

## CHAPTER ONE

# A Summit for Building the Information Society

## 1.1 The World Summit on the Information Society (WSIS)

The *World Information Society Report* is the inaugural edition of an annual series of reports charting the development of the Information Society worldwide. In particular, this new series will chart progress towards the implementation of the outcomes of the World Summit on the Information Society (WSIS). This United Nations Summit was held in two phases:

- The Geneva Phase, 10-12 December 2003, resulted in the adoption of the *Geneva Declaration of Principles* and *Geneva Plan of Action*;
- The Tunis Phase, 16-18 November 2005, resulted in the adoption of the *Tunis Commitment* and the *Tunis Agenda for the Information Society*.<sup>1</sup>

### 1.1.1 The WSIS vision

The four outcome documents of the Summit challenge the world community to build an Information Society that is 'people-centred, inclusive and development-oriented' and where 'everyone can create, access, utilize and share information and knowledge' (*Geneva Declaration*, para 1). Furthermore, the *Geneva Declaration* contains a commitment to turn the 'digital divide into a digital opportunity for all' (para 10) and to provide access to Information and Communication Technology (ICT) infrastructure and services that is 'universal, ubiquitous, equitable and affordable' (para 21).

World Summits often present bold commitments and there is sometimes a discrepancy between their ambitious goals and actual reality. But the WSIS was different from other Summits in a number of ways:

- The WSIS was planned, right from the start, as a multi-stakeholder partnership in which the private sector, civil society and international organisations would work alongside governments in converting words into actions;
- During the first phase of the WSIS, government leaders committed themselves to a series of ten ambitious targets to broaden access to ICTs, including connecting all the world's villages, and linking schools, hospitals, libraries, etc. to the global network (*Geneva Plan of Action*, para 6)<sup>2</sup>. These targets are to be achieved by 2015, at the latest.

- The WSIS, uniquely, was organised as a single Summit in two phases. This meant that the vision developed in Geneva could be developed into an agenda for action in Tunis. In particular, the Tunis phase of the Summit was able to develop a multi-stakeholder implementation mechanism (*Tunis Agenda*, para 108-111 + Annex)<sup>3</sup> and an agreed methodology for evaluation (para 112-120).

### 1.1.2 The World Information Society Report

If the ambitious goal of building a global Information Society is to be realised, it is important to track progress against the indicative targets set out in the WSIS final outcome documents. One of the key elements is the bridging of the digital divide. This is a measure of the gap in access to ICTs between different countries, or between different regions within a country. A further element is to examine the progress of the different multi-stakeholder partnerships that have been established during the WSIS process. There is a sense in which the WSIS has created a learning community, in which policy-makers and regulators can learn from best practice experiences of their neighbours and peers in other parts of the world.

This Report is intended to provide guidelines for policy-makers, in particular in developing countries, in the context of mobilizing resources and developing their own strategies for building the Information Society. In this regard, the Report covers the main elements of the Information Society and provides a new tool for measuring progress towards building it, through the Digital Opportunity Index (DOI).

The mandate for the *World Information Society Report* comes from the *Geneva Plan of Action*, which calls for a report on the development of Information and Communication Technologies (ICTs) to be published 'annually or every two years' to report on 'a composite ICT development (digital opportunity) index' (*Plan of Action*, Para 28a). According to the *Plan of Action*, 'The Index could show the statistics while the report would present analytical work on policies and their implementation' (para 28a). Furthermore, the *Plan of Action* calls for 'appropriate indicators and benchmarking ... [to] clarify the magnitude of the digital divide in both its domestic and international dimensions' (para 28b), and calls upon stakeholders to 'develop and launch a website on best practices and success stories, based on a compilation of contributions from all stakeholders' (para 28e).

The different chapters of this inaugural *World Information Society Report* respond to these challenges set out above:

- **Chapter two**, *Measuring the Information Society*, presents a new tool, the Digital Opportunity Index, for measuring progress in building the Information Society and bridging the digital divide;
- **Chapter three**, *Trends in the Information Society*, tracks the changing dynamics and major trends shaping our society. It uses the DOI as an analytical tool to show the trajectories that different countries are following;
- **Chapter four**, *From measurement to policy-making*, is addressed to policy-makers and regulators. It shows how the DOI can be used to inform the policy-making process in critical areas, such as universal access, gender, and the development of broadband networks;
- **Chapter five**, *Beyond WSIS: Making a Difference Globally*, looks at life beyond WSIS, and in particular how multi-stakeholder partnerships are finding new solutions to old problems. This chapter draws upon the stocktaking of WSIS-related activities undertaken by stakeholders towards building the Information Society.
- **Chapter six**, *Towards an Information Society for All*, is the concluding chapter and summarises the main findings emerging from this Report's review of digital opportunity worldwide.

### 1.1.3 WSIS implementation between the Geneva and Tunis Summit Phases

Between the first and second phases of the Summit, from 2003 to 2005, much work was done on implementation and monitoring:

- Based on the work of an inter-agency *Partnership on Measuring ICT for Development*<sup>4</sup>, a core set of indicators for measuring the Information Society was defined<sup>5</sup> (this work was noted in paragraph 114 of the *Tunis Agenda*).
- A number of different composite indices were launched, two of which were noted in the *Tunis Agenda for the Information Society*: namely, the *ICT Opportunity Index*<sup>6</sup> and the *Digital Opportunity Index*<sup>7</sup> (para 115).
- A stocktaking of WSIS-related activities has been carried out, with the first report published at the Summit in Tunis. The database and website portal continue to be updated and currently have more than 3'000 separate listings for activities undertaken by WSIS stakeholders in the stocktaking database.<sup>8</sup>
- New projects announced at the Summit in Tunis were collated in a separate database and published in a report entitled the 'WSIS Golden Book', in February 2006. The Golden Book contains more than 380 new commitments worth a minimum value of € 3.2 billion (US\$3.9 billion).<sup>9</sup>

- A selection of the projects entered in the stocktaking and the Golden Book has been used to create an ICT success stories website, maintained by ITU ([www.itu.int/ICT\\_stories](http://www.itu.int/ICT_stories)). Some of these success stories are highlighted in Chapter five of this report.

Previously, there had been no agreed, comprehensive statistical framework for measuring the Information Society<sup>10</sup>. The endorsement by WSIS of the use of composite indices, as part of an agreed methodology for the periodic evaluation of the WSIS outcomes, provides a solid statistical grounding for the implementation process, which is expected to last until at least 2015.

### 1.1.4 WSIS implementation in the post-Tunis phase

Although the UN flag at Kram PalExpo in Tunis was lowered on 18 November 2005, the WSIS process is far from over. Indeed, in his closing remarks, Mr Yoshio Utsumi, the Secretary-General of the WSIS, said:

'...the road does not end here in Tunis. Even as we close the Summit, we face the critical challenge to continue by our actions and leadership to advance towards achieving the goals and objectives we committed to in Geneva and in Tunis<sup>11</sup>. '

At the conclusion of the World Summit in Tunis, all stakeholders committed themselves to remain fully engaged—nationally, regionally and internationally—to ensure sustainable implementation and follow-up of the outcomes and commitments of the WSIS.<sup>12</sup> They also committed to working towards achieving the indicative targets, set out in the *Geneva Plan of Action*, for improving connectivity and universal, ubiquitous, equitable, non-discriminatory and affordable access to, and use of, ICTs, to be achieved by 2015.<sup>13</sup> The *Tunis Agenda for the Information Society* invites three UN agencies—ITU, UNESCO and UNDP—to serve as the lead agencies in the multi-stakeholder implementation process, which is to be organised along the eleven action lines of the *Plan of Action*.<sup>14</sup> To this end, a Consultation Meeting of action line moderators/facilitators was held in Geneva on 24 February 2006, and Facilitation Meetings are planned for the other action lines, many of them grouped around the newly-designated World Information Society Day on 17 May each year.<sup>15</sup>

## 1.2 Why a Digital Opportunity Index?

The WSIS outcome documents acknowledge the scale of the digital divide, both within and between countries. Nevertheless, WSIS makes a strong commitment towards building a people-centred, inclusive and development-oriented Information Society for all people<sup>16</sup>. With regard to the implementation of the Geneva Plan of Action, a key goal is to design national e-strategies in accordance with

local and national development priorities<sup>17</sup>. This needs an understanding and analysis of the current situation in each country with regard to ICTs and the setting of future targets. For that purpose, ICT stakeholders need information and benchmarks to evaluate what they have achieved, as well as what is achievable in the future.

In order to set benchmarks, it is necessary to develop a frame of reference. There are several different methods:

- Frequently, a regional framework is used. However, there are often large differences in the level of development within regions (e.g., the Asia-Pacific region contains both high-income and Least Developed Countries) and even between neighbours (for instance, between South Africa and Zimbabwe, or between Greece and Albania);
- Alternatively, a frame of reference might be based on countries with similar levels of wealth (measured by GDP per capita) or population size. But again, such comparisons among peers can be distorted by factors that have little to do with ICTs. For instance, an oil-rich country might have a misleading GDP per capita, while a country whose currency is undervalued may have low apparent wealth.
- The most preferable frame of reference for benchmarking the Information Society is one based directly on ICT indicators, because then

policy-makers can compare performance, like-with-like, and can use one country's experience with ICT development as a possible model for other countries' own chosen strategies, at a later date.

Using a single indicator (e.g., teledensity or revenue per subscriber) is problematic because it fails to capture the many different development paths that economies may choose to follow. There is a growing body of evidence to suggest that ICT development trajectories are shifting, and that those economies realising a rich and mature Information Society in the current decade will follow quite a different path than those that did so at an earlier time. The good news is that developing economies are now going through the 'teledensity transition'—passing from 10 to 30 phones per 100 inhabitants—much more rapidly using mobile networks than their predecessors did using fixed line networks a decade or so earlier (see Box 1.1). While fixed-line teledensity would be a good indicator of the development path used in the 1980s, it would not be a good measure of telecommunication development in the new millennium.

For these reasons, a composite index, based on a basket of individual ICT indicators, is preferable to a single indicator, and a global index is superior to a regional one. Furthermore, an index which allows for tracking changes over time—both changes in absolute scores, as well as changes in rankings relative to other economies—provides the most useful tool for measuring progress in narrowing the international digital divide between countries.



### Box 1.1: Accelerating the 'teledensity transition'

'Teledensity', or the number of phones per 100 inhabitants, is one of the more useful measures of an economy's ICT infrastructure, even though it is now more often mobile phones, rather than fixed line telephones, that are measured. As the majority of economies now have more mobile phones than telephones, the preferred measure used by ITU is 'effective teledensity', which is defined as fixed lines or mobile phones per 100 inhabitants, whichever is greater.

In general, due to the close relationship between ICT development and general economic development, a country's effective teledensity will increase only as its general economic wealth increases. However, there are a growing number of examples of countries that have succeeded in growing their teledensity at a much faster rate than would be predicted by their level of wealth: for instance, as a result of changes in government policy towards the sector, or through higher rates of investment. In such cases, more intensive use of ICTs can act to speed up general economic growth, as well as *vice versa*.

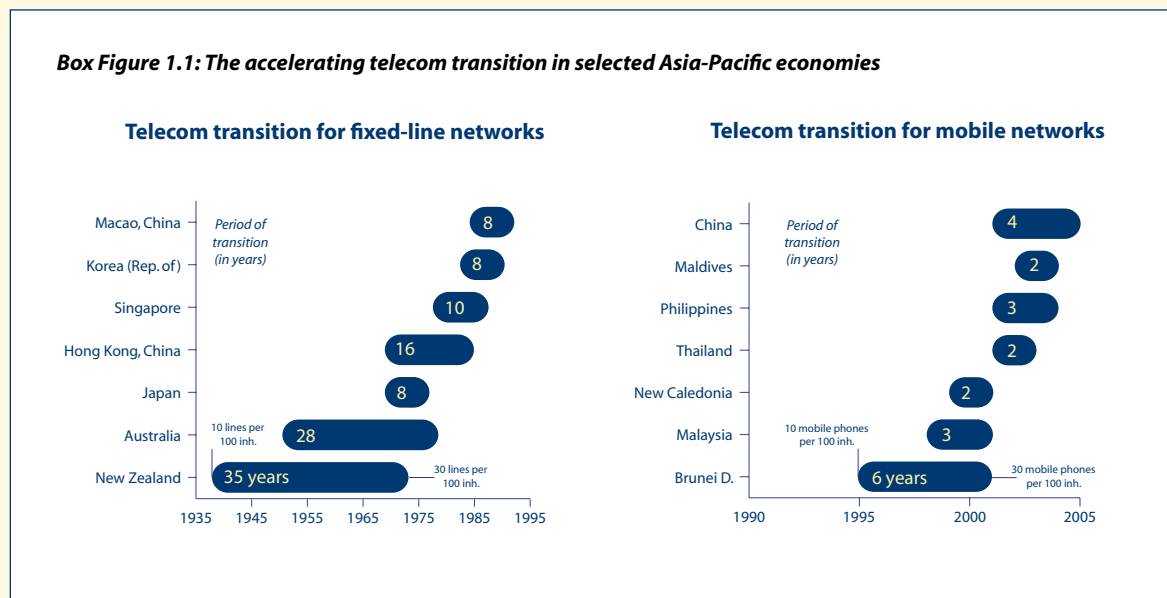
In the early 1990s, ITU carried out research on the progress of Asia-Pacific economies in achieving the 'teledensity transition' in their fixed-line networks (see left chart). The 'teledensity transition' may be defined as passing from a teledensity of 10 lines per 100 inhabitants to 30 per 100. Below a teledensity of 10, access to telecommunications is restricted to a small part of the population and few businesses and therefore the impact of telecommunications on the economy and society is limited. With a teledensity above 30 per 100, access to telecommunications is available to a majority of households and virtually all businesses. Thus, the use of telecommunications can be expected to have a comparatively greater impact on the economy and society.

For the developed economies in the Asia-Pacific region, it took between 8 and 35 years (average 16 years) to make the transition between 1935 and 1995, with a progressive acceleration over time. However, for a sample of developing economies in the same region, it took only between 2 and 6 years (average 3 years) to make the transition between 1995 and 2006 (see right chart).

The main difference between the two charts is that the developed countries made the transition using *fixed-line* networks, whereas the developing economies have invariably made the transition using *mobile* networks. Mobile networks can generally be rolled out much more quickly, and more cheaply, and are more convenient for users (e.g., through pre-paid cards). Furthermore, mobile networks are relatively 'development-neutral', in the sense that developed economies made the mobile teledensity transition only marginally more quickly (2.6 years) than developing ones (3.1 years).

A second reason why the teledensity transition is accelerating is policy and regulatory reform. As a generalisation, most of the countries making the earlier transition did so with state-owned monopolies, while those making the transition more recently have benefited from market competition in mobile networks, as well as private sector participation.

The overall message is that it is now possible to make much more rapid progress in telecommunications than at any time in the past, thanks to technological and policy changes. This is especially good news for those countries that are now approaching the start of the transition, such as India (2005 mobile teledensity = 11.4) or Sri Lanka (2005 mobile teledensity = 16.2).



Source: ITU analysis based on ITU World Telecommunication Indicators Database. The left chart first appeared in ITU 'Asia-Pacific Telecommunication Indicators, 1993'.

## 1.2.1 Which composite index?

Indices are used in economics as a way of measuring complex concepts comprising different aspects. For instance, the 'consumer price index' is an aggregate measure of different prices within an economy that are summed together to give an idea of the overall prices paid by average consumers. Similarly, stock market indices, such as the Dow Jones Index or the FTSE 100, group together trends in individual stocks to provide an index of overall market performance. One of the best-known composite indices is the Human Development Index (HDI) published annually by the United Nations Development Programme (UNDP). It measures each economy's average achievements in three basic clusters of human development: *longevity*, *knowledge* and *standard of living*. Each of the clusters can be broken down into individual indicators: for instance, *knowledge* comprises measures of adult literacy and school enrolment.

Having decided to develop a measurement approach based on a composite index, the next question is, 'Which index to choose?' A number of alternative indices are available and each one is optimised for different purposes. In order to refine the choice for a suitable index, a multi-stakeholder partnership has been established—the *Digital Opportunity Platform*—between the ITU, the Government of the Republic of Korea (through the Ministry of Information and Communications and the Korea Agency for Digital Opportunity and Promotion (KADO), and the United Nations Conference on Trade and Development (UNCTAD)). The *Platform* is open to other partners among WSIS stakeholders.

A preliminary workshop was held in Busan, Korea, September 10-11, 2004<sup>18</sup>, where the indices existing at that time were reviewed.<sup>19</sup> A summary of some of the main composite ICT indices is shown in Table 1.1.

**Table 1.1: Summary of the main composite indices for measuring Digital Opportunity**

<i>Name of index (organisation)</i>	<i>Number of economies</i>	<i>Number of indicators</i>	<i>Latest data</i>	<i>Comments</i>
Digital Opportunity Index (ITU/UNCTAD/KADO) <sup>20</sup>	180	11	2004/05	Three clusters: <i>Utilization, Infrastructure and Opportunity</i> (see Chapter two).
ICT Opportunity Index (ORBICOM/ITU) <sup>21</sup>	139	17	2003	Compares ' <i>Infostates</i> ', ' <i>Infodensity</i> ' and ' <i>InfoUse</i> ' against an imaginary economy called ' <i>Hypothetica</i> '.
ICT Development Index (UNCSTD) <sup>22</sup>	180	8	2003	Four clusters: <i>Access, Connectivity, Usage and Policy</i> .
Informational Society Index (IDC) <sup>23</sup>	52	15	2004	Only sparse methodological data is disclosed.
E-Readiness Index (EIU/IBM) <sup>24</sup>	68	31	2004/05	Six clusters: <i>Connectivity, Business environment, Adoption, Legal and policy environment, social and cultural environment, Supporting e-services</i> . Uses a mix of quantitative and survey data.
Network Readiness Index ( <i>InfoDev</i> /WEF/INSEAD) <sup>25</sup>	102	48	2003	Three clusters: <i>Environment, Readiness, Usage</i> . Uses a mix of survey, qualitative and quantitative data.
Digital Access Index (ITU) <sup>26</sup>	179	8	2002	Five clusters: <i>Infrastructure, Affordability, Knowledge, Quality, Usage</i> .
Mobile/Internet Index (ITU) <sup>27</sup>	171	26	2001	Three clusters: <i>Infrastructure, usage, market conditions</i> .
Technology Achievement Index (UNDP) <sup>28</sup>	71 (full data)	8	1998-2000	Four clusters: <i>Creation of technology, Diffusion of recent innovations, Diffusion of old innovations, Human skills</i> .

Source: ITU Research.

These indices vary according to a number of dimensions:

- The number of economies covered and the number of indicators used. As a rough rule of thumb, the more indicators that are used, the fewer economies can be covered, in a 'depth' versus 'breadth' trade-off.
- The timeliness of the data used and whether or not a historical time-series is available. Many of the indices are produced as 'one-off' studies for a particular purpose, while others continue to evolve over time. An example of a one-off index would be the UNDP's 'Technology Achievement Index', while the EIU index has been compiled between 2000 and 2006.
- The number and nature of the 'clusters' of indicators, which range between two and six.
- The methodology used for producing the average score. Most indices are based on some variation on the UNDP's Human Development Index methodology, in which the combined score is an average of the individual clusters, without weighting the indicators, although the ICT Opportunity Index and Network Readiness Index both use a different methodology.
- Whether the index focuses solely on the ICT sector or not. For instance, the EIU e-readiness index covers a number of general economy-wide measures (such as political stability) while other indices, such as the Mobile/Internet index, focus solely on one segment of the ICT industry.

Of the indices listed in Table 1.1, only two are specifically endorsed by the WSIS (*Tunis Agenda*, para 115) for use in the approved evaluation methodology: the ICT Opportunity Index (ICT-OI) and the Digital Opportunity Index (DOI).<sup>29</sup>

- The **ICT Opportunity Index (ICT-OI)** is an index which predates WSIS, having been developed by the Canadian NGO, Orbicom, and presented first in 2003. It was subsequently updated for 2003 year-end data and presented again in November 2005.
- The **Digital Opportunity Index (DOI)** is closely related, in methodological terms, to the ITU's earlier Digital Access Index, but covers the core set of ICT indicators defined by the *Partnership*. It was announced in February 2005, at the WSIS Thematic Meeting on Measuring the Information Society.<sup>30</sup> Subsequently, an initial report on methodology was developed based on 40 leading economies, and presented to the WSIS Thematic Meeting on Multi-stakeholder Partnerships for Bridging the Digital Divide, held in Seoul, 23-24 June 2005. The Index was further revised and formally launched during the Tunis Phase of WSIS, in November 2005. The full index, extended to 180 economies using 2004/05 data, is launched in this Report.

The two indices are explored in more detail in Table 1.2. Although both indices measure a similar phenomenon, there is actually relatively little overlap. Only one indicator (mobile cellular subscribers per 100 inhabitants) appears in both indices.

In the context of WSIS evaluation, a key difference between the two indices is their relationship to the 'common set of core ICT

indicators' established by the *Partnership on Measuring ICT for Development* (see the *Tunis Agenda*, paras 114-115). All eleven of the DOI indicators are within the common set, whereas six out of seventeen of the ICT-OI are from the *Partnership* list.

For these reasons, the two indices can be used for different purposes. The ICT-OI is more useful as a measure of older ICTs, such as fixed lines and TV, with 8 of the 17 indicators used in the ICT-OI corresponding to these older ICTs. The DOI has been designed to measure newer ICTs and uses the latest data available for mobile phones, broadband users and convergent technologies, measured for instance in the number of users of mobile Internet.

This difference is reflected in the rankings of individual countries. Three out of the top five (and 8 of the top 20) economies in the DOI are from the Asia-Pacific region, which is the leader in the newer ICTs. By contrast, for the ICT-OI, none of the top five (and only 4 of the top 20) are from the Asia-Pacific. Similarly, in the DOI, there are six non-OECD countries in the top 20 compared with two in the ICT-OI.

## 1.2.2 Using an index to measure Digital Opportunity

There are a number of features of the DOI which make it ideal for benchmarking progress in building the Information Society:

- It covers a large number of economies. In the edition of the DOI published in this report, some 180 economies in total are covered with data for 2004/05. As shown in Table 1.1, the DOI has the widest coverage of any of the existing indices, which makes it the index of choice for a report such as this, which is concerned, *inter alia*, with digital inclusion.
- It has a modular structure, which means that the DOI can easily be combined with other indices for analytical purposes. For instance, it can be compiled with the UNDP's Human Development Index or the UN e-government readiness index<sup>31</sup> as a fourth cluster. The modular structure also makes it possible to break the index down by gender or by regions within a country.
- The DOI has a straightforward methodology. The raw ingredients of the index are the 11 separate indicators. As these can be measured relatively easily, policy-makers and other interested parties can check and update the data for their country and can also use 'what-if' projections and scenario-planning to measure the impact of policies. This ease of comparison is particularly important for the price data, as it enables operators to compare their prices with their peers, at similar levels of ICT development.
- The DOI is 'development-friendly', in the sense that it does not discriminate against economies that are following mobile-based network development trajectories. By contrast, many existing indices tend to measure indicators that are already well-established in the developed countries. Furthermore, because the DOI includes measures of technological

**Table 1.2: Digital Opportunity Index or ICT Opportunity Index: What's the difference?**

<i>Variation</i>	<i>ICT Opportunity Index</i>	<i>Digital Opportunity index</i>
Methodology	Compiles each country's index in relation to the average of all of the other countries.	Compiles each country's index in relation to the maximum value achievable in each indicator (usually full penetration at 100%).
Number of economies	139 economies.	180 economies.
Time series	Country index values provided for 1996-2003.	Full country coverage for 2004 and 2005 data. 40 leading economies have 2001-2005 data.
Indicators used	<p><b>Networks:</b></p> <ol style="list-style-type: none"> <li>1. Main telephone lines per 100 inhabitants *</li> <li>2. Waiting lines / main lines</li> <li>3. Digital lines / main lines</li> <li>4. Mobile phones per 100 inhabitants *+</li> <li>5. Cable TV subscriptions per 100 inhabitants</li> <li>6. Internet hosts per 100 inhabitants</li> <li>7. Secure servers / internet hosts</li> <li>8. International bandwidth (kbit/s per inhabitant) *</li> </ol> <p><b>Skills:</b></p> <ol style="list-style-type: none"> <li>9. Adult literacy rates</li> <li>10. Gross enrolment ratios (at primary, secondary and tertiary levels)</li> </ol> <p><b>Uptake:</b></p> <ol style="list-style-type: none"> <li>11. TV equipped households per 100 HH *</li> <li>12. Residential phone lines per 100 HH</li> <li>13. PCs per 100 inhabitants *</li> <li>14. Internet users per 100 inhabitants</li> </ol> <p><b>Intensity:</b></p> <ol style="list-style-type: none"> <li>15. Broadband users/Internet users *</li> <li>16. Int'l outgoing minutes of telephone traffic per capita</li> <li>17. Int'l incoming minutes of telephone traffic per capita</li> </ol>	<p><b>Opportunity:</b></p> <ol style="list-style-type: none"> <li>1. Percentage of population covered by mobile telephony *</li> <li>2. Internet access tariffs as a % of per capita income *</li> <li>3. Mobile cellular tariffs as a % of per capita income *</li> </ol> <p><b>Infrastructure:</b></p> <ol style="list-style-type: none"> <li>4. Proportion of households with a fixed-line telephone *</li> <li>5. Proportion of households with a computer *</li> <li>6. Proportion of households with internet access at home *</li> <li>7. Mobile cellular subscribers per 100 inhabitants *+</li> <li>8. Mobile Internet subscribers per 100 inhabitants *</li> </ol> <p><b>Utilisation:</b></p> <ol style="list-style-type: none"> <li>9. Proportion of individuals that have used the internet *</li> <li>10. Ratio of fixed-broadband subscribers to total internet *</li> <li>11. Ratio of mobile-broadband subscribers to total internet *</li> </ol>
Top ten economies (with rank in the other index shown in brackets)	<ol style="list-style-type: none"> <li>1. Denmark (3)</li> <li>2. Sweden (6)</li> <li>3. Switzerland (15)</li> <li>4. Netherlands (9)</li> <li>5. Norway (8)</li> <li>6. Canada (14)</li> <li>7. United States (21)</li> <li>8. Finland (17)</li> <li>9. Hong Kong, China (5)</li> <li>10. Iceland (4)</li> </ol>	<ol style="list-style-type: none"> <li>1. Republic of Korea (17)</li> <li>2. Japan (19)</li> <li>3. Denmark (1)</li> <li>4. Iceland (10)</li> <li>5. Hong Kong, China (9)</li> <li>6. Sweden (2)</li> <li>7. United Kingdom (14)</li> <li>8. Norway (5)</li> <li>9. Netherlands (4)</li> <li>10. Taiwan, China (n.a.)</li> </ol>

Note: \* Indicators that appear in the common set of core indicators, defined by the Partnership.

+ Indicator that appears in both indices.

HH households

Source: ITU Research.

advancement as ratios (e.g., broadband subscribers as a percentage of total internet subscribers) rather than as absolute numbers, this will tend to advantage those developing countries that are following a path of 'technological leapfrogging'. One particular feature of the DOI is that it can be broken down into separate scores for an economy's mobile sector and its fixed-line sector, so both can be compared separately with other countries.

- The DOI is based on objective criteria and measurable indicators (e.g., number of subscribers, price of services), rather than opinion and other subjective data. The use of opinion surveys introduces bias, particularly when the objective data differ from the perspective of those being interviewed. Subjective data are often associated with regulatory information which are difficult to quantify. Regulatory components can, nevertheless, be added to the DOI as a separate cluster, providing for extra flexibility (see Chapter four).<sup>32</sup>
- The DOI is based on standardized indicators, as defined by the *Partnership for Measuring ICT for Development*.<sup>33</sup> The *Partnership* currently comprises 11 different international and regional organisations, including ITU, UNCTAD, UNESCO, OECD, Eurostat and the UN Regional Commissions. The WSIS Thematic Meeting held in Geneva 7-9 February 2005 developed a first set of core indicators<sup>34</sup>. These are the basis indicators used to compile the DOI. A sub-set of the core indicators is currently used in the DOI. This is because some of the indicators are

only available for a few economies (e.g., enterprise data). The DOI could be extended in the future to include other core indicators, once they become available for a wider number of countries.

- Finally, the DOI allows for tracking the progress of a country over time. Since the index uses consistent values for normalizing country data, it is possible to track both an individual economy's rate of growth (or decline) in the DOI and also to track its progress compared to the rankings of other economies, over time. Time-series data from 2001-2005 are currently available for 40 leading economies and time-series data, for all economies, will be added in future editions of this report.

### 1.3 Conclusions

This report introduces the Digital Opportunity Index, as a tool for policy-makers and regulators, to track progress in implementing the WSIS outcomes and to provide greater insight into ICT trends and policy within each country. It uses the DOI to evaluate the major trends driving the growth of the Information Society today, as well as its future development, and shows how the DOI can yield real insights into policies and their impact in the areas of regional development, urban/rural divide and gender analysis. The DOI is a practical and powerful tool for enriching policy and the development of the Information Society in a just and equitable way, as envisaged in the WSIS outcome documents.



## Endnotes

- <sup>1</sup> The WSIS outcome documents can be found at: [www.itu.int/wsis/promotional/outcome.pdf](http://www.itu.int/wsis/promotional/outcome.pdf). For more information about the WSIS itself, see [www.itu.int/wsis](http://www.itu.int/wsis).
- <sup>2</sup> For an analysis of the WSIS commitments, their relationship to the UN Millennium Development Goals, and the possibilities of achieving them by the target date of 2015, see: ITU (2004) 'ICTs and the Millennium Development Goals', available at: [www.itu.int/ITU-D/ict/publications/wtdr\\_03/material/Chap4\\_WTDR2003\\_E.pdf](http://www.itu.int/ITU-D/ict/publications/wtdr_03/material/Chap4_WTDR2003_E.pdf). This originally appeared as chapter four in ITU (2003) 'World Telecommunication Development Report: Digital Access Indicators'. A more recent analysis appears in Minges, Michael (2006) 'Tracking ICTs: WSIS Targets', chapter six, pp 125-146 in World Bank (2006) *Information and Communication for Development*, The World Bank, Washington, 303pp.
- <sup>3</sup> For more information on the multistakeholder implementation of WSIS outcomes, see: [www.itu.int/wsis/implementation](http://www.itu.int/wsis/implementation).
- <sup>4</sup> More information on the work of the *Partnership* can be found at: [www.itu.int/ITU-D/ict/partnership/index.html](http://www.itu.int/ITU-D/ict/partnership/index.html).
- <sup>5</sup> The common set of core indicators can be found at: [www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf](http://www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf).
- <sup>6</sup> More detail on the ICT Opportunity Index can be found at [www.orbicom.uqam.ca/projects/ddi2005/index\\_ict\\_opp.pdf](http://www.orbicom.uqam.ca/projects/ddi2005/index_ict_opp.pdf).
- <sup>7</sup> More detail on the Digital Opportunity Index can be found at: [www.itu.int/doi](http://www.itu.int/doi).
- <sup>8</sup> The stocktaking website portal can be found at: [www.itu.int/wsis/stocktaking](http://www.itu.int/wsis/stocktaking). The first report is available in six languages at: [www.itu.int/wsis/documents/doc\\_multi.asp?lang=en&id=2167](http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=2167)0.
- <sup>9</sup> The WSIS Golden Book and database can be found at: [www.itu.int/wsis/goldenbook/index.html](http://www.itu.int/wsis/goldenbook/index.html).
- <sup>10</sup> Guide to Measuring the Information Society, OECD, DSTI/ICCP/IIS(2005)6/FINAL, 08 Nov 2005.
- <sup>11</sup> 'WSIS Closing Statement', Yoshio Utsumi, 18 November 2005.
- <sup>12</sup> *Tunis Agenda for the Information Society*, para. 83.
- <sup>13</sup> *Ibid.* para. 90.
- <sup>14</sup> *Ibid.* paras. 108-110.
- <sup>15</sup> For further details on the multi-stakeholder implementation of the WSIS *Plan of Action*, based on the 11 action lines, see at [www.itu.int/wsis/implementation.html](http://www.itu.int/wsis/implementation.html).
- <sup>16</sup> Similar language to this effect is used in the opening paragraphs of both the *Geneva Declaration of Principles* and the *Tunis Commitment*.
- <sup>17</sup> *Tunis Agenda for the Information Society* para 90 a).
- <sup>18</sup> 'ITU/KADO Symposium on Building Digital Bridges', 10-11 September 2006. For more information, see: [www.itu.int/digitalbridges](http://www.itu.int/digitalbridges).
- <sup>19</sup> 'International Benchmarking for the Information Society', September 2004, presented by George Sciadas, available at: [www.itu.int/osg/spu/ni/digitalbridges/docs/background/BDB-intl-indices.pdf](http://www.itu.int/osg/spu/ni/digitalbridges/docs/background/BDB-intl-indices.pdf).
- <sup>20</sup> For more information on the Digital Opportunity Index, see: [www.itu.int/doi](http://www.itu.int/doi).
- <sup>21</sup> For more information on the ICT Opportunity Index, see: [www.itu.int/ITU-D/ict/publications/dd/material/index\\_ict\\_opp.pdf](http://www.itu.int/ITU-D/ict/publications/dd/material/index_ict_opp.pdf).
- <sup>22</sup> See CSTD website at: <http://stdev.unctad.org/themes/ict/dd.html>.
- <sup>23</sup> See IDC at: [www.idc.com/groups/isi/main.html](http://www.idc.com/groups/isi/main.html).
- <sup>24</sup> See Economist Intelligence Unit at: [www.eiu.com/](http://www.eiu.com/).
- <sup>25</sup> See InfoDev website at: [www.infodev.org/files/839\\_file\\_GITR2003.pdf](http://www.infodev.org/files/839_file_GITR2003.pdf).
- <sup>26</sup> See ITU (2003) 'World Telecommunication Development Report: Digital Access Indicators', at: [www.itu.int/ITU-D/ict/dai/index.html](http://www.itu.int/ITU-D/ict/dai/index.html).
- <sup>27</sup> See ITU (2002) 'ITU Internet Reports: Internet for a Mobile Generation', available at: [www.itu.int/mobileinternet](http://www.itu.int/mobileinternet).
- <sup>28</sup> See UNDP website and 2001 Human Development Report, at: <http://hdr.undp.org/reports/global/2001/en/pdf/techindex.pdf>.
- <sup>29</sup> *Tunis Agenda for the Information Society*, para 115, states 'We also note the launch of the ICT Opportunity Index and the Digital Opportunity Index, which will build upon the common set of core ICT indicators as they were defined within the *Partnership on Measuring ICT for Development*'.
- <sup>30</sup> See the ITU presentation 'Indicators for implementing the WSIS *Plan of Action*', at: [http://measuring-ict.unctad.org/QuickPlace/measuring-ict/Main.nsf/h\\_Index/DEE9DD6058CE41D6C1256F9F003EDE27/?OpenDocument](http://measuring-ict.unctad.org/QuickPlace/measuring-ict/Main.nsf/h_Index/DEE9DD6058CE41D6C1256F9F003EDE27/?OpenDocument).
- <sup>31</sup> For more information, see: [www.unpan.org](http://www.unpan.org).
- <sup>32</sup> See, for instance, Minges, Michael (2006), 'The Digital Opportunity Index', and Dr. C. M. Cho (2006), 'Application of the DOI for Policy Development', powerpoint presentations delivered at ITU/LBS conference on 'Digital Transformations in the Information Society', available at: [www.itu.int/osg/spu/dtis/documents/presentations/](http://www.itu.int/osg/spu/dtis/documents/presentations/). In the presentations, the ECTA Regulatory Scorecard is proposed as an additional cluster that could be added to the DOI.
- <sup>33</sup> More information on the work of the Partnership can be found at: [www.itu.int/ITU-D/ict/partnership/index.html](http://www.itu.int/ITU-D/ict/partnership/index.html).
- <sup>34</sup> The first set of core ICT indicators can be found at: [www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf](http://www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf).