GLOBAL eGovernment Experts Workshop

6th - 7th November 2012

Manama, Kingdom of Bahrain

Acknowledgement

First and foremost, acknowledgement and gratitude are extended to the United Nations Department of Economic and Social Affairs (UNDESA) for their firm support in accepting the Kingdom of Bahrain's global initiative in organizing the first global workshop. Their encouragement in organizing *Global eGovernment Experts Workshop 2012* (GeGE 2012) provided the event with a tremendous worldwide recognition.

As the host of the workshop, Bahrain eGovernment Authority wishes to extend a special acknowledgement to the International Telecommunication Union (ITU) for their invaluable assistance and direction in the development of this workshop.

The report was made possible with the generous collaboration of the United Nations Educational, Scientific and Cultural Organization (UNESCO), our knowledge-sharing facilitator and studies-conductor model.

The acknowledgements would not be complete without thanking the international key Information and Communication Technologies (ICT) experts who gave informative insights, inputs and suggestions as well as thought-provoking papers at the workshop with their professionalism and skills which ensured that GeGE left a beneficial legacy. In addition to the many distinguished participants who represented various regions and attended with full commitment and diligence.

Various entities also contributed to the framing of the report, the local and international academic institutions and universities, who shared their experiences from an academic point of view.

The writing of the report would have been incomplete without the individuals who played an important role and were involved in implementing GeGE.

Contents

Executive Summary

Following the decision of adopting the United Nation's eGovernment Development Index (EGDI) as a benchmark, eGA has taken the initiative to address some of the challenges associated with the index. It organised GeGE in order to discuss UN eGovernment rankings. The aim of the conducted report is not only to advance each nation's ranking but to develop the nation and use the report as a motivating method to go by.

With eGovernment being at the core of building a strategic sustainable development framework, the focus of GeGE was to identify ways of improving the eGovernment development indicators and effectively utilize them in the future by all member states.

The key objectives of the workshop:

1. To explore issues, new opportunities, and challenges related to the eGovernment development indicators.
2. To learn from the best practices and experiences.
3. To share knowledge from experts in the eGovernment and ICT field.
4. To ensure that countries are using the UN indices to advance and enhance their position.
5. To use such indices in their development strategy at a national level and embrace them in their Key Performance Indicators (KPI).

Summary of the key findings:

- UN focus is on supply side. UN is to look into evaluation or Return on Investment and give weight to domestic achievements.
- UN is to promote participation from member states. Encouraging them to recommend some of the trends and the process of the member state engagements should be institutionalized.
- The amount of weight placed on the eGovernment Development Index components have to be revisited. Online service index is vital and could have a weight of 40.However, HC and Infrastructure indices could be reduced to 25 each and a new index to assess impact and usage (with a weight of 10) could be added. HC index could be enhanced by adding more indicators for measuring the HCI.
- Awareness and incentives that the government sets for promoting usage of eGovernment services could be measured as an additional sub-index or could be considered as contributing to 10% of the index. It is important to measure demand factors and citizen satisfaction, including multilingualism which caters to multicultural countries.
- Make indicators more relevant to eGovernment.
- Include ICT training, eLearning and perhaps not consider tertiary components in HCI.
- HCI, as it stands, focuses primarily on classic observational education. It is suggested that knowledge or capacity within the IT field is to be recognized and considered for evaluation. Readiness of future generations to use technology has to be evaluated.
- Initiatives to be included in the future are scoring for efforts - such as the National eGovernment Excellence Awards among several ministries, publications and public relation efforts relating to eAwareness creation by the eGovernment agencies.
- Consider environment as it is significant. The use of environment-friendly systems and promotion of virtual servers or cloud computing to reduce pollution should be considered as part of indicators. More efforts to evaluate satisfaction from user perspective are required as currently the survey is binary (Yes/No) and may not be able to measure difference in quality. Two governments may provide the same set of services but the quality of service delivery might be different.
- The cultural issue, availability of information in multiple languages should be evaluated. In some cases no sophisticated information in English language is available.
- It is insufficient that indicators measure the offered services. The back-end used to provide such services should also be evaluated.
- The evaluation process of index should be a more engaging process. UN should publish draft methodologies or uptake to obtain input from member states before finalizing the evaluation criteria. More transparency is expected in the evaluation process.
- The EGDI has currently been in existence for over 10 years. It is suggested that the name 'eGovernment Readiness Index' is to be changed to 'eGovernment Adoption Index' which introduces a different dimension in order to measure Adoption vs. Readiness. Focusing on readiness itself is not adequate.
- The legislative system of member countries should be added as an indicator.
- Usage is difficult to measure. All member states are to publish specific sets of statistics in websites as part of government commitment. Such step enables observers to understand the extent of usage implicitly.
- As it stands, the eGovernment Development Index is suitable for ranking. However, encouraging and measuring development is what matters. Dynamic comparability of composite indicators should be introduced.
- The events, which enable sharing of ideas in a constructive manner, should be held more frequently and in different locations. Such events should be called 'Pre-expert Meetings'.

Telecom Infrastructure:

Discussion Points	Final Outcomes
Fixed Internet subscriptions include fixed(wired) broadband subscriptions	To exclude fixed internet subscriptions from indicators
Relevance of wireless broadband	To add wireless broadband subscriptions
To add Mobile Broadband	

Human Capital Index:

Discussion Points	Final Outcomes
Education (knowledge and skills) of people and impact on eGovernment	The capability of people is measured through their education which can be enriched by many means. To include vocational and technical training into index dimensions.
Familiarize people with technology	Incorporating social media platforms and professional ICT training courses in human capital index would add value to eGovernment indices.
Human capital investment (education expenses of an individual)	Expense incurred for education should be taken from the government and households.

Introduction

The world has seen rapid strides in Information, Communication and Technology (ICT) and its effective-use by the government and citizens in their day-to-day life. With telephones and computers yielding to mobiles, tablets and social media; governments and service providers have been compelled to proactively orient their services and service delivery using various sophisticated delivery channels. In their constant endeavour to provide effective services and stimulate sustainable development, countries are looking for reliable benchmarks such as the UN eGovernment Development Survey Report.

The UN's development index presents an assessment of how governments utilize ICT to provide access to governmental services. The current index consists of three basic indices:

1. Online service index
2. Telecommunication infrastructure index
3. Human capital index (HCI)

The three basic indices are also supplemented by the eParticipation index.

Even though a number of global indices provide valuable perspective on eGovernment programs exist across the world, the United Nations eGovernment Development Index is by far the most well-developed and accepted global index. However, the indices face challenges by countries, researchers and other stakeholders in terms of:

- reliability and consistency of data inputs
- methods of computing indices are adopted by the UN
- interpreting the results of the survey over time. For instance, certain countries retain their ranking while others make major strides in significantly developing and improving their rankings – though may not be recognised yet, as their rank does not fall within the top ten.

Keen-sighted stakeholders had noticed a gap within the eGovernment Development Index Report; following such observation, eGA took the initiative to gather experts in order to explore the challenges under one roof, and share its outcome with the rest of the world. As a result, GeGE was conducted so as to bring key international experts together in order to explore issues and challenges in regards to the eGovernment development indicators, learn from the best practices and share knowledge.

Purpose of the Workshop

In order to achieve the objectives of the event, the Global eGovernment Experts Workshop 2012was structured as follows:

- Series of presentations by experts were followed by open discussions on topics aligned with the eGovernment Development Index indicators.
- Suggestions for improvement were discussed; breakout sessions - wherein the method of computation, inputs and parameters - were used for computation of indices.
- The final session included all observations, suggestions and recommendations which were summarised, discussed and finalised for submission to UNDESA.

Agenda

Day 1

Session 1: Presentations

- International Indicators: Moderated by Professor Kim Normann Andersen, Denmark
  - eGovernment Measurement - The role and Time Perspective on Indicators, *by Professor Pavle Sicherl, Slovenia*
  - UN eGovernment Readiness Index Towards a Comprehensive Model, *by Dr. Ali AlSoufi, University of Bahrain*
  - Measuring the Development with Global Business Intelligence, *by Dr. Elena Onishko, Russia*
  - eGovernment Indices –Reviews and Recommendations, *by Dr. Raymond Khoury, Booz & Company*
  - United Nations' eGovernment Development Indicators, *by Mr. Kim Andreasson, Consultant to UN on eGovernment Development Survey*

Session 2: Breakout Sessions

- Telecommunication Infrastructure Indicators, *by Dr. Susan Teltscher, ITU*

Moderated by Professor Pavle Sicherl, Slovenia

- Human Capital Indicators, *by Dr. Yousif Ismail, UNESCO*

Moderated by Mr. Sidi Ali Maelinin, Morocco

Session 3: Presentation

- Open Data, *by Professor Kim Normann Andersen, Denmark*

Moderated by Mr. Kim Andreasson, Consultant to UN on eGovernment Development Survey

Day 2

Session 1: Presentation

- eParticipation, *by Dr. Yeonwoo Lee, South Korea*
- eGovernment Case Studies, *by Mr. Hannes Astok, Estonia*
- Online Service Indicators, *Mr. Kim Andreasson, Consultant to UN on eGovernment Development Survey*

Wrap up summary of all sessions by all moderators and closing session

Participants of the Workshop

Workshop participants were a combination of UN experts involved in the computation of various indices - forming part of the development index, such as Experts from ITU, UNESCO, academicians, and stakeholders from the Central Information Organisation. It also involved partakers of policy makers from various ministries, regulators such as the Telecommunication Regulatory Authority and representatives from eGovernment-related agencies of several countries such as the South Korea, Kingdom of Saudi Arabia, Kuwait, Morocco, Turkey, Qatar, Ethiopia, Mauritius, Brunei, Slovenia, Denmark, Kazakhstan, Russia, Estonia, Morocco, Malaysia, Jordan, Egypt, Tunisia, Yemen and Kingdom of Bahrain.

The list of participants and speakers' profiles are attached within this report (Appendix 1).

Introductory Note

eGovernment Authority CEO Mr. Mohammed Ali Al Qaed welcomed the international participants and experts to the Kingdom of Bahrain; as he thanked them for taking the effort to participate in the Global eGovernment Experts Workshop which aims to play a vital role in contributing to the enhancement of UN eGovernment index by taking it to the next level through valuable inputs provided by the workshop.

His speech highlighted the following:

- The UN eGovernment Survey Report, covering important indexes that are employed to measure the ranking of each country such as the online survey index, telecommunication infrastructure index, human capital index and eParticipation.
- The workshop follows a common objective - to derive tangible recommendations that can be raised to the UN expert group meeting in order to discuss and consider while preparing the upcoming UN survey report which is strongly supported by UNDESA.
- Gathering every expert and country to discuss the indices is an important aspect as all nations should be able to advance and enhance their strategies as well as development objectives through incorporating the indices of the UN report.
- Through combined efforts, rankings can be improved at the report; hence reflecting positive outcomes of 199 countries evaluated through the UN index.
- Ensuring the sustainable development at an international level is a milestone that can be successfully achieved through GeGE.

Mr. Al Qaed declared that Bahrain is honoured to hold such an event and acknowledges all efforts of participation as he hopes that the tangible outcomes arising from the open discussions will assist all countries in bridging digital gaps, encouraging eParticipation, providing the best online services to citizens and improving human capital index - based on a sound infrastructure.

The CEO also thanked United Nations Department of Economic and Social Affairs (UNDESA);International Telecommunication Union (ITU);United Nations Educational, Scientific and Cultural Organization (UNESCO); the experts and participants for their incentive support in helping to create such an event.

Day 1: Session 1

Moderator:

Professor Kim Normann Andersen , Copenhagen Business School, Denmark

Panel members:

- Professor Pavle Sicherl - SICENTER, GFS Institute and University of Ljubljana, Slovenia
- Dr. Ali AlSoufi - Department of Information Systems, University of Bahrain, Bahrain
- Dr. Elena Onishko - International researcher, Ministry of Telecom and Mass Communications, Russia
- Dr. Raymond Khoury - Booz & Company
- Mr. Kim Andreasson - DAKA advisory and Consultant to UN on EGDI Survey

Subject 1: eGovernment Measurement - The role and Time Perspective on Indicators

Speaker

Professor Pavle Sicherl - SICENTER, GFS Institute and University of Ljubljana, Slovenia

UN E - Government Survey 2012

In this presentation, Dr. Sicherl from SICENTER, GFS Institute and University of Ljubljana underlined eGovernment as the core of building sustainable development framework for nations. The concept of sustainable development implies at least three aspects:

1. It is a long-term phenomenon, to be studied in a dynamic framework
2. It is multi-dimensional, over many domains and indicators
3. It depends on the set of goals which could be different in various countries.

Sustainable development can be measured through a set of indicators from numerous fields. According to Sicherl, these indicators should be able to compare elements of a set of categories with each other; for instance, country with country or small enterprises with large. He emphasized the importance of human interface during the decision-making stages for the sustainable development of a nation.

Dr. Sicherl noted that although steady improvement exists in all the indicators of the eGovernment development index in the United Nations 2012 survey, there remains an imbalance in the digital divide between developed and developing countries. This is particularly visible in Africa. The digital divide is a social issue referring to the differing amount of information between those who have access to ICT and those who do not. He suggested that future survey and analysis should emphasis on ranking using composite indicators that should be complemented by dynamic indicator analysis over time. This helps to measure the imbalance in two dimensions - measures of static difference and time distance. Measures on time distance is an innovative concept of looking at data to enhance knowledge and understanding to

facilitate stakeholders in order to build their perceptions and decisions to offer a new perspective hidden in existing data.

In summary Dr. Sicherl stated that:

- Sustainable development requires the analysis to be broadened in terms of comparisons over time and indicators from different domains.
- Static measures alone are inadequate. The degree of disparity may be very different in static measures and in time distance. In development strategy, the relations between growth, efficiency, inequality and convergence can be different when based on static measures or on time distance.
- To enable the dynamic comparability of the composite indices, it would be advisable to use in the standardization process the maximum and minimum values for the whole period, as it has been done for the Human Development Index (HDI), and not only of the current year.
- Absolute values of original data and indicators should be analysed in addition to the static comparison and composite indicators, at the regional and country level.
- Open data access to selected original data and indicators would be an important help to the countries for comparing the evolution over time.

Subject 2: UN eGovernment Readiness Index - Towards a Comprehensive Model

Speaker
Dr. Ali AlSoufi - Department of Information Systems, College of Information Technology, University of Bahrain, Bahrain

In this presentation, the current UN eGovernment Readiness model was evaluated, followed by a discussion of a more comprehensive model which includes the supply and demand side of the eServices.

Dr. AlSoufi pointed out the below limitations of the current UN eGovernment Readiness model:

- Does not include various types of eGovernment stakeholders such as citizens, businesses, decision-makers, civil society, etc.
- Does not include measures of use or users' experiences of eServices which raises a perspective on impact assessment of eServices.
- Does not measure impact of key services as *direct user information and experience* is not included.
- Data focuses on the supply-side only.
- Equal weights to the three indicators (Online Service, Telecommunication Infrastructure and Human Capital) are not justifiable.
- Data is collected from multiple sources, which increases scope for data dilution or loss of credibility.

According to Dr. AlSoufi, narrow view of eGovernment assessment with the focus on the supply side rather than on the demand side of the eServices is the major drawback of current UN eGovernment Readiness model. In addition, the role of various stakeholders such as citizens, businesses and decision-makers were not differentiated in the UN eGovernment Readiness Index.

Thus, the challenge is to develop a model that will enable measurement of supply side of the state as well as the demand side of stakeholders such as citizens and private-sector. He presented a model which focuses on participation of all individuals and communities in all aspects of Information Society. It can be modeled in terms of three indices - Access, Usage and Impact. This model also differentiates between supply and demand of eServices.

Subject 3: Measuring the Development with Global Business Intelligence

Speaker
Dr. Elena Onishko - International Researcher, Ministry of Telecom and Mass Communications, Russia

This presentation covered two areas:

- Data handling challenges
- Advantages of publication of data with Business Intelligence (BI) tools.

Ms. Onishko began with reference to 'Global' to emphasize the importance of standardizing data across boundaries. One of the major challenges is the national classification system of national statistical data and indicators which was established several decades ago. It was aimed to publish data in paper and not keying into the system. Apart from this, the indicators are placed in a non-hierarchical order where the elementary and aggregated indices are kept at the same order. Creation of any adhoc report from the national statistical system is currently very difficult as the current set-up can provide only small and a predefined variety of information. Another challenge is the variety of indices developed by local bodies and authorities which are not shared with others.

Ms. Onishko emphasized the need of interaction required for statistical data publication. In this context, she underlined the need for publication of data using various business intelligence tools. Apart from the interactivity of the data, publication of data in BI tools helps to generate any adhoc reports and multi-dimensional analysis. It can ensure consistency in data representation and it is best for governing the data.

In Ms. Onishko's opinion, despite the capability of such BI tools, local and national authorities seldom use them in a consistent way.

Subject 4: eGovernment Indices – Review and Recommendations

Speaker
Dr. Raymond Khoury - Vice President, Booz & Company

The focus of Dr. Khoury's presentation covered:

- An overview of the main eGovernment indices
- Outline of the limitations of current indices and standardization efforts
- Propose an index framework, strategic themes and design principles

Dr. Khoury presented the key players and their dimensions for measuring the eGovernment indices. Key players include the United Nations, International Telecom Union, World Economic Forum, Brown University, Economist Intelligence Unit and Waseda University.

The UN eGovernment Development Index focuses on Online Service Index, Telecommunication and Infrastructure Index as well as Human Capital Index. Dr. Khoury pointed out that though these indices are very popular, it gives less focus on national dimensions (regulatory and business environment), demand dimensions (service-usage by different groups) and ICT impacts.

The ITU developed an index that seeks to monitor countries' ICT progress in three dimensions such as access, use and skills of ICT. Like UN indices, this index does not track national dimension.

The World Economic Forum Networked Readiness Index (NRI) is very comprehensive covering ten core sub-dimensions. The core dimensions covered in these indices are Environment, Readiness, Usage and Impact.

Brown University's Annual Global eGovernment Study analyzes website features as well as overall eGovernment performance. Some of the features analyzed on websites were the availability of contact information, credit card payment, data base and availability of publications.

The EIU Digital Economy Rankings assess the ability of consumers, businesses and governments in using ICT to their benefit.

Waseda University's International eGovernment Ranking proposes a number of interesting dimensions such as network infrastructure, management optimization, national portal, government CIO, and eParticipation which are not seen in other indices.

The above indices vary in their focus; therefore, do not measure or report on the same dimensions - making countries and researchers confused as to which index is best to

follow. This leads to the UN and other international organizations to form a task group in order to work on producing a common eGovernment measure. The task group released a frame work consisting of seven globally comparative eGovernment core dimensions with a list of core ICT indicators. The focus is on supply dimensions, i.e. provision of ICT services for citizens and government use. It gives less focus on other dimensions of eGovernment programs such as national, demand and impact dimensions. Instead, it is proposed that a framework comprised of strategic and tactical dimensions ensures comprehensiveness and stability in eGovernment program assessments. The key highlights of the proposed framework are:

Four overarching dimension categories i.e. National, Supply-related, Demand-related and Impact that are together comprehensive in their coverage of eGovernment topics

Appropriate combination of strategic (job creation) and tactical (access to services) dimensions ensure a balanced assessment of eGovernment programs, provide a stable guideline for countries to follow, and highlight the importance of measuring the impacts of eGovernment initiatives.

The main advantage of this framework is that all stakeholders (consumers, businesses and governments) as well as their roles in the eGovernment are considered in the framework.

Subject 5: United Nations' eGovernment Development Indicators

Speaker
Mr. Kim Andreasson - DAKA advisory and Consultant to UN on eGovernment Development Index Survey

In his talk, Mr. Andreasson addressed the trends in eGovernment and the scope of enhancing the applicability of eGovernment at all levels. According to Andreasson, UN eGovernment survey is a core component for international benchmarks of the information society and it deserves a closer look based on public information available. According to Mr. Andreasson, the following are the major future trends in eGovernment:

- Mobile government
- Improving usage of services
- Open government
- Trust and security
- Sustainable development and objectives

Mr. Andreasson feels that the major challenge is revising indices in accordance with the new trends by retaining the core strength. He suggested that by going forward, there is a need to focus on increase in transparency of the indices. Also, there needs to be a shift from website to search tools for the measurement of indices.

Comments Made at the End of the Session

- A participant from a GCC country raised a query on the comparison of two countries in terms of ranking. The panel members' point of view included the following:
  - Countries are not ranked for reward or from a competitive perspective. The ranking is merely an indicator and is to be used by countries to benchmark themselves against peer group of countries for further development. Therefore, ranking is not important or critical in and of itself.
  - There must be an equal footing not only in terms of what is offered, but also the investments made behind those services.
  - The concept of service offering should be common across all countries. Therefore, there should be a consensus on a comparative set of indices to be implemented.
  - There should be a better global network and communication with researchers to help analyze the global and local variations. This group of researchers could help find new ways of variance and trends.
- As a follow on, the same participant wanted to know the terms of comparing two countries in relation to time. To the panel members' point of view are:
  - It is important to have common indicators when comparing different countries. The absolute levels and distribution of those indicators should be compared.
  - Regarding the UN eGovernment Index, there should be a way to effectively use across time as grounds for comparison similar to the Human Development Index.
  - The index, currently in use, could be re-standardized in order to enable a better platform for comparison over time.
  - Another possibility is a time matrix which represents how far ahead or behind each country is in comparison through time (i.e. years).
- One of the experts raised a concern that the number of measurements used in ranking increases the risk of those measurements losing their clarity.
  - The ranking system is good, but it is just the first step. It does not necessarily indicate how advanced a country actually is. The measurements should be used for development purposes and for evaluating a country's progress over a period of time.
  - Agreed that there should not be more measurements added, instead only the weights assigned could be differentiated - based on factors that affect a region or country in terms of economy, demography, environment, etc.

Day 1: Session 2

- Dr. Susan Teltscher - Head, ICT Data and Statistics Division International Telecommunication Union (ITU)
- Dr. Yousef Ismail - UIS Statistical Advisor, Arab States, UNESCO

Subject 6: Telecommunication Infrastructure Index

Speaker
Dr. Susan Teltscher - Head, ICT Data and Statistics Division International Telecommunication Union (ITU)

Dr. Susan explained the role of ITU in developing ICT statistics. ITU plays a key role in data collection and dissemination, as well as data analysis and preparing research reports. ITU provides member countries technical assistance to define the standards to adopt. Dr. Susan listed out the following indicators which are included in telecommunication infrastructure index:

- Estimated Internet user - per 100 inhabitants
- Main fixed phone lines - per 100 (ITU: fixed telephone subscriptions)
- Mobile subscribers - per 100 (ITU: mobile cellular subscriptions)
- Fixed Internet subscriptions - per 100
- Fixed broadband - per 100 (ITU: fixed wired broadband subscriptions)

'Estimated Internet Users' is a measure of the percentage of individuals using the internet. This data is collected through national representative of household surveys; Teltscher underlined that this measurement should not be based on data subscription of internet connection.

As per the definition, fixed-telephone subscriptions refer to the sum of active number of analogue fixed-telephone lines, Voice-over-IP (VoIP) subscriptions, fixed-Wireless Local Loop (WLL) subscriptions, Integrated Services Digital Network (ISDN) voice channel equivalents and fixed public payphones.

'Fixed telephone Subscriptions' is an old indicator; however, the expert believed that it is still relevant for measuring fixed access. In truth, this has taken over by mobile telephony in many countries.

'Mobile-cellular subscriptions' refer to the number of subscriptions of a public mobile telephone service that provide access to the PSTN using cellular technology. The indicator includes (and is split into) the number of post-pay subscriptions and prepaid accounts that are active (i.e. that have been used during the last three months). The indicator applies to all mobile-cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private-trunked mobile radio, telepoint, radio paging and telemetry services. Dr. Susan also mentioned that this measure is SIM cards based and not by individual owners or handsets.

Fixed (wired) Internet subscriptions refer to the number of active fixed (wired) Internet subscriptions with speed less than 256 Kbit/s (such as dial-up and other fixed non-broadband subscriptions) and total fixed wired-broadband subscriptions. This measure includes fixed broadband subscription.

Dr. Susan pointed out certain issues in the measurement of the above indices. One of the issues is that fixed internet subscriptions include fixed (wired) broadband subscriptions; thus, it is recommended to only include fixed (wired) broadband subscriptions and eliminate fixed internet subscriptions. Another issue, eGovernment development indices currently do not consider mobile internet - which is becoming increasingly important.

Break-out Session on Telecommunication Infrastructure Index

After the presentation, Dr. Susan moderated a break-out session for Telecommunication Infrastructure Index. The purpose of the break-out session was to highlight concerns, issues and topics to improve the index. The following points were discussed during the break-out session:

- As part of the definition, mobile subscriptions are based on SIM cards; however, certain countries use data SIM cards (used specifically for data only).
- The data SIM cards are separate and do not fall under mobile cellular subscriptions. The data cards would be included under the mobile broadband subscriptions; however, if voice services are combined with data services (as a subscription) then it would be labeled as a mobile cellular subscription.
- In terms of calculating the indicator, information on internet subscription (whether on the fixed broadband or mobile subscription) is taken into consideration; however, from an ICT readiness perspective, it should not matter whether an individual is accessing the internet from mobile or a fixed technology.
- It may be sufficient to consider internet users in the calculation of the index. If the index calculation is based on user-activity then consideration should be given for users accessing internet via fixed and mobile channels. This point is open for discussion.
- Regarding mobile telephone SIM cards; there are certain situations where individuals have more than one SIM card. A suggestion is to consider the number of lines related to a citizen and not the number of telephone lines.
- This is the reason behind having a mobile penetration of more than 100%. It would be a more accurate indicator to have the number of lines related to individuals. Perhaps collaboration can be made with the mobile operators in order to gain the information but that is currently unavailable.
- For purposes of calculating the index, it should not be important to be comprehensive in the area of ICT readiness. Information should not be mixed when gathering the data; for instance, information on mobile subscriptions should only be data regarding mobile industry without including other technologies.
- Broadband technology usage in the Gulf states is high. There are situations where it is difficult to identify the specific number of broadband users. For example, broadband usage in households might be available but is used by 10 users and being calculated as one user.
- The internet speed of 256 Kbps is too low to be taken into consideration. When a customer is disconnected from the service, the speed is dropped down to 256 Kbps.

- Internet speed issue is an ongoing discussion and there are opinions that the speed should be increased, decreased and/or remain the same. Comparison of the internet speed can be made between similar groups having the same internet speed in order to obtain more accurate information regarding speed utilization.
- The index calculation should include weight-age for those factors that are unique to an individual country in order to identify the extraordinary capabilities of a country.
- It is possible to include these factors provided that the estimates are developed and the missing information is accounted for, in addition to monitoring the countries who can meet the expectations and those who cannot.
- The labeling of broadband subscriptions can be changed to 'broadband access' in order to accommodate more channels of access such as mobile or internet subscriptions.
- It is important to be precise on what the indicator is labeled as and what it incorporates. Usually, indicators do not incorporate groups of technologies or factors in order to discount double counting.
- There are 193 countries so there are different levels of capabilities to meet certain standards and improvements. If the bar is raised, there might be a risk of losing interest for participation. There are cases where a country is developing but the rank is stagnant or even reducing. Perhaps defining the category or re-allocating the category to account for more participants. For instance, countries which are improving will fall in 'Category A' and those which aren't will lie in 'Category B'. In addition, countries showing above average growth could be highlighted including those who have shown insignificant growth.
- Regarding the ranking of similar countries, there is a need for data segregation and separation, such process takes time to reflect the data for the respective country. Usually, there is a lack of information which is natural but there is potential for improvements in this area.

The following summarizes the highlights of the discussions:

Topic: Ranking of countries does not consider the progress made by countries at lower levels of ranking

Participants' Views / Comments:

- Countries could be sub-classified, based on the progress made which has to be reflected in the rankings.
- The provided indicators should be drivers to enhancements. Some percentage towards unique factors should be given in order to indicate the areas in which countries excel.

Moderator's Opinion:

- Sub-classification is done in the ICT Development Index. A total of 11 indicators are used.
- With respect to the indicators and unique factors point, this can be achieved by identifying the source, locating the data, and discussing suggestions with UN countries.

Topic: Categorizing data SIM cards under mobile cellular subscriptions

Participants' Views / Comments:

- Will data SIM cards be considered under mobile subscriptions?

Moderator's Opinion:

- Only if voice is added to the data subscription, then it would be considered as a mobile cellular subscription.

Topic: Number of mobile cellular subscriptions per citizen

Participants' Views / Comments:

- There are situations where individuals use more than one mobile subscription. Suggestions include considering the number of subscriptions related to a citizen.

Moderator's Opinion:

- This issue is the reason why mobile penetration rate is more than 100%. A more accurate indicator would be the number of individuals using a mobile phone. This is being collected / can be obtained through household surveys.

Topic: Broadband Speed

Participants' Views / Comments:

- The broadband speed of 256Kbps, which is currently the threshold for measuring broad bands, should be increased.

Moderator's Opinion:

- The speed issue is an on-going discussion and there have been several groups looking into whether the speed should be increased. It was decided not to increase the threshold (256Kbps). The focus should be to collect speed tiers and identify the subscriptions that are aligned to each category of speed. This is a better way of comparing speed utilization.

Topic: Mode of Accessing Internet

Participants' Views / Comments:

- From an eGovernment perspective, it shouldn't matter if a citizen accesses internet through mobile or fixed channels since the measurement is user-based and not channel-based.

Topic: Indicators for Rural Areas

Participants' Views / Comments:

- With respect to people connecting from rural areas, how are they included in the indicators?

Moderator's Opinion:

- Normally these would be included in the indicators since the data collected for the indicators are for the entire country.
- Rural areas are included in the indicators.

Topic: Number of Internet Users

Participants' Views / Comments:

- From the subscription data, it is difficult to determine the number of internet users because there could be several users under the same subscriptions as several members within a family or several households in the same building could be using the internet.

Moderator's Opinion:

- This cannot be calculated or estimated.
- It is not recommended to multiply the number of subscriptions with the average number of members in a household as it could lead to duplication.
- It is not possible to know how many internet users are based on the subscription data. Countries are recommended to collect data on usage from the national household surveys.

Topic: Fixed Internet Subscriptions include Fixed (wired) Broadband Subscriptions

Participants' Views / Comments:

- The suggestion is to only include fixed (wired) broadband subscriptions and eliminate fixed Internet subscriptions.

Moderator's Opinion:

- Fixed Internet subscription is to be excluded.

Topic: Broadband Subscription Classification

Participants' Views / Comments:

- Change the fixed broadband subscription to 'broadband access' in order to include all broadband related channels.

Moderator's Opinion:

- Combining several types of subscriptions such as mobile and fixed broadband can result in double counting; hence, may not produce accurate figures.

- Currently, the consensus is for broadband subscription categories to remain the same.

Topic: Wireless Broadband

Participants' Views / Comments:

- Wireless broadband subscription is to be added in EGDI.

Moderator's Opinion:

- Wireless broadband subscription is to be added in the EGDI.

Subject 7: Human Capital Index (HCI)

Speaker
Dr. Yousef Ismail - UIS Statistical Advisor, Arab States, UNESCO

In this presentation, Mr. Ismail spoke about Human Capital and Human Development Index in details. He defined human capital index as a composite statistic of life-expectancy, education, and income indices to rank countries according to their human development. Human development index was developed to shift the focus of development economics from national income accounting to people-centered policies. Mr. Ismail listed the following components to measure the human capital index.

- Human capital endowment (expenditure on all types of education of the labour active individual)
- Human capital utilisation
- Human capital productivity
- Human capital demography and employment

Human capital endowment measures the cost of all types of education and training per person active in the labour force. *Human capital utilisation* looks at the amount of a country's human capital stock that is in fact being deployed. *Human capital productivity* measures the productivity of human capital by dividing a country's overall consumption by all of the human capital employed in that country. *Human capital demography and employment* looks at existing economic, demographic and migratory trends to estimate the number of people who will be employed at a certain year in the future.

Break-out Session on Human Capital Index

After the presentation, Mr. Ismail moderated a break-out session for Human Capital Index. The purpose of the break-out session was to highlight concerns, issues and topics to improve the index. The specific points comprised:

1. Facilitate continuous, constructive discussions between member states, United Nation's experts and other data source organizations.
2. Ensure proper understanding of definitions, process of reporting, data-providing and validation of consistent data supply.
3. Carry out frequent statistical analysis to validate indices' dimensions, ensure high relevancy and impact on eGovernment.

4. Agree on data-gathering and supply within each country with clear governance structure.
5. Focus on Human Capital Index's essence rather than competition and ranking.
6. Discuss Human Capital Index components i.e. relative weight, relevancy to eGovernment and suggest improvements.
7. Propose improvements to the Human Capital Index i.e. propose new dimensions to be measured, relative weights, etc.

The following points were discussed during the break-out session:

- Involvement in education. Vocational training is a form of education, collecting valuable data.
- HCI: to include all types of education, formal and informal covering primary education to tertiary-level education; also including the various tiers such as middle school, high school, etc.
- Ensure actual capabilities of the education system are being measured. People who do not work upon completing school will face difficulty remembering the learnt knowledge.
- Educated people working within the domain they've specialized in, by applying the learnt knowledge from schools.
- Education is compulsory, starting age 3 until 16 in Mauritius; however, employment is irrelevant to the area of studied specialization.
- If a person works within another domain (masked unemployment), the society will not benefit as learnt knowledge will be lost. Capabilities of a person should be considered as contributors to human capital.
- Deployment of employment: employing the right person in the right place. A person should be able to contribute in the development of his/her country.
- Computer literacy should be included in HCI. Technology acceptance model: familiarize people with technology.
- Social networking, professional institutes that add knowledge should be included in eGovernment indices.
- Basic education and computer science for instance; should be considered as part of the indicators.
- Four components:
  - Human capital endowment: government and household expenditure in education for those working. How much does each household spend on education? How much enterprises are spent in educating employees? How much government and household spend on people to become skilled workers? Computer literacy collect data through social media such as Facebook; domain registration, and social gamers publish their information through profiles.
  - Disparities and differences between countries on the amount of a household spending on education since some are subsidized by governments. Measure computer literacy - how can this be done accurately?

- Expenditure should encompass government and household, not individual.
- ICDL certificates that might indicate computer proficiency.
- To measure the ability of the citizen to access content. *Supply vs. Demand*, ask citizens whether they have access to service or knowledge. If a person in a rural area does not have access, however, relatives can provide the required information then eGovernment is successful.
- Obtain statistics on the number of students who have Internet access.
- eGovernment should ensure that citizens have access and the capability to utilize it. Training on basic computing is a collective effort that must be obligatory, out of which all entities must cooperate.
- Does the country have the right capacity? The ultimate goal is to develop eGovernment and the services.
- Human capital: not necessarily a direct correlation between computer capabilities and government awareness. A lot of variance exists in the details of the data.
- Importance of educating people to use eGovernment services. Run awareness campaigns in order to explain to citizens how they can access or obtain the required information.

Need from the UN: there are certain information required from countries that internally built the capacity to ensure that the information is provided timely and accurately.

The UN should clarify the information for countries to better comprehend the requested data and requirements.

- Fair indicators should be implemented into the index to consider the regions that possess high dependence on non-nationals, especially blue-collar labours.

- Demographics: one major component is adult-literacy rates, which can be affected by demographics. This rate has a higher weight-age in the index. Very biased to measure and difficult to fix with capacity building programs, especially in remote areas. In this case, we should look at the end results, do we or do we not serve citizens?
- Are there any other indicators that can be added to the HCI, whereby reflecting what is happening in terms of government efforts, progress of the human capital, knowledge and skills to be used? Can ICT education be used as an indicator? A framework or model used by UN on measuring ICT education. Are professional training courses considered when looking at adult literacy rates? If not, can another indicator be introduced for ICT professional training? Social media (Facebook, LinkedIn) whereby people using various platforms on the internet, competent and capable of using eGovernment services; the number of active subscribers and profiles can indicate these group of users. Weights: adult literacy represents 2/3, school enrolment 1/3. Is this a fair indicator to be used?
- Not only focusing on people who are ICT illiterate, perhaps the issue is lack of motivation towards using eGovernment services despite knowing how to.
- There are instances where people book flight tickets or use eBanking services, but would not avail services through eGovernment. Perhaps some sort of indicator can be used to measure this.
- An appropriate way of measuring literacy and change in HCI is by obtaining information from the audience.
- Current reports, in terms of demographics, measures the literacy rates and enrolment based on the total number of population rather than the nationals. This can be a challenge since most countries in GCC have a higher rate of expatriates.
- There are international conventions that educate those residing in country sides and rural areas.
- The government should provide education to all inhabitants of the country.
- Linking or measuring the demand side with the supply side. Supply of infrastructure, human capital and readiness. Then link human capital (specifically computer literacy) to other level of assessments, which is the normal level of any IT project that comes to the usage and uptake stage, where measuring people who are computer literate will use or have access to technology. Solve problem of accessibility and motivation by going to higher level of assessment, which is the uptake. Measure positive impact of using technology by having human capital capabilities on the stakeholders. We try to isolate every single assessment. To what extent they are using, have the demand, and have a good impact.
- Demand and supply: have an assessment indicator, impact on their quality of life (reduce cost, improve efficiency).

Following the discussions, the moderator and participants agreed to present the following summary:

Topic: Education (knowledge and skills) of People and Impact on eGovernment

Participants' Views / Comments:

- Vocational and technical training, as well as computer literacy to be considered as part of adult literacy dimension.

Moderator's Opinion:

- Include all levels of organized education. Computer literacy can be measured by taking the users of social media or ICDL certificates, etc. A complete guide is developed by the UN for ICT education which can be capitalized upon.
- The capability of people is measured through their education which can be enriched by various methods.
- To include vocational and technical trainings into index dimensions.

Topic: Familiarize People with Technology

Participants' Views / Comments:

- The ITU has to develop methodology on how to measure this indicator.

Moderator's Opinion:

- Social media platforms, professional ICT training courses, web presence indicators can add value to human capital Index.
- Incorporating these areas in human capital index would add value to eGovernment indices.

Topic: Human Capital Investment (education expenses of an individual)

Participants' Views / Comments:

- Add this question in the household survey questionnaire to get this figure.

Moderator's Opinion:

- It is an important indicator though investigation is needed to gauge its direct relevancy to the eGovernment index.
- Expense incurred for education should be taken from both the government and households.

Topic: How to Measure the Incentive provided to eGovernment Users

Participants' Views / Comments:

- Motivation from eGovernment is required to encourage the use of eGovernment services.

Moderator's Opinion:

- People possessing knowledge and skills is not sufficient to ensure high-uptake.
- There is no clear method of how to quantify this indicator. However, an indicator can be added to measure marketing and awareness efforts in a country and its effectiveness in driving traffic to the eServices.

Topic: Demand vs. Supply

Participants' Views / Comments:

- Citizen's capability, willingness and expectation in using eGovernment services are the key success measures; and not only by providing online services and ensuring the availability of a solid infrastructure.

Moderator's Opinion:

- Understanding the demand dynamics would drive the supply side. Demand entails deep analysis to the requirements of users and assessment of eServices, which would impact users' daily lives.
- To include indicators on the many ways countries are addressing the demand side and responding to it. Detailed study is needed.
- To include an indicator on the impact of citizen related eGovernment services and programs.

Topic: Demographic Issues, Investment in Human Capital, Human Productivity

Participants' Views / Comments:

- Countries should develop and adopt demographic policies, observe other human capital indicators.

Moderator's Opinion:

- The study of this would take the eGovernment index to a higher level. A deeper analysis of users would always provide more information and steer the direction of the eGovernment programs in the future.
- It is an important area to ensure sustainable human capital development in the eGovernment domain.
- A detailed study is needed on how this would impact the eGovernment and how data can be utilized to drive conclusions.

Day 1: Session 3

- Open Data: by Professor Kim Normann Andersen - Professor, Copenhagen Business School, Denmark

Subject 8: Open data

Speaker
Professor Kim Normann Andersen - Professor, Copenhagen Business School, Denmark

In this presentation, Professor Anderson spoke about the objectives of open data and gave different dimensions from developers, providers and citizens' point of views. The main objectives for open data encompass:

- Innovation
- Accomplishment
- Cost reduction
- Accessibility
- Transparency
- Corruption reduction
- Citizen and companies in dynamic interplay with government
- Ideological issues (End or beginning of government)

From the developers' point of view, it is accessible, useable, complete, clean and consistent. Open data is affordable from providers' point of view; whereas it reduces red tape and provides easy access from citizens' point of view.

Day 2: Session 1

- Dr. Yeonwoo Lee, Director of National Information Society Agency, South Korea
- Mr. Hannes Astok, Programme Director, Municipal and Regional eGovernance, eGovernance Academy, Estonia
- Mr. Kim Andreasson, DAKA advisory and Consultant to UN on eGovernment Development Index Survey

Subject 9: eParticipation

Speaker
Dr. Yeonwoo Lee, Director of National Information Society Agency, South Korea

The presentation covered the definition of eParticipation, key elements that contribute to the success of eParticipation and the experience of South Korea in successfully using eParticipation.

The definition of eParticipation is the use of ICT to enable and strengthen citizen participation in policy-making processes. It is typically top-down engagement (government-led initiative).

The UN has included a qualitative study on eParticipation within the eGovernment context since 2003, as they both complement each other. eParticipation is an addition, not a replacement for traditional ways of participation.

There are two models of eParticipation - direct wherein the citizen is considered to be the decision-maker with the delegated right to take final decisions. In the representative model, the citizen's role is of an opinion former with no final decision-making authority.

There are three stages in eParticipation with sharing of eInformation from the government to the citizens, followed by eConsultation between citizens and the government and lastly eDecision. The success of eParticipation, to a great extent depends on the government's willingness to ask and the ability to respond. The citizen's part, their willingness to participate and the capability to contribute.

Dr. Lee explained some of the findings of the 2012 eParticipation survey. Stating that Kazakhstan provides government blog site where citizens can communicate with government agencies' executives by posting comments and questions. Colombia encourages citizen engagement through online forums, blogs and social media access. In

Australia, the government provides a 'Have Your Say' section - located on the homepage of the portal. He also explained some of the features of the eParticipation efforts in Korea, which has www.epeople.go.kr described in the UN eGovernment Survey 2010 on Page 70. For eParticipation, users are connected to ePeople, a single online service that integrates the eServices of all governmental agencies. The aim of ePeople is to improve the transparency of government administration, improve corruption reporting and engage citizens through petitions, proposals and policy discussions.

Dr. Lee explained the process of eParticipation in Korea and gave examples of the ideas implemented based on eParticipation such as incorporating English subtitles for Korean movies, handling of various lengths in metros, etc.

Comments Made at the End of the Subject

- A participant from Central Agency for IT, GCC and representatives of the government of Kazakhstan raised a point with respect to incentives for encouraging individuals to use online government services. The panel members' point of view included the following:
  - Establish monetary incentives to encourage individuals in order to use online government services in addition to highlighting cost implications of completing the transaction through direct interactions with governmental entities (such as the payment of additional fees).
  - Conduct awareness campaigns to inform individuals of the availability of online government services and recognize individuals for completing their transactions online through competitions, awards and other social events.

Among the challenges faced with eParticipation, the following are the provided corresponding suggestions:

- An incentive should be provided in order to encourage people to engage in eParticipation.
- Citizens should be reassured on the benefits and impact of eParticipation.
- Civil society should be involved in providing platforms for eParticipation, since most people prefer and trust NGOs and other associations more than governmental authorities.
- eParticipation should be more inclusive by integrating eInclusion.
- It is critical that governments follow-up eParticipation to deliver outcomes to decision makers and follow-up on them.
- Human capital and digital literacy play a key role in making eParticipation more efficient.

Subject 10: Online Services Index - Thematic Workshop on Online Service Indicators

Speaker
Mr. Kim Andreasson, DAKA advisory and Consultant to UN on eGovernment Development Index Survey

Mr. Andreasson began by explaining that in the past, eGovernment measurements considered:

- Information and service delivery
- Transparency and accountability
- Link to broader development objectives, such as eParticipation and closing the digital divide

He explained the process of computing the online service index as follows:

- Supply-side measurement approach, which means that websites are visited by researchers to evaluate what is available on them (i.e. the supply of information and services).
- Every UN member state is assessed (at present 193 states).
- A defined set of websites are evaluated, primarily the national portal of each country or its equivalent.
- Almost all questions in the survey are binary, i.e. does the feature exist or not.
- Team of researchers takes a citizen approach (they try to find the information within a reasonable amount of time).
- Survey questionnaire should be updated every two years to reflect emerging trends.

He stated that in light of eGovernment trends, there is a need to enhance measurement driven in part by progress. He threw open the floor for discussion on what to measure moving forward in the light of:

- Big data
- Open data
- Social media
- eParticipation
- eEnvironment
- Sustainable development

Following the discussions, the moderator and participants agreed to the following:

Topic: Should we add another index to EGDI?

Participants' Views / Comments:

- Within web section, it can include Mobile Indices.

Topic: Weightings

Participants' Views / Comments:

- The changes in online index are rapid. Thus, online index can be considered as a dependent variable and the other two (HCI and infrastructure index) can be considered as enablers.
- Increase the services and categorize them under respective groups. Measure the frequency of services, and based on that, weights can be assigned.
- Search ability within the website rather than availability of website should be considered.
- HCI gross enrolment rate needs to be modified by excluding tertiary education.
- Access of online service from different platforms (different browsers or mobile platforms).

Topic: User Experience

Participants' Views / Comments:

- Speed at which the services are completed need to be considered.

Topic: Regional

Participants' Views / Comments:

- In the case of GCC countries; there is a large amount of expatriates, however, many of the services are offered to nationals. These challenges need to be addressed.

Topic: Business Services

Participants' Views / Comments:

- Business services for corporations to be considered such as online submission of tax returns, availability of statistical reports online, etc.

Topic: Digital Signature

Participants' Views / Comments:

- Availability of digital signature for citizens without additional burden on the citizen.

Topic: Open Data

Participants' Views / Comments:

- Emerging topics and trends are open data and open budget for citizens to have more statistical reports, mobile identification and payment gateway.

Topic: CIO Platform, G2G

Participants' Views / Comments:

- Better integration and coordination with Country Information Offices (CIO) in respective countries and across many others.
- Communication within eGovernment and CIOs should include IT technical staff.
- A common platform - a collaborative tool to be used in order to speed-up matters.

Topic: Transparency

Participants' Views / Comments:

- Transparency through services provided by eGovernment public tenders.

Summary of Table Discussions

A session was devoted to allow participants and experts - grouped as per the seating arrangement (referred by table number for ease of reporting) - to articulate their views on the Online Service Indicators. The summary of the views and suggestions expressed by each table were as follows:

Table 1

- Include Business services for corporations such as online submission of tax returns, statistical reports online, etc.
- Introduce digital signature for citizens. This should be done without any additional burden.

Table 2

- Emerging topics and trends are open data and open budget for citizens to have more statistical reports. Mobile identification, digital signature and recognition of payment gateway are other features to be considered.

Table 3

- Central Informatics Organizations (CIOs) within the GCC countries are taking time in communicating. It was suggested to integrate by providing a common platform with a collaborative tool in order to speed-up matters.
- Committees' responsibility for eGovernance should be expanded to include Technical IT resources in order to enable sharing of difficulties and hurdles as well as resolve encountered challenges.
- To include G2G business as part of indicators.
- Businesses and IT vendors should be able to communicate through CIOs. They should be able to login, see description of services and various privileges.

Table 4

- Transparency in services provided by eGovernment such as public tenders should be encouraged and recognized.
- Search components in national portals should be recognized as indicators.

Table 5

- Consider '*Environment is Important*'.
- Mobility and mobile apps are the current and likely to be the future for eGovernment services. Current indicators do not consider mobile apps, and this should not be the case.
- Current technology such as WAP is not easy and user-friendly.
- The weight-age given to EGDI components have to be revisited. Online service index is important and could have a weight of 40. However, human capital and infrastructure indices could be reduced to 25 each along with a new index to assess impact and usage with a weight of 10 could be added. Human capital index could be enhanced by adding more indicators for measuring the HCI.
- UN focus is on supply side. UN is to look into evaluation or ROI and give weight to domestic achievements.
- UN is to promote participation from member states. It should encourage member states to recommend some of the trends and such process of member states engagement should be institutionalized.
- The EGDI has been in existence for over 10 years. Therefore, it is suggested that the name *eGovernment Readiness Index* be changed to *eGovernment Adoption Index* and introduce a different dimension to measure *Adoption vs. Readiness*. Focusing on readiness itself is inadequate.
- The evaluation process of the index should be a more engaging process. UN should publish draft methodologies or an uptake to obtain input from member states before finalizing the evaluation criteria.

Table 6

- Mobility of services, mobile apps should be considered as part of indicators.
- Different stakeholders G2B, G2C, e-inclusion, the uptake or usage, ministries run e-tendering or e-procurement or e-investor, serving the citizens, etc. should all be considered as part of indicators.

Table 7

- The cultural issue, availability of information in multiple languages should be evaluated. In some cases no sophisticated information in English language is available.
- During the evaluation process there has to be more interaction with Government Authority to get additional information on what's offered.

- It is not enough if the indicators measure the services offered. The back end used to provide such services are also to be evaluated.

Table 8

- The use of environment-friendly systems and the promotion of virtual servers or cloud computing in order to reduce pollution should be considered as part of the indicators.
- More efforts to evaluate satisfaction from user-perspective are required as currently the survey is binary and may not be able to measure differences in quality. Two governments may provide the same sets of services but the quality of service delivery may perhaps be different.
- Consider the possibility of reducing weight of HCI. How relevant tertiary or secondary education is to accessing online services, is yet uncertain.
- The indicators should give adequate attention to cultural differences.

Table 9

- Following initiatives could be included in future reports where by usage or effectiveness of eGovernment is considered:
  - National eGovernment competition among ministries to distinguish how they improve their operations and enable to determine their effectiveness.
  - Implicitly measure usage, such as government publishing magazines to stimulate use of eGovernment services.
- The impact of social media and mobile government to be considered.

Table 10

- Awareness and incentives that governments set for promoting usage of eGovernment services could be measured as an additional sub-index or perhaps be considered as contributing to 10% of the index. It is important to measure the demand side and satisfaction of citizens, including multilingualism which caters to multicultural countries.
- Make indicators more relevant to eGovernment.
- Include ICT training, eLearning and possibly eliminate tertiary components in HCI.

Table 11

- HCI, as it stands, focuses primarily on classic observational education. It is suggested that knowledge or capacity within the IT field is to be recognized and considered for evaluation. Readiness, of future generations who use technology, has to be evaluated.

Additional Inputs from Across Tables

- Adding readiness of legislative system as part of the indicators.
- UN is to publish all the indicators and the scores by each member state. This would assist in understanding the EGDI and will assist countries to develop training programmes and modules in order to train their eGovernment service providers. Centre of Excellence in the region has been established which offers training on indicators and global standards.
- Usage is difficult to measure. All member states are to publish specific sets of statistics in websites as part of government's commitment. This will enable observers to understand the extent of usage implicitly.
- It is suggested that events, such as the current workshop (GeGE), which has enabled sharing of ideas in a very constructive manner can be held more frequently and in different locations. These events could be called pre-expert meetings.
- The UN should publish dynamic list which includes new trends and innovative ideas. This would drive countries to compare and enhance services. Countries could then be rewarded with points of 10 and 20; such innovations are adopted by them.
- eGovernment Development Index is effective for ranking. However, encouraging and measuring development is what matters. Dynamic comparability of composite indicators should be introduced.
- The UN should explain the criteria and guidelines for those who are to evaluate. This would mitigate subjectivity when the evaluation process is in-progress.

Subject 11: eGovernment Case study: Estonia

Speaker
Mr. Hannes Astok - Programme Director, Municipal and Regional eGovernance, eGovernance Academy, Estonia

Mr. Astok's presentation was regarding the efforts taken by Estonia to adopt and embrace eGovernment in the country which consists with a population of nearly 1.351 million. The country faced challenges associated with information society such as digital literacy, transparency, democracy and efficiencies-related to businesses, public-sector and the private life.

The government took initiatives such as *Tiger Leap* which targeted ICT at schools since 1996, *look@the* world programme ran during 2002 - 2005 to train and guide adults as well as retired people to benefit from internet. Supplementing these efforts were the provision of access to internet through various means to the public.

In terms of transparency and democracy, the eGovernment in Estonia provides *online data*, *online public spending*, *online legislation and regulations* and *online legislative process*. It encourages public participation on legislative and planning process beside elections and referendum.

The success of the integrated eGovernment in Estonia could be attributed to general consensus among main forces in the Estonian society, commitment of political elites, right mix of private and public initiatives as well as an active role of the government, introduction of secure data exchange environment X-road and introduction of identification infrastructure (ID-card with electronic chip, mobile ID, etc) and supportive legislation.

Mr. Astok spoke about other achievements by eGovernment in Estonia:

- In August 2000, the government of Estonia, as a world pioneer, changed its cabinet meetings to paperless sessions using a web-based document system.
- Estonia introduced Internet voting – in both municipal and national parliamentary elections.
- Mobile parking payments - since 2000. In 2005, over 50% of parking payments in Tartu are conducted via mobile devices.
- Mobile bus-ticketing. Since 2002, long-term and short term tickets.
- Mobile micro-payments in retail shops and services. Since 2003, directly connected to the bank-account.

Closing Session

The outcomes of the presentations, general discussions and the breakout discussions were all consolidated and validated by respective moderators. In the closing session, each of the moderators presented the consolidated discussion points, recommendations and the general agreement of participants. The respective discussion points and outcomes are already included under the respective session.

Bahrain's eGovernment Authority CEO thanked all the participants for their efforts, active participation and their valuable inputs in making GeGE a success. Some of the concluding thoughts, expressed by some of the participants, include:

Competitiveness is important and relevant. It is like an incentive in order to relate to other countries. Learn lessons, become positive and constructive.

Member countries are to respond to how evaluation is done. Former survey questions are to be made available to others, in order to help improve services and service delivery.

To have continuous communication with UNDESA/people involved in the report, as well as online discussion forums for member states to communicate on the subject matter.

Appendix 1: List of Participants

Mr. Kim Andreasson
Consultant to UN on EDGI Survey and United Nations eGovernment Survey Expert

Dr. Susan Teltscher
Head of Statistics
International Telecommunication Union (ITU)

Dr. Yousef Ismail
Statistical Cluster Advisor
UNESCO

Professor Kim Normann Andersen
Department of Political Science
Aalborg University
Denmark

Mr. Mustafa Al Khan
Director of Centre of Excellence for R&D
Yasser
Kingdom of Saudi Arabia

Dr. Yeonwoo Lee
Director
National Information Society Agency
South Korea

Mr. Dias Iralin
Director
JSC 'National Information Technologies'
Kazakhstan

Ms. Taganova Laura
Senior manager
'Zerde' National ICT Holding JSC
Kazakhstan

Ms. Rim Garnoui
Public Services Adviser - Deputy Director
eGovernment Unit
Tunisia

Eng. Ahmed Al Tayar
General Manager
National Information Centre
Yemen

Ms. Maznum Binti Mohammed Arif
Principle Assistant Director Malaysian
Administrative Modernization and
Management Planning Unit (MAMPU)
Malaysia

Mr. Chandrakant Toolsee
Assistant Director
Ministry of Information and Communication
Technology
Mauritius

Mr. Mustafa Afyonluoğlu
eGovernment Advisor
eGovernment Advisory Group,
Turkey

Mr. Hakkı Taner Kurt
Head of Indicators Group
Turkish Statistical Institute
Turkey

Mr. Sidi Ali Maeleinin
Advisor to Head of Government
Moroccan Government
Morocco

Mr. Hannes Astok
Project Manager
eGovernment Academy
Estonia

Ms. Kudaibergen Aida
Senior Manager
Ministry of Transport and Communication
Kazakhstan

Mr. Yernur Zholdybayev
IT architect
JSC 'National Information Technologies'
Kazakhstan

Dr. Mesfin Belachew
Director
eGovernment Directorate
Ethiopia

Eng. Ahmed Kamal
Director Government Services Development Program
Ministry of Administrative Development
Egypt

Ms. Raja'a Al Behaisi
Director of DG Office
The Central Agency for IT
Kuwait

Mr. Bader Al-Khazi
Computer Engineer
Electronic Portal Department
Kuwait

Ms. Shaihka Al Thaqeb
Industrial Engineer
Technology and Infrastructure Department
Kuwait

Mr. Abdulla Al Hamid
UN eGovernment Development Survey Expert
Kingdom of Bahrain

Mr. Stephen Hudson
Senior Economist-
Market & Competition
Telecommunication Regulatory Authority (TRA)
Kingdom of Bahrain

Ms. Sawsan Taqali
Head of Quality, Risk and Communications
Ministry of Information and Communication Technology
Jordan

Ms. Elena Onishko
International Researcher
Ministry of Telecom and Mass Communications
Russia

Ms. Khawla Yousuf
Coordinator
ICT Qatar
Qatar

Mrs. Mazriyani binti Hj Abdul Ghani, Senior System Analyst
eGovernment National Centre
Brunei

Ms. Amimah Hanani binti Hj Hamin, Programmer
eGovernment National Centre
Brunei

Prof. Dr. Pavle Sicherl
Professor of Economics
University of Ljubljana
Slovenia

Mr. Mohammed Al Qaed
CEO
eGovernment Authority,
Kingdom of Bahrain

Mr. Zaher Saeed
Assistant Undersecretary
for Planning and Information
Ministry of Education
Kingdom of Bahrain

Appendix 2: Speakers' Profiles

Mr. Kim Andreasson

Mr. Andreasson has advised the United Nations since 2003, most recently in the preparation of the global 2012 eGovernment survey, and is the managing director of DAKA advisory AB. Andreasson is regularly giving presentations around the world on cyber topics and has spoken in institutions ranging from the United Nations in New York, Geneva and Macau to government-supported conferences in Singapore, Kuala Lumpur and Indonesia, to count the least. He has also lectured at leading universities, including Columbia University and the University of California, Los Angeles (UCLA).

He leads the company's efforts in cyber security, eGovernment, measurement of the information society and related cyber topics primarily for the public-sector. Current clients include the United Nations, International Telecommunications Union (ITU), Economist Group, and Swedish public radio, among many others.

Dr. Susan Teltscher

Dr. Susan Teltscher is the head of ICT Data and Statistics Division at the International Telecommunication Union's (ITU) Telecommunication Development Bureau, Geneva. Her division is responsible for the collection, harmonization, analysis and dissemination of ICT statistics worldwide; for the production of analytical reports on global and regional trends in ICT, including ITU's flagship statistical report 'Measuring the Information Society'.

Mr. Yousef Ismail

Mr. Yousef Ismail is a statistical cluster advisor for the Arab states at UNESCO - Doha Office (from 2011 till present). He previously worked as the director general of Population and Social Statistics, Palestinian Central Bureau of Statistics, Ramallah, Palestine (2010 –2011). Ismail owns a master's degree in statistics entitled 'Robustness of Tests and Estimators of the Mean in case of Doubly Truncated Normal Distribution', with more than 15 statistical reports on education, culture, and ICT (two of these reports co-author with international organizations).

Professor Pavle Sicherl

Prof. Pavle Sicherl, the founder of SICENTER, and principal researcher since 1993. Professor of Economics, University of Ljubljana, Slovenia (1975-2003); macroeconomic adviser in the Harvard University Development Advisory Service team in Ethiopia, (1970-1974); in 1960's Deputy Director of the Yugoslav Institute of Economic Research in Belgrade. Ph.D. in economics and Diploma in Economics, University of Ljubljana; M.A. Development Economics (USA). Speciality: growth and inequality, he introduced a new statistical measure, S-time-distance, to amend the present methods of analysing disparities in various fields.

Professor Kim Normann Andersen

Prof. Andersen worked as a full professor in Aalborg (2012); full professor in Copenhagen Business School (2008-2012); and a professor (with special assignments) at the Copenhagen Business School (2003-2008). Andersen was a board member of the professor association at CBS (2010), member of Statistics Denmark's User Reference Group (2010).

Dr. Yeonwoo Lee

Yeonwoo Lee studied in Public Administration and received master's degree at Hankook University of Foreign Studies in Seoul, Korea (1994). He worked as a researcher for Korea's Research Institute for Local Administration (1993 – 1995). He received his Ph.D. in Political Economy at the University of Texas in Dallas, USA (2002).

Since 2002, he has been serving as a director and researcher of National Information Society Agency (NIA) which is an eGovernment policy and technical support agency that works closely with all governmental agencies to fully exploit ICT in order to improve operational efficiency and transform the ways the government delivers services to the public.

Ms. Elena Onishko

Elena Onishko is an IT-professional with 9+ years of extensive experience in the fields of international economic relations, business development within innovative subjects, including business intelligence and analytics, corporate eLearning, IT applications and methodologies, as well as international cooperation on ICT development. She is entitled to work as a consultant of the Department of International Cooperation of the Ministry of Russian Federation for several years.

Dr. Raymond Khoury

Dr. Raymond Khoury is the vice president at Booz & Company, with over 20 years of consulting experience in IT strategy, design and implementation management, particularly for large scale Public Sector eGovernment Programs. He is a member of the Business Technology Practice in the Middle East and leads the Public Sector Technology business. Previously, he was the Technical Cooperation Unit director and senior ICT strategy advisor at the Office of the Minister of State for Administrative Reform (OMSAR) in Lebanon, under the patronage of the UNDP where he managed a diverse team of experts involved in administrative reform and government service modernization.

Hannes Astok

Astok is an eGovernment expert (since 2011); formerly, he was a member of the Estonian Parliament (2007-2011); programme director in municipal and regional eGovernance at the eGovernance Academy (2005); and a deputy mayor in Tartu City Government (1998-2005).

Dr. Ali Al Soufi

Earned his Ph.D. in computer science (in 1994) from Nottingham University, UK. Working at the University of Bahrain as Assistant Professor. Owns 23 years of experience in the IT field, both in academia and industry.

Worked for Bahrain Telecommunication Company (Batelco) for 8 years as a Senior Manager Application Programmer.

Active Member of the Bahrain National IT Governance Committee.

Board member and consultant at the Regional Centre of ICT (RCICT) - supported by the Ministry of Education and UNESCO.

Appendix 3: Presentation File

Topic	File
Day 1 Session 1	
Subject 1: eGovernment measurement -The Role and Time Perspective on Indicators	Day-1_Session-1_Subject-1.ppt
Subject 2: UN eGovernment Readiness Index - Towards a Comprehensive Model	Day-1_Session-1_Subject-2.ppt
Subject 3: Measuring the Development with Global Business Intelligence	Day-1_Session-1_Subject-3.pptx
Subject 4: eGovernment Indices – Review and Recommendations	Day-1_Session-1_Subject-4.pptx
Subject 5: United Nations' eGovernment Development Indicators	Day-1_Session-1_Subject-5.ppt
Day 1 Session 2	
Subject 6: Telecommunication Infrastructure Index	Day-1_Session-2_Subject-6.ppt
Subject 7: Human Capital Index	Day-1_Session-2_Subject-7.ppt
Subject 8: Open Data	Day-1_Session-2_Subject-8.pptx
Day 2 Session 1	
Subject 9: eParticipation	Day-2_Session-1_Subject-9.pptx
Subject 10: Online Services Index - Thematic Workshop on Online Service Indicators	Day-2_Session-1_Subject-10.pptx
Subject 11: Case Study Estonia	Day-2_Session-1_Subject-11.ppt


GLOBAL eGovernment
Experts Workshop