | ... |
| Estonia | 2008 | 224 | 2 058 817 | 174 | 78 |
| Finland | 2006 | 322 | 4 527 830 | 159 | 49 |
| France | 2003 | 1 173 | 40 469 600 | 730 | 62 |
| Germany | 2006 | 6 175 | 102 645 078 | ... | ... |
| Greece | 2007 | 176 | 4 755 535 | 176 | 100 |
| Hungary | 2008 | 671 | 10 123 438 | ... | ... |
| Ireland | 2005 | 258 | | ... | ... |
| Italy | 2007 | 430 | 34 443 085 | ... | ... |
| Latvia | 2007 | 128 | 2 402 581 | ... | ... |
| Luxembourg | 2006 | 39 | 384 | 20 | 51 |
| Netherlands | 2005 | 775 | 19 648 000 | 651 | 84 |
| Norway | 2007 | 173 | 10 193 903 | ... | ... |
| Poland | 2005 | 690 | 18 488 000 | ... | ... |
| Portugal | 2007 | 557 | 6 876 218 | ... | ... |
| Romania | 2007 | 446 | 3 633 443 | 236 | 53 |
| Slovak Republic | 2003 | 85 | 3 886 928 | 85 | 100 |
| Slovenia | 2006 | 177 | 2 340 558 | 164 | 93 |
| Spain | 2006 | 1 343 | 53 174 971 | 768 | 57 |
| Sweden | 2007 | 207 | 18 903 000 | ... | ... |
| Switzerland | 2005 | 948 | 6 696 417 | 622 | 66 |
| TFYR Macedonia | 2006 | 22 | 163 | 5 | 23 |
| United Kingdom | 1999 | 1 850 | 74 600 000 | ... | ... |
| **EGMUS** | ... | **18 510** | ... | ... | **66** |

Note: See original source for detailed notes. "...": data not available.
Source: European Group on Museum Statistics (EGMUS). "Statistics." http://www.egmus.eu/index.php?id=10&L=0&STIL=0.

comprehensive, as it does not necessarily contain each museum online for every country in the world, some of the links are not functioning and some appear to be informal portals without official sanction.[53] In any case, without knowing how many museums there are in a country, such museum portals are of little use in determining the level of connectivity.

Data for other regions are also fairly limited. Among the around 1 000 museums in Africa, roughly a third are in South Africa.[54] Though connectivity is low, reflecting the overall poor level of Internet access in the region, there are exceptions. UNESCO, the International Centre for the Study of the Preservation and Restoration of Cultural Property

**Table 4.7: Selected museums with a website, Africa, 2007**

| | Number of objects | AR* | MF ** | MR *** | Computer-ized | Website |
|---|---|---|---|---|---|---|
| Musée historique d'Abomey, Benin | 1 400 | Yes | Yes | Yes | 0 | http://www.epa-prema.net/abomey |
| Musée national du Burkina Faso | About 6 000 | Yes | Yes | Yes | 300. Stopped | http://www.culture.gov.bf/textes/etbl_museena-tional.htm |
| Libreville, Gabon | 2 400 | No | No | Yes | 419 | http://www.numibia.net/gabon/ |
| Robben Isld., South Africa | About 6 000 | Yes | No | Yes | Very few. Stopped | http://www.robben-island.org.za/ |
| Kisumu, Kenya | About 2 500 | No | No | No | | http://www.museums.or.ke/content/blogcate-gory/14/20/ |
| Huila, Angola | About 3 500 | No | Yes | No | No | |
| Sao Tomé | About 1 400 | No | No | No | 30 | |
| Madagascar 1 | About 1 300 | No | No | Yes | Few. Word (destroyed) | |
| Madagascar 2 | 7 000 | No | Yes | Yes | 10%. Excel | |
| Musée national du Mali | About 10 000 | Yes | Yes | Yes | 3668 | http://www.mnm-mali.org |

Note: *AR=Accession Register. ** MF=Master File. *** MR=Movement Register.
Source: Adapted from UNESCO/ICCROM/EPA.

(ICCROM) and the *Ecole du Patrimoine Africain* carried out a study of selected museums in Africa [ICCROM-UNESCO, 2007]. Of the ten museums for which data were collected, six had some type of information available on the web (Table 4.7). One challenge the museums face is proper cataloguing, documentation and computerization of their collections. This is an essential prerequisite in order for the pieces to be digitized and posted on a website.

Some countries in the Americas publish data on the number of museums (Table 4.8). Several have specific sites dedicated to museum administration and information. Argentina and Canada have portals displaying the locations of museums in the country. Few countries list the number of museums with a website, but anecdo-

**Table 4.8: Museums in selected countries in the Americas**

| | Number of muse-ums | Year | Source | Portal |
|---|---|---|---|---|
| United States | 4 763 | 2005 | US Census | |
| Canada | 2 400 | | Canadian Heritage | http://www.museevirtuel-virtualmuseum.ca/Search.do?mu=on&lang=en |
| Argentina | 863 | 2007 | Dirección Nacional de Patrimonio y Museos (DNPYM) | http://sinca.cultura.gov.ar/sic/mapacultural/mapa_cultural.php |
| Brazil | 2 618 | | Sistema Brasileiro de Museus — SBM | |
| Mexico | 1 123 | 2007 | Consejo Nacional para la Cultura y las Artes | |

Source: ITU.

tal evidence suggests that the ratio is high (e.g. portal listings and dedicated national websites for cultural heritage).

Some countries publish data on the number of museums, generally in statistical yearbooks under a culture section or through publications of cultural ministries or agencies.[55] According to the Russian Federation's official museum list, there are 2 204 museums in the country.[56] All have a description on the portal supported by the Federal Agency on Press and Mass Communications and a number of them have their own website.

Developed economies in the Asia and the Pacific region have information about the number of museums and typically have official museum portals including links to museum websites when available. For example, the Australian Bureau of Statistics publishes statistics on the ICT services of museums; it reported that of the 1 329 museums in the country at June 2004, 73.5 per cent had a website (and 11.8 per cent of the 54.9 million pieces in their collections were available for viewing online).[57] The Republic of Korea has 358 museums;[58] the National Heritage site lists all the museums with a description, and most have websites.[59] In Japan, the Statistics Bureau reports 1 196 museums;[60] the Japan Internet Museum has entries for around 500, including websites when available. All of Singapore's 50 or so museums are online with an entry portal (http://www.museums.com.sg/museums/members/). The main museums in the region's large developing nations are online. China's Statistics Bureau reported 1 722 museums in 2007, of which the biggest is the National Museum of China (http://www.chnmuseum.cn). Six of the seven museums administered by the Ministry of Culture in India have websites, including the oldest in the Asia and the Pacific region (Indian Museum, Kolkata).

There are a variety of museum-related portals for the Arab States, which give an idea of the number of museums and website availability. According to the Jordan Tourism Board, the country currently has 27 museums,[61] of which just over a fifth have websites. The Qatar Tourism Authority website lists five museums;[62] two have their own websites and information about the others can be obtained from the Qatar Museums Authority website.[63] The Association of Egyptian Travel Businesses on the Internet lists 47 museums on their website.[64] Most have a

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**Table 4.9: Websites of some of the world's major museums**

| Museum | Annual visitors | Website | Annual web visitors |
|---|---|---|---|
| Musée du Louvre, Paris, France | 8 260 000 (2007)[67] | www.louvre.fr | 9.86 million (2007) |
| Vatican Museums, Vatican City, Rome, Italy | ... | http://mv.vatican.va | ... |
| Metropolitan Museum of Art, New York | 4.7 million (2008/09) | www.metmuseum.org | 34.7 million (2008/09) |
| J Paul Getty Centre, Los Angeles, California | 1.6 million (2008) | www.getty.edu/museum/ | ... |
| Musée d'Orsay, Paris, France | 3 025 164 (2008)[68] | www.musee-orsay.fr | 5 091 983 (2008) |
| Uffizi Gallery, Florence, Italy | ... | www.uffizi.firenze.it | ... |
| Art Institute of Chicago, Illinois | 1 434 000 (2008) | www.artic.edu/aic/ | ... |
| Tate Modern, London, England | 4 647 881 (2008/09) | www.tate.org.uk/modern/ | 18 494 657 |
| Prado Museum, Madrid, Spain | 2 759 029 (2008) | www.museodelprado.es | ... |
| National Gallery of Art, Washington, DC | 4.8 million (2009) | www.nga.gov | 45 800 per day (2009) |

Note: "...": data not available.
Source: [Metropolitan Museum of Art, 2009], [J Paul Getty Trust, 2009], [Musée d'Orsay, 2008], [Art Institute of Chicago, 2008], [Tate Modern London, 2009], [Museo del Prado, 2008], [National Gallery of Art, 2009].

**Box 4.4: Virtual museum visits**

Establishing a website is just the first step on a museum's digital journey. A website can provide practical information such as the history of the museum, what it contains, its location, operating hours and admission fees. The purpose of any museum is to display its collection, and there are numerous ways the Internet can enhance and extend museum holdings. The most obvious is to feature digital versions of the key pieces in the collection. Digital photography has improved in quality and prices have come down, so high-quality digital cameras are becoming increasingly affordable for many museums around the world. Some museums have photographic units that predate the digital age, which were used for documenting collections and providing photos of works for catalogues. They are now moving to the digital age. The photography unit of the Indian Museum in Kolkata digitized 7 149 objects in 2008 [India Ministry of Culture, 2009]. Providing digital versions of key holdings is just a first step, the eventual goal being to provide online access to a museum's whole collection. The Internet digitally extends a museum's exhibition space, since a website can showcase all of a collection, including works that are not normally displayed because of a lack of exhibit area or because they are on loan.

The collection can be further enriched over the Internet through extensive documentation. The Internet allows far more information to be provided in respect of a piece than can be offered on a physical visit, plus the ability to link it to related things. The Smithsonian Institute in the United States, which houses 137 million objects in its collection, envisions not only displaying Isaac Singer's original sewing machine online but also linking it to a video showing how it works.[69]

Some museums offer virtual tours on their website. The Louvre in Paris allows the viewer to pan and scroll Leonardo da Vinci's masterpiece "Mona Lisa," but without the crowds, and to tie in to events such as the film "The Da Vinci Code."[70] In addition to virtual tours, users can download podcasts from some museums to listen to when they visit the museum. The Metropolitan Museum in New York launched podcasts in 2005, and some 330 000 were downloaded in its 2009 fiscal year [Metropolitan Museum of Art, 2009]. Dozens of museums now offer podcasts through the Apple iTunes store.

Other extras that museums are adding to their websites include e-commerce capabilities, so that users can purchase advance tickets online or order guides, catalogues and souvenirs from the museum's shop. Multilingualism of the website is also important. Paris's Musée d'Orsay notes that 60 per cent of its website visitors used the French version in 2008, as against 25 per cent for English and 6 per cent each for Italian and Spanish [Musée d'Orsay, 2008].

The flurry of activity surrounding museum website development is illustrated by growing international exchanges, assistance and conferences. Archives & Museum Informatics has been holding the annual "Museums and the Web" international conference since 1997[71] and also organizes the annual "Best of the Web" awards, which recognize the top museums in a number of website categories.[72]

descriptive page on the association's website. Collections of some of them are included in the Eternal Egypt website,[66] a collaboration of the Supreme Council of Antiquities, the Centre for Documentation of Cultural and Natural Heritage and IBM Corporation.

Though complete statistics on the extent of museum connectivity around the world are not available, a number of countries have made impressive progress. In addition to the availability of online information about museums, some countries have created portals linking and geo-tagging their museums. For example, Greece, which reports that all of its museums are online, adds functionality through a "cultural map" that displays the locations of all museums and allows users to select specific types of museums and see their location on the map.

The world's major museums all have advanced websites, often in different languages, and in addition to reporting the number of physical visitors some also report the number of online visitors they receive (Table 4.9).[66]

While they often lack the sophistication of the world's largest museums, a growing number of museums in developing countries have established a web presence. For example, the National Museums of Kenya portal features descriptions of the 18 museums comprising the system (http://www.museums.or.ke). The Fiji Museum, which dates back to

the early 1900s, has a wealth of information on its website (http://www.fijimuseum.org.fj), including pictures of its collections, links to its gift shop and a publications listing.

There are ongoing initiatives to improve the connectivity of museums and the online accessibility of collections (Box 4.4).
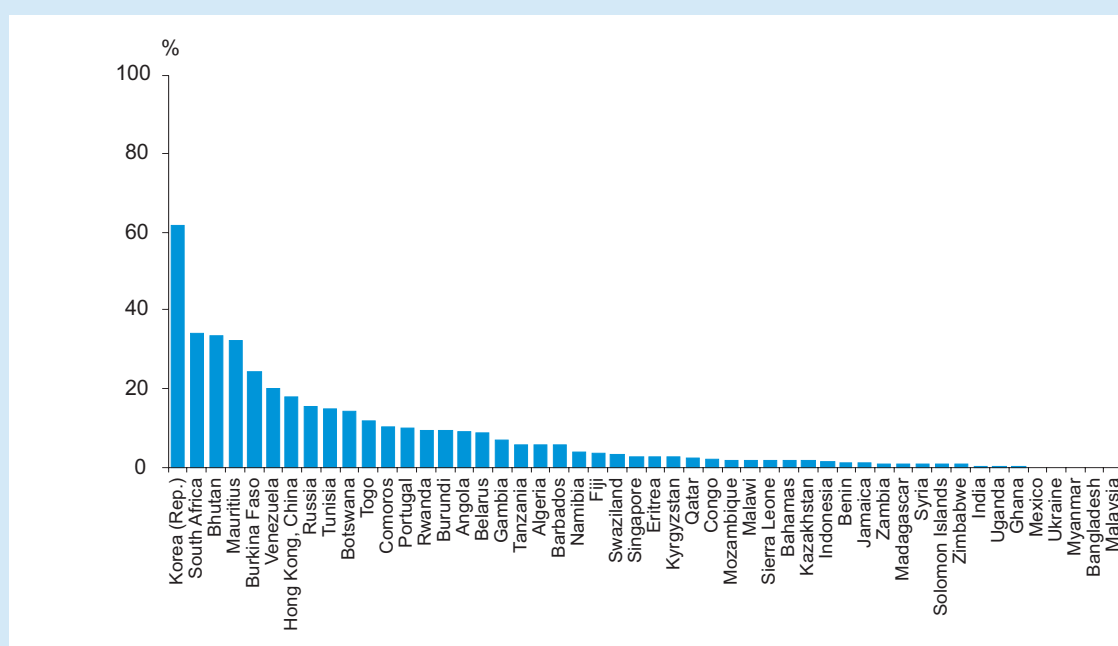
## Post offices

In view of the vast network of post offices worldwide, connecting post offices can have a potentially big impact on making ICTs available to a wider population who may not otherwise be connected, especially in developing countries. Access is of course one of the main considerations of this subtarget, but this could also be tracked under Target 1; indeed, many policies on connecting post offices specifically mention the intent to use them as public Internet access points (Box 4.5). The subtarget fits in with both WSIS Action Lines C2 and C3. There is potentially also some content aspect to this subtarget, when post offices offer online services, which are useful not only for individuals but also for businesses. In some cases, post offices are used to complement other ICT-related initiatives. For example, in Sri Lanka, the "Mobile ATM" programme uses mobile phones to confirm cash requests from users, who subsequently receive their cash from a travelling agent, or though a post office. Verification of credentials can be done by bank officers as well as post-office agents.[73] Overall, connecting post offices could significantly expand access to ICTs in previously unconnected areas which are nonetheless served by a post office.

**Measuring the subtarget — Proposed indicators**

The two indicators proposed to measure this subtarget are:

1.      Percentage of post offices with access to the Internet, by type of access
2.      Percentage of post office offering public Internet access (PIA)

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**Chart 4.1: Proportion of post offices* providing public Internet access, selected countries, 2008**



Note:     *Data include both permanent and mobile post offices.
Source:  ITU based on UPU data.

The Universal Postal Union (UPU) also collects data on whether certain types of online services are offered in a country (for example, Internet postage service, Internet bill payment, e-mail service, Internet goods-ordering service, and so on). Most of the data pertain to developing countries, where providing Internet access through post offices is relatively more important than in developed countries, since in the latter the Internet can be accessed more easily from multiple locations, including at home. A useful complement would be to add an urban-rural dimension to these data and indicators, as well as an indication of the number of people served by post offices offering public Internet access points.

**Status of the subtarget**

The percentage of post offices offering PIA in 2008 was fairly low in most countries for which data are available, and in particular developing countries, where such access points would, arguably, be the most useful (Chart 4.1). Furthermore, while the number of post offices offering PIA in a country is known for quite a few countries, their location is not. Therefore, it is not possible to know whether these post offices are concentrated in the major cities and urban areas or whether they also cover rural or otherwise unconnected areas. Finally, while it is possible to calculate the average number of people to a post office in a country, it is not possible to do this for the post offices offering PIA in particular.

The percentage of post offices offering PIA exceeds 20 per cent in only five of the countries for which data are available: the Republic of Korea, South Africa, Bhutan, Mauritius and Burkina Faso; it exceeds 10 per cent in only around one-fifth of the countries; and it is less than 5 per cent in three-fifths of the countries.

UPU also collects data on the offering of online postal services. Online postal services are available in 61 per cent of the countries for which data are available, public Internet access points are offered in 37 per cent of the countries. The proportion of countries in which a given service was offered out of the total number of countries for which data

**Chart 4.2: Availability of online postal services*, 2008**

| Service | % of countries* |
|---|---|
| Track and trace services are offered online | 52 |
| Postcode lookup is offered online | 37 |
| E-mail services are offered | 32 |
| Other online services are offered | 26 |
| E-stamp services are offered | 20 |
| Internet bill payment services are offered | 15 |
| Online address change services are offered | 13 |
| Internet postage services are offered | 13 |
| Internet goods ordering services are available | 12 |
| Subscription services for periodicals are offered online | 11 |
| Electronic signature services are offered | 11 |
| Digital postmark is offered | 6 |

Note:     *Percentages are based on 188 countries.
Source:  ITU based on UPU data.

**Box 4.5: Examples of initiatives to connect post offices**

This box relates some examples of policies or initiatives to connect post offices taken from ICT policy papers. However, as "before and after" data are not available, it is not possible to assess how successful these announcements and initiatives have been.

In **Lesotho**, establishing public Internet access points in post offices was part of the 2005 ICT Policy Paper, within a broader strategy to use the post offices and the National Library of Lesotho and other public venues to provide public Internet access throughout the country. In particular, the Ministry of Communications, Science and Technology, in conjunction with relevant stakeholders from the ICT sector and the private sector, was to ensure that all post offices include public access points for the Internet and other ICT services by 2010 [Lesotho Ministry of Communications, Science and Technology, 2005].

In **Kenya**, the 2006 ICT Policy Paper [Communication Commission of Kenya, 2006] stated that the "*The government will also support the development, deployment and maintenance of multipurpose community, public library and post office owned public access centres.*" Furthermore, the policy paper recognizes that "*the use of modern communications technology can significantly improve the speed of mail delivery and funds transfer. The government's ultimate aim is to have all post offices connected to the Internet to support electronic mail services.*" According to UPU data, close to 52 per cent of post offices in Kenya offered public Internet access in 2006. While this is already a relatively important percentage of the total number of post offices, more still could be connected. Furthermore, in 2003 the number of post offices in Kenya also fell short of the UPU guidelines, with one post office for 36 000 inhabitants in Kenya, significantly less than the one for 6 000 recommended by UPU.

In **Mauritius**, one aim under the ICT policy for 2007-2011 [Mauritius Ministry of Information Technology and Telecommunications, 2007] is to use post offices for providing public Internet access points: "*Government will provide access to ICTs through the enhancement of existing public Internet access points (PIAPs) in post offices and the setting up of PIAPs with multipurpose functions at new locations to be accessed by the whole community.*" According to UPU data, some 32 per cent of post offices in Mauritius offered PIA in 2008, leaving plenty of scope for increasing post-office connectivity.

In **Jamaica**, the September 2009 ICT policy statement on universal service[74] specifies that the government will "*continue to fund connectivity services and supporting infrastructure to educational institutions, libraries, post offices*" using the Universal Service Fund to "*(among other initiatives) support connectivity access, the provision of hardware, software and supporting infrastructure to schools, provision of hardware and software to libraries and post offices; support content, information literacy, educational and technical training in ICTs.*" According to UPU data, only 0.9 per cent of post offices in Jamaica provided public Internet access in 2008, indicating that there is still a huge potential for improvement.

In **Bhutan**, post offices have been revamped into ICT centres. Since 2003, a joint project by ITU, UPU and the governments of India and Bhutan has managed to connect a total of 37 post offices, and to bring the benefits of digital technologies to people in rural and remote areas across Bhutan. The project covers some very remote locations that had no telecommunication infrastructure and now enjoy VSAT-based connectivity, providing their inhabitants with various ICTs, including basic telephone and fax services and Internet access. Access to telecommunication/ICT services has had a major impact on people's lives. While it used to take postal mail five to seven days to reach certain villages, people can now send and receive messages or make phone calls instantaneously. The project also allowed people in newly connected areas to receive up-to-date information on the country's 2008 election results, and helped to modernize Bhutan Post, which was able to improve some of its working methods and encourage innovation among its staff [ITU-UPU, 2009].

were available in 2008 is given in Chart 4.2. Tracking and tracing is the most widely available service (in 52 per cent of the countries), followed by post code look-up (37 per cent), and e-mail services (32 per cent).

Even though the proportion of countries where post offices offer PIA is still fairly low, as is the proportion of countries in which online postal services are available, there are initiatives under way in developing countries to connect post offices (Box 4.5).

## Archives

Connecting archives is extremely important from a content point of view, in particular in the context of the Action Lines C3 and C8. This subtarget is also closely related to Target 9 on encouraging the development of local content. As archives constitute the memory of nations and of societies, they contribute to shaping their identity and support the respect, preservation, promotion and enhancement of cultural and linguistic diversity and cultural heritage within the information society. Furthermore, "*by guaranteeing citizens" rights of access to official information and to knowledge of their history, archives are fundamental to democracy, accountability and good governance.*"[75] The objective to connect archives is important from the point of view of granting access to stored information and knowledge, as well as for digitizing content in the form of digital archives. Many countries have national archives to store important records, and some also have regional and local archives.

**Measuring the subtarget — Proposed indicators**

As content can be considered an important part of Target 4, and archives should guarantee citizens access to official information and knowledge, several indicators can be proposed to measure and monitor this aspect of the subtarget, in addition to the Internet access aspect:

1. Archives with access to the Internet, by type of access

2. Archives with a website

3. Percentage of content in archives that has been digitized

4. Percentage of digitized information in archives that is available online

The first two are indicative of the use of ICTs in archives, and whether or not the archives have a website — a prerequisite for providing online content. The third and fourth indicators deal directly with the information made available online — the third measures the amount of content potentially available online and which can be preserved and shared in digital formats, and the fourth measures the content actually available online.

**Status of the subtarget**

ITU included questions on the connectivity of archives in its 2009 ad-hoc survey carried out in the context of monitoring the WSIS targets. In collaboration with the International Council on Archives (ICA), it also collected information from ICA members[76] on the following questions:[77]

1.    Does the national archive have a website?

2.    What percentage of the content has been digitized?

3.    What percentage of the (digitized) information is available online?

4.    What is the total number of archives in the country?

5.    What is the number of archives connected to the Internet?

6.    What is the number of archives with a broadband Internet connection?

7.    What is the number of archives with a website?

**Chart 4.3: Percentage of archives with access to the Internet and with a website, by country, 2009**

■ % of archives connected to the Internet    ■ % of archives with a broadband connection    ■ % of archives with a website
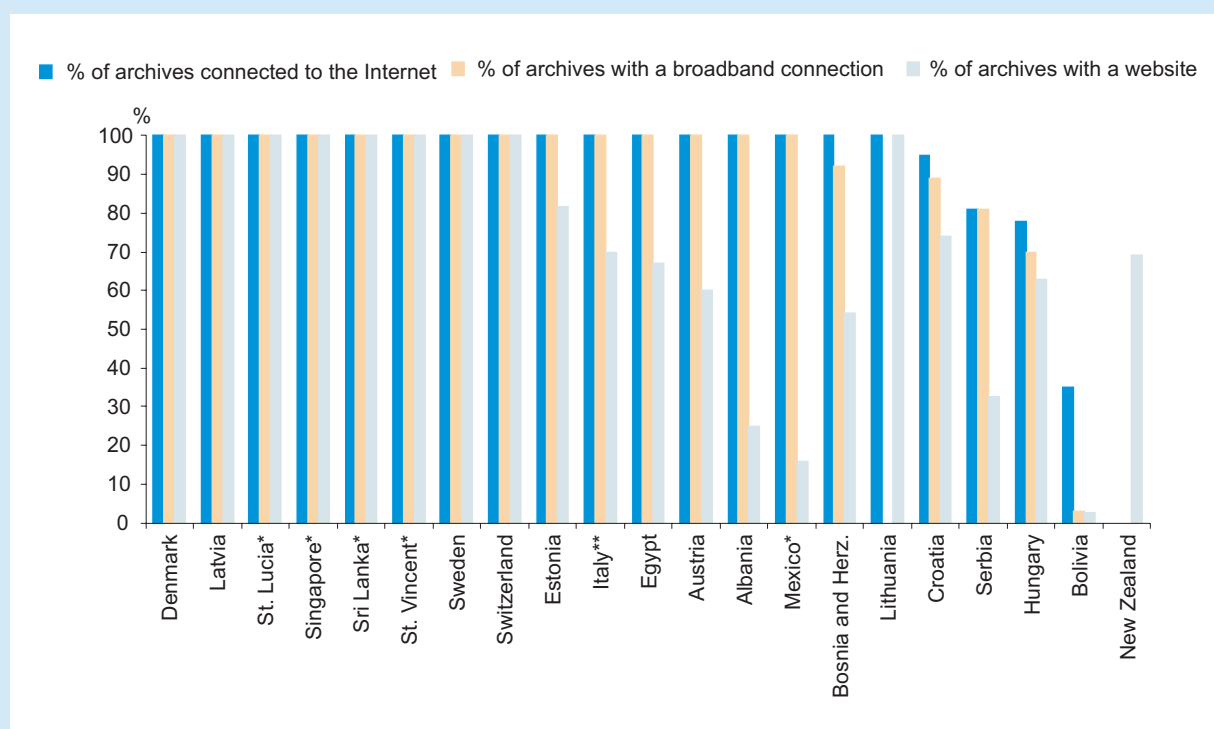


Notes:   *Only one national archive. **Italy does not have a national archive. It has a central state archive and a network of 103 state archives.

Source:  ITU Survey on the WSIS Targets.

The available information reveals large differences across countries in the numbers of archives, the percentage of archives with access to the Internet and the percentage of archives with a website (Chart 4.3). For example, some countries reported only one national archive, while others reported as many as 250 archives (Austria and Switzerland), 500 archives (Sweden) and even 2 560 archives in Mexico.[78] In most countries, archives that have access to the Internet have a broadband connection. For now, relatively fewer archives have websites, although this could be because the website of the national archive, or a central archive, covers several branches or a network of archives or branches.

**Table 4.10: Digitization of archived information, 2009**

| | Percentage of content that has been digitized | Percentage of (digitized) information available online | | Percentage of content that has been digitized | Percentage of (digitized) information available online |
|---|---|---|---|---|---|
| Austria | 5 | 100 | Mexico | 5 | 24 |
| Bolivia | 0.6 | 0 | New Zealand | 1 | <1* |
| Burundi | 0 | 0 | Sri Lanka | 0 | 0 |
| Estonia | 0.8 | 100 | Sweden | 5 | 40 |
| Italy | <1** | 50-60** | Switzerland | 3 | 100 |

Note:    * As a percentage of all content. ** In the state archives.
Source:  ITU in collaboration with ICA.

**Box 4.6: The importance of digital archives**

The importance of keeping information has been recognized in international organizations such as the International Council on Archives (ICA), which promotes the preservation and use of archives around the world; UNESCO, which promotes archives as a part of the World Cultural Heritage; and UNHCR, which stresses the importance of archives for dealing with both the past and the present. The digital divide also affects the world of archives, and digital archiving is an important subject in the WSIS follow-up and is, indirectly, part of the WSIS targets.

Dealing with the past covers a number of areas of activity, including fact-finding missions and carrying out justice. Truth commissions and national and international tribunals play a crucial part in this regard, as do projects for the rehabilitation and compensation of victims. Archives, both public and private, are key institutions for identifying, selecting and protecting records that are important for human rights, preserving them and making them available to underpin the principle of non-impunity.

An important project in this regard is the establishment of the Slave Trade Archives, launched by UNESCO 1999 with the aim of improving access to, and safeguarding of, original documents related to the transatlantic slave trade and slavery. As part of the *Memory of the World* programme, and in close cooperation with ICA, a feasibility study was carried out to identify national archives and related institutions in African, Latin American and Caribbean countries, in order to upgrade their facilities and services. The aim is to ensure adequate preservation of original records and to obtain copies and other documents pertaining to slavery.

A famous example of preserving the World Cultural Heritage in Africa is the archive / library of Timbuktu, Mali, which contains hundreds of thousands of ancient manuscripts, mostly written in Arabic; the documents provide a detailed record of daily and intellectual life from the 12th century onward. The fragile manuscripts are digitized, translated, studied, catalogued and communicated digitally to preserve the originals.

Beside the cultural and "dealing with the past" aspects, archiving is a cornerstone of the interdependence of information management and administrative transparency. Here, the monetary advantages of digital records management and archiving are very important. According to estimates by various governments, millions of dollars are being saved annually in public administrations thanks to advice from archives, especially on digital information and records management.

A rapidly increasing number of administrations will be carrying out their business processes electronically by the end of this decade. As a result, documents and data will increasingly be created in digital form only. In addition, a large part of administrative, scientific or economic data will be stored in databases. Archives will have to set up a standardized archiving procedure, ranging from pre-archiving advisory services to document access, taking into account both the organizational and the technical dimensions. Take, for example, the case of Switzerland:

• *Electronic records management*: the Swiss government has passed a range of measures regarding uniform and standardized handling of electronic files, data and documents. The central aim is the comprehensive introduction of electronic records and process management and the ancillary step of making the electronic documents legally binding.

• *Digital archiving at the Swiss Federal Archive* (SFA) aims to reduce the volume of information, and technical complexity. It includes the following steps: selection of information; separation of data from specific IT environments (applications, operating systems, hardware); open, standardized environments that are as generic as possible; homogeneous storage infrastructure; standardization of file formats; and migration procedures.

Technical solutions for digital archiving exist, but further development and testing is necessary. In addition, digital archiving requires archivists to develop new skills. In a period when the methodologies for handling huge quantities of recorded information are gradually emerging, archivists need a solid knowledge of their own professional principles, as well as an understanding of the risks and opportunities of new approaches. All these required investments cannot be made by single institutions. How-

**Box 4.6: The importance of digital archives (continued)**

ever, (digital) collaboration across industries that produce source and freeware solutions is a promising way forward. Such an approach will not only reduce the digital divide, but will also enable archives to integrate new knowledge by working with ICT professionals. The challenges of the digital age, therefore, provide opportunities as well as risks. However, reliable evidence with contextually embedded information will remain an important and valuable good that guarantees societal auditability, forms an economic asset, and is indispensable for scientific research and as a basis for trust.

*The 8th European Conference on Digital Archiving, 28 - 30 April 2010, Geneva*

The 8th European Conference on Digital Archiving was held in Geneva from 28 to 30 April 2010. It followed in the footsteps of the European Conferences on Archives of recent decades. However, by emphasizing digital elements and archiving as a function instead of the archive as an institution, it sought to adopt a new approach. The future will be digital, but it is important also to preserve the analogue tradition: it is the responsibility of all archivists that the archive of the future be a safe place for the analogue and digital traces of the past.

See: http://www.eca2010.ch.

Not many countries responded to the digitization questions (2 and 3 above). The available information suggests digitization is still in its infancy (Table 4.10). However, there are attempts to raise awareness of the importance of digital archives (Box 4.6).

## Conclusions and recommendations

Target 4 groups together five different types of institutions: libraries, cultural centres, museums, post offices and archives. Even though they are similar to the extent that they each provide highly information — and knowledge-intensive services, they are also quite different, notably in terms of the specific purpose they serve and the role they can play in contributing to providing Internet access or online content. Indeed, the objective of connecting these institutions can be twofold: providing public Internet access (notably in libraries, cultural centres and post offices), and developing local content in local languages (libraries, museums and archives). As such, this target is strongly linked to WSIS Targets 1 and 9, respectively.

Each of the subtargets is characterized by a lack of comprehensive, recent and internationally comparable data, and in most cases the absence of a harmonized definition and measurement scope. The data that are available suggest that, while some level of connectivity has been established in each of the five subtargets, much more needs to be done to ensure that all museums, libraries, archives, cultural centres and post offices are connected to the Internet by 2015. Apart from Internet access, there is also a lot to be done in terms of digitizing information, including archived information and library and museum collections, and making it available online. Even though data are even scarcer on this aspect, what material is available suggests there is still a long way to go before large shares of cultural heritage and content are digitized and available online, let alone achieving complete availability.

Overall, it is in regard to access to the Internet that the target is the most advanced in each of the five subtargets. The provision of Internet access for the public and establishing websites tend to lag behind. Furthermore, connectivity in most of these institutions is much higher in developed countries, and the potential for improvement is greatest in developing countries; yet providing public Internet access is most relevant in the latter, since in the developed world increasing proportions of people have Internet access either at home, at work or at school.

*Providing public Internet access*

Libraries, post offices and — depending on the definition — cultural centres are ideal locations for providing the community with public Internet access (PIA). They already have an existing infrastructure including a network of branches, and are open to the public, which means they may reach a population that is not otherwise connected and/or does not have access to other PIA locations. In addition, libraries hold a repository of information, and electronic access to information seems a logical extension of their activities.

The available evidence suggests that most public libraries are keen to enter the digital age, but a lack of funding is often the key barrier. While in developed countries most libraries tend to have access to the Internet, this is not yet the case in developing countries. Where data on libraries providing public Internet access are available, such as in Latin America and the Caribbean, they paint a mixed picture. The data for post offices show that offering PIA is not widespread in most of the countries for which data are available, including in developing countries.

Establishing, or continuing to establish, PIA in libraries and post offices, particularly in developing countries, and encouraging the provision of online information and services, is a worthwhile goal to pursue, as it has the potential to reach substantial parts of the population, including those not yet "connected." In some cases, this may require greater private-sector involvement, for example through public-private partnerships.

*Providing online content*

Libraries, museums and archives each have the provision of online content in common. Many libraries have a treasure of local content — from rare Buddhist texts in the National Library of Bhutan to historical documents dating back to the time of Christopher Columbus in the National Library of Trinidad and Tobago. It is essential these be digitized and made available online in order to promote cultural diversity (cf. Target 9). Similarly, putting the collections of all museums and the information held in archives worldwide on the Internet is vital for providing wider access to the world's cultural heritage. In most developed countries, these institutions are present on the Internet, although the available online information could be expanded; and some of the major institutions in developing countries also have a website, although generally with less information that can be accessed online. Therefore, one of the main challenges is to bring more institutions in developing countries online and to enrich the content of those already having a website.

Providing ICTs for libraries, museums and archives is critical for supporting the digitization of cultural heritage and making it available online to researchers and the public. Unfortunately, many developing countries lack the resources for basic museum upkeep, let alone budgets for information technology. Bandwidth is also often a constraint, in addition to Internet connection charges.

One interim solution would be for national cultural agencies to at least create an online portal listing the cultural institutions in a country, along with a brief description. In the long run, a more progressive solution is required that would allow individual institutions to build up content on their own websites.

Governments should step up efforts to provide appropriate resources to public libraries, museums and archives for them to achieve full connectivity by 2015. Although there is still some way to go, especially in developing countries, the target is attainable by 2015. Indeed, there are many initiatives under way to connect these institutions, and the cost of connecting them is relatively low, especially since there are relatively fewer of them than households or schools, thus increasing the feasibility of reaching the target. Supplementary sources of funding may include the private sector, development agencies and philanthropy organizations, which can be combined with government budgets to create partnerships for connecting these institutions and enabling them to create websites. An example of partnerships might be for libraries, museums and archives in developed countries to "adopt" an institution in a developing country.

There are also examples of private-sector involvement in bringing museum content in developing countries online. One example of a public-private partnership is IBM working with China, Egypt and Russia to develop web presences for their cultural heritage.[79] The Getty Foundation, part of the Getty Institute that also includes the museum of the same name, is working with Jordan's Department of Antiquities to develop an Arabic-English website with a geographical information system featuring the locations of important cultural heritage sites [J Paul Getty Trust, 2008].

There is also a content aspect to connecting post offices, since postal services can be offered online, although they could also be accessed from other locations. The availability of online postal services is still fairly limited, as even the most commonly offered service (online tracking and tracing) is available in only 52 per cent of countries.

It is ironic that despite complaints about lack of local content, few resources tend to be devoted to nurturing it. The Geneva Plan of Action specifically mentions the importance of supporting efforts to develop and use ICTs for the preservation of natural and cultural heritage, keeping it accessible as a living part of today's culture. This includes developing systems for ensuring continued access to archived digital information and multimedia content in digital repositories, and for supporting archives, cultural collections and libraries as the memory of humankind. National policies and laws thus need to be drawn up to ensure that libraries, archives, museums and other cultural institutions can play their full role as purveyors of content, including traditional knowledge, in the information society, more particularly by providing continued access to recorded information.

*Monitoring progress towards 2015*

Monitoring progress on these subtargets requires the collection of additional data. Going forward, it could be useful to separate out the two different aspects of Target 4: on the one hand, providing PIA (which could also be tracked under Target 1) and, on the other, the provision of (local) content online (which could also be tracked as part of Target 9).

Where data are available, mainly for libraries and museums, definitions should be tightened and internationally harmonized. The scope of the definitions should also be clear. In the case of libraries and archives, for example, there is room for confusion as to whether the definition refers only to the central institution or whether the scope extends to branches and networks. Data should also be collected in a timely manner for as many countries as possible, and additional information and indicators need to be collected to enhance the analytical contribution that can be obtained. In addition to countries, organizations such as IFLA, ICOM and ICA could perhaps also play a role in collecting data. Data are available for post offices through UPU, which is the dedicated organization collecting data, including on the provision of PIA.

Cultural centres are a specific case, in that data required to construct indicators for monitoring progress on this subtarget are not currently collected by any organization or institution. As a result, it is not easy to assess how useful this subtarget is. It would be helpful to have a harmonized definition of a cultural centre, as well as further guidance on whether this subtarget is driven more by public access or by content considerations.

# Notes

1. Substantial inputs to the sections on libraries and museums have been provided by Michael Minges. Box 4.6 was provided by Guido Koller and Manuela Höfler of the Schweizerisches Bundesarchiv. Annick Carteret of the International Council on Archives assisted in the collection of information from ICA members.

2. See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html, §4

3. See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html #c2, §9

4. See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html#c3, §10

5. See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html#c8, §23

6. See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html#c4, §11 k)

7. http://www.ala.org/ala/research/initiatives/plftas/index.cfm.

8. See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html #c3, §10 h) and i).

9. http://www.theeuropeanlibrary.org/portal/organisation/about_us/aboutus_en.html.

10. http://www.kb.se/english/about/digitazation/.

11. http://europa.eu/rapid/pressReleasesAction.do?reference=IP/06/253&type=HTML&aged=0&language=EN&guiLanguage=en.

13. http://www.wdl.org/en/about/background.html.

13. http://books.google.com/googlebooks/agreement/.

14. http://www.google.com/intl/en/press/pressrel/20081027_booksearchagreement.html.

15. http://www.spiegel.de/international/business/0,1518,473529-2,00.html.

16. http://www.uis.unesco.org/ev.php?ID=6970_201&ID2=DO_TOPIC.

17. IFLA/FAIFE, 2007, World Report, http://archive.ifla.org/faife/report/world_report_2007.htm.

18. The discrepancy could also be caused by the definition of a public library as being primarily financed by public sources. There are around 2 000 "popular" libraries in Argentina supported by local neighbourhood associations. See: http://www.conabip.gov.ar/contenidos/institucional/que-es-conabip.asp.

19. Australian Bureau of Statistics, Public Libraries, Australia, 2003-04. (2005). http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/8561.0Main%20Features12003-04?opendocument&tabname=Summary&prodno=8561.0&issue=2003-04&num=&view=.

20. National Center for Education Statistics (U.S.). March 2005. Public Libraries in the United States: Fiscal Year 2002. http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2008301.

21. The European Union has put emphasis on the availability of electronic card catalogues in public libraries and defined a six-stage process in terms of the online functionality [European Commission, 2007].

22. Anon. E-rate and Universal Service. American Libarary Association. http://www.ala.org/ala/issuesadvocacy/telecom/erate/index.cfm. [Accessed 1 April 2010]

23. http://www.infocentro.gob.ve/.

24. http://www.bnv.gob.ve/.

25. http://www.comunidadandina.org/bda/.

26. http://harvardbusiness.org/product/transforming-singapore-s-public-libraries-abridged/an/805028-PDF-ENG.

27. http://ifla.queenslibrary.org/IV/ifla62/62-sabj.htm.

28. http://www.nlb.gov.sg:80/Corporate.portal?_nfpb=true&_pageLabel=Corporate_portal_page_aboutnlb&node=corporate%2FAbout+NLB%2FFast+Facts&corpCareerNLBParam=Fast+Facts.

29. http://www2.nalis.gov.tt/Home/tabid/37/Default.aspx.

30. http://www.gatesfoundation.org/topics/Pages/libraries.aspx.

31. http://seattletimes.nwsource.com/html/nationworld/2009108724_apusgatesfoundationlibraries.html.

32. http://www.3td.lv/index.php/en/par/apraksts/.

33. See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html, § 6d).

34. See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html #c8, § 23b)

35. In this case, they should also be considered under Target 1 on community access points.

36. Local Culture Promotion Act, Article 2.

37. Latvia reported that in 2005, 103 cultural centres had access to the Internet, but the total number of cultural centres was not given for that year. However, 534 cultural centres were reported in 2008.

38    See http://ort.ru/en/sng/complete-list-of-ort-schools-and-centres-in-cis/ukraine/city-kharkov/.

39    See http://portal.unesco.org/geography/en/ev.php-URL_ID=8503&URL_DO=DO_TOPIC&URL_SECTION=201.html.

40    See http://www.comminit.com/en/node/269602/307.

41    See http://www.arabdev.org/node/add/book/parent/90.

42    See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html #c8, § 23b).

43    For example the Picasso Museum in Barcelona notes that over 500 unauthorized photos of its works are on Flickr, as well as over 100 videos on YouTube. http://www.slideshare.net/museupicassobarcelona/museu-picasso-le-voyage-de-web-10-web-20.

44    See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html #c2.

45    See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html #c4, § 11k). This action line is also important for the other subtargets insofar as specific skills, including ICT skills, are required for building up online content and digitizing collections.

46    See WSIS Geneva Plan of Action, 2003, at: http://www.itu.int/wsis/docs/geneva/official/poa.html #c8, § 23b).

47    http://icom.museum/hist_def_eng.html.

48    http://www.si.edu/about/.

49    While the UNESCO Institute of Statistics lists a 1999 questionnaire for museum statistics, no data on museums are available from their website.

50    http://www.egmus.eu/.

51    http://www.egmus.eu/index.php?id=10&L=0&STIL=0.

52    http://icom.museum/vlmp/.

53    Another website, MuseumLink, claims "*it will eventually contain links to every museum on the planet, from the world's largest to the most obscure (assuming they have a website).*" http://www.museumlink.com/.

54    http://www.dac.gov.za/DACinstitutions.html.

55    For example, Japan has data on the number of museums in the "Education and Culture" chapter of its Statistical Handbook [Statistics Bureau of Japan, 2007]. The Statistical Abstract of the United States has a section on "Arts, Recreation, and Travel" that includes data on the number of museums, number of employees and revenue (e.g. US Census Bureau, 2010). In Mexico, the number of museums and a breakdown by state are included in the publication "*Estadísticas básicas de la cultura en México*" [Consejo Nacional para la Cultura y las Artes, 2008].

56    http://www.russianmuseums.info.

57    http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/D4CDAABA966DC2CACA25700D00762129/$File/85600_2003-04.pdf.

58    http://www.korea.net/detail.do?guid=28252.

59    http://www.heritage.go.kr/eng/mus/nat_lis.jsp.

60    http://www.stat.go.jp/english/data/handbook/c16cont.htm#cha16_3.

61    http://www.visitjordan.com/visitjordan_cms/Museums/tabid/762/Default.aspx.

62    http://www.qatartourism.gov.qa/pillars/index/1/culture/232.

63    http://www.qma.com.qa/eng/index.php/qma/home.

64    http://www.touregypt.net/museums.htm.

65    http://www.eternalegypt.org/EternalEgyptWebsiteWeb/HomeServlet?ee_website_action_key=action.display.sites&language_id=1.

66    The list has been compiled by a travel website based on the amount of traffic it gets to different listings. See: http://www.tripadvisor.com/PressCenter-i173-c1-Press_Releases.html.

67    http://www.louvre.fr/media/repository/ressources/sources/pdf/src_document_54288_v2_m56577569831217194.pdf.

68    http://www.musee-orsay.fr/fr/collections/histoire-du-musee/quelques-chiffres.html.

69    http://www.si.edu/opa/annualrpts/2008report/Smithsonian2008.pdf.

70    http://www.louvre.fr/llv/activite/detail_parcours.jsp?CURRENT_LLV_PARCOURS%3C%3Ecnt_id=10134198673458526&CONTENT%3C%3E cnt_id=10134198673458720&CURRENT_LLV_CHEMINEMENT%3C%3Ecnt_id=10134198673458720&FOLDER%3C%3Efolder_id=14084743 95181115&bmLocale=en.

71    http://www.archimuse.com/conferences/mw.html.

72    http://conference.archimuse.com/forum/mw2009_best_web_sites_selected.

73    See http://publius.cc/dialogue_icts_human_development_growth_and_poverty_reduction/091109 and http://aitec.usp.net/Banking%20 &%20Payment%20Technologies%20EA,,17-19Feb2009/MarkHeffernan_SECTECS%20%5BCompatibility%20Mode%5D.pdf.

[74]     See http://www.opm.gov.jm/node/1078.

[75]     See the International Council on Archives: http://www.ica.org/en/about.

[76]     Responses were received from 11 countries.

[77]     Questions 5, 6 and 7 were also included in the ITU Survey on the WSIS Targets.

[78]     The numbers for Sweden and Switzerland are estimates.

[79]     http://www.ibm.com/ibm/ibmgives/grant/arts/index.shtml.

# References

Art Institute of Chicago (2008), Report of the Treasurer.

Communications Commission of Kenya (2006), ICT Policy Paper.

Consejo Nacional para la Cultura y las Artes (2008), Estadísticas básicas de la cultura en México.

European Commission (2007), "The User Challenge Benchmarking The Supply Of Online Public Services," report prepared by Gapgemini for European Commission Directorate for Information Society and Media, 7th Measurement, September 2007.

Eurostat (2007), Cultural Statistics, 2007 edition, Eurostat Pocket Books, European Commission, 2007.

India Ministry of Culture (2009), Annual Report 2008-09.

ITU-UPU (2009), Satellite Connectivity to Remote Areas and E-Services for Development: Initiatives through Post Office Telekiosks in Bhutan. A cooperation project between the Royal Government of Bhutan, the Government of India, the International Telecommunication Union and the Universal Postal Union, ITU-UPU 2009.

ICCROM-UNESCO (2007), Partnership for the Preventive Conservation of Endangered Museum Collections in developing countries. Documentation of collections summary of final report, 2007.

Getty Trust, J. P. (2009), 2008 Report.

Lesotho Ministry of Communications, Science and Technology (2005), ICT Policy for Lesotho.

Mauritius Ministry of Information Technology and Telecommunications (2007), National ICT Policy 2007-11.

Metropolitan Museum of Art (2009), Annual Report 2008-2009.

Musée d'Orsay (2008), Rapport d'Activités 2008.

Museo del Prado (2008), Informe Anual 2008.

National Gallery of Art (2009), National Gallery of Art Performance and Accountability Report for the year ended September 30, 2009, Washington DC.

Statistics Bureau of Japan (2007), Statistical Handbook of Japan, Chapter 16: Education and culture, Director-General for Policy Planning (Statistical Standards) and Statistical Research and Training Institute.

Tate Modern London (2009), Tate Report 08-09.

Watson, P. K., and B. Ramlal (2007), The Digital Divide in Trinidad & Tobago 2007, Telecommunication Authority of Trinidad and Tobago, 2007.