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Global e-Government: What needs to be Learned? A Reflection on UN e-Government Survey 2014

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ABSTRACT: In June, the United Nations E-Government Survey 2014 was released. Its theme is "E-Government for the Future We Want." The report provides a comprehensive collection of U.N. global surveys regarding the status of e-government and related practices around the world. South Korea once again topped the report's rankings. Many countries have climbed the standings since release of the last report in 2012. This indicates worldwide growth in e-government. The leaders in e-government have many lessons to teach those grasping the concept. This paper will deliver an unbiased view of these e-government leaders. It also will detail the critical elements other countries must adopt in their drive for e-government.

KEYWORDS: online services index, e-government, human capital index, telecom infrastructure index, e-government development index, UN Survey.

1 INTRODUCTION

In June, the United Nations E-Government Survey 2014 was released. Its theme is "E-Government for the Future We Want." The report is viewed as especially pertinent to dealing with the issues many societies wrestling with today.

The e-government definition was updated to better coincide with this visionary approach. The 2004 UN E-Government report used the following e-government definition, "the use of ICT and its application by the government for the provision of information and public services to the people" (Global E-Government Readiness Report 2004). In the 2014 report, the definition was extended to say "the use and application of information technologies in public administration to streamline and integrate workflows and processes, to effectively manage data and information, enhance public service delivery, as well as expand communication channels for engagement and empowerment of people."

The UN Survey reveals an extended view of e-government that encompasses opportunities provided by the recent growth and development of digital communication, including big data, online services, mobile apps, cloud computing, and social media. However, the report's conceptual framework continues to rest upon three critical dimensions: (i) human capacity, (ii) availability of online services, and telecommunication infrastructure.

2 OVERVIEW OF THE UN E-GOVERNMENT SURVEY REPORT 2014

South Korea remained on top in 2014, continuing its preeminence and concentration on innovation in e-government. Ranking second was Australia, with Singapore in third, both moving up the ranks considerably versus 2012, when they were twelfth and tenth, respectively.

In the 2014 survey, Europe continues its lead from previous years, recording the top regional E-Government Development Index (EGDI), followed next by the Americas, led by the seventh-ranked United States; South Korea leads the Asia region and Australia leads the Oceania region; Tunisia, ranked seventh-fifth in the world, leads the Africa region.

Still, the 2014 survey illustrates that every geographic region displays extensive diversity internally. Europe's leading nations include France, ranked fourth globally; the Netherlands, ranked fifth; the United Kingdom, ranked eighth globally; and Finland, ranked tenth. Undoubtedly, the foundation of these rankings reflects the countries' economic, social, and political development. Current and previous investment in provisioning of online services, investment in telecommunication and human capital are important factors resulting in a high level of e-government development.

The 2014 survey included new questions regarding Open Government Data (OGD), such as the types of technical formats and location information, the possibility for users to propose new data sets, the existence of dedicated portals, and the availability of user guidelines and support. It discovered that although many countries share data by utilizing government websites, a mere 46 counties use dedicated data portals.

One can see most primary government divisions make OGD available, primarily in machine-readable format. However, a lack of Open Government Data is regarded as a lack of availability of government information/transparency, which has resulted in many countries dropping down in the rankings versus 2012.

In contrast, this has helped several countries to improve their E-Government Development Index. The amazing thing is the leading countries have overtaken those from 2012 by improving several spots from 2012, which is illustrated in Table 1 below.

Table 1: Top 12 of the e-government development index

Country	Region	2014 EGDI	2014 Rank	2012 Rank	Change in Rank (2012-2014)
Republic of korea	Asia	0.9462	1	1	-
Australia	Oceania	0.9103	2	12	10 ▲
Singapore	Asia	0.9076	3	10	7 ▲
france	Europe	0.8938	4	6	2 ▲
Netherlands	Europe	0.8897	5	2	3 ▼
Japan	Asia	0.8874	6	18	12 ▲
United States of America	Americas	0.8748	7	5	2 ▼
United Kingdom	Europe	0.8695	8	3	5 ▼
New Zealand	Oceania	0.8644	9	13	4 ▲
Finland	Europe	0.8449	10	9	1 ▼
Canada	Americas	0.8418	11	11	-
Spain	Europe	0.8410	12	23	11 ▲

Figure 1 below shows the E-Government Development Index (EGDI) Distribution, with most countries ranging between 0.2 and 0.6. This scope of EGDI shows 114 countries of the 193 surveyed. This reveals a broad disparity between developed and developing countries, illustrating the poor levels of human capital availability, online services and technical infrastructure. The survey shows the Telecom Infrastructure Index has helped weight down the overall EGDI of these countries, access to broadband Internet on mobile and fixed devices has been found particularly lacking.

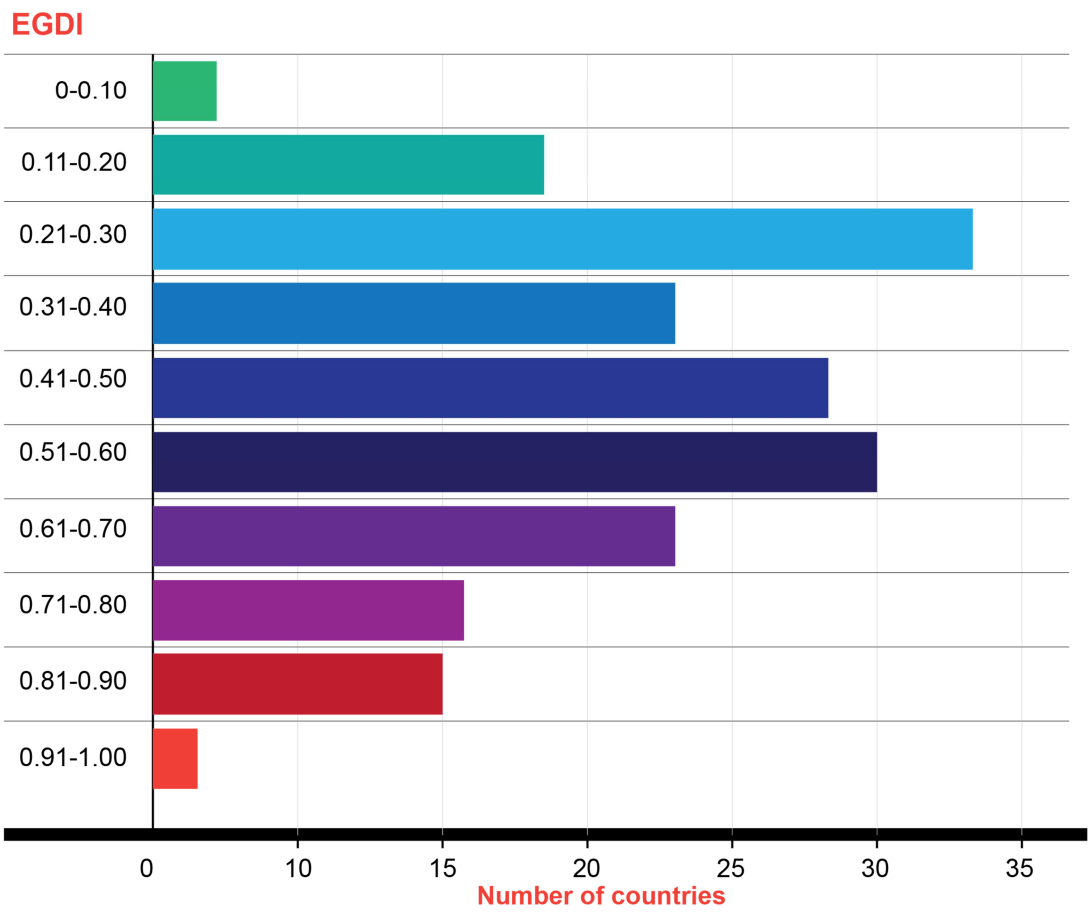

Figure 1: E-Government development index (EGDI) distribution

3 REGIONAL DEVELOPMENT

Strong regional growth continues to be seen in Europe. A wide range of growth amid individual countries can be seen in all the other regions. Figure Two illustrates this point. It displays amazing consistency among European Union nations, evidently because of concentrated efforts throughout the region.

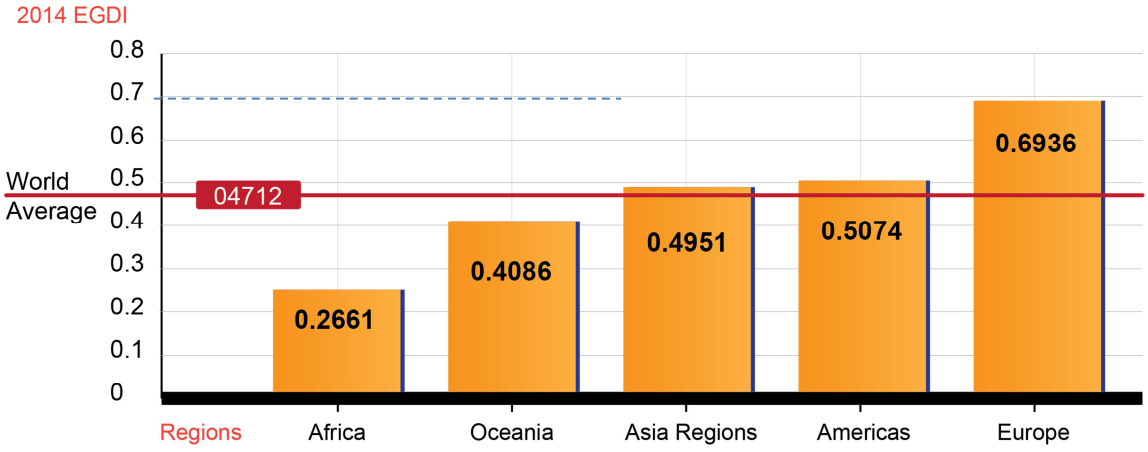

Figure 2: Averages of e-government development by region

The European Union's EGDI average a region is far above the world's average, placing in the high EGDI category. By contrast, Asia and the Americas display a low average, signaling a broad disparity in the countries' EGDI. This is in spite of Asia having some of the individual leaders. In North America, only the United States and Canada have high EGDIs while the region's other countries are far behind, depressing the region's average.

In this framework it is quite interesting to notice Uruguay's strong growth. The South American country improved 24 places, rising from 50th in 2012 to 26th in 2014. See also Table 2. So how did Uruguay improve as much as 24 places from its 2012 ranking? Let's try looking into some of these circumstances in the following section.

Table 2: High Growth Countries Include Uruguay

Country	Level of Income	EGDI	2014 Rank	2012 Rank	Change in Rank
		Very High EGDI			
United States of America	High	0.8748	7	5	**2** ▼
Canada	High	0.8418	11	11	**-**
		High EGDI			
Uruguay	High	0.7420	26	50	**24** ▲

3.1 AGENCY FOR E-GOVERNMENT DEVELOPMENT IN URUGUAY

In 2007, Uruguay created a national e-Government agency. The Agency for Electronic Government and Information Society was the basis for the country's swift progress in e-government. The agency's primary duties were developing and promoting broad access to ICT; providing innovative solutions to improve public services and quality of care; providing under one umbrella user support for initiatives and consultations related to the agency's competence; simplifying procedures and processes; and acquiring the knowledge and skills for greater social integration and better-equipped young people in the future.

During the past few years the agency bolstered links with international organizations that had similar purposes, civil society and academia to handle issues together and propose standards, policies and rules; worked to enhance the cooperation businesses and the state; and advocated creation of national software.

Another of Uruguay's national initiatives is the e-Government Platform. It aims to enable and promote development of the country's e-government services. The platform pursues a two-pronged strategy. It consists of a set of "Cross-cutting Services" and an "Interoperability Platform. It pursues a service-oriented architecture, leveraging web services technology, to combine, expose and use government functionality put to use by government agencies. The platform is envisioned as being an important enabler for created an integrated e-government approach in Uruguay. Evidently, the important lesson for other countries is the need for providing "a unified and simplified national approach for adoption of ICT in the country."

3.2 ASIA REGION

Singapore ranked second in the Asia region. It has displayed meaningful improvement during the past two years, improving from tenth place to third place globally. It was followed by Japan, which improved from eighteenth to sixth place globally. Table 3 follows, showing Asia's top-ranking nations.

Table 3: Asia's top-ranking countries

Country	Level of Income	EGDI	2014 Rank	2012 Rank	Change in Rank
Very High EGDI					
Republic of korea	High	0.9462	1	1	-
Singapore	High	0.9076	3	10	7 ▲
Japan	High	0.8874	6	18	12 ▲
Israel	High	0.8162	17	16	1 ▼
Bahrain	High	0.8089	18	36	18 ▲
High EGDI					
Kazakhstan	Upper Middle	0.7283	28	38	10 ▲
United Arab Emirates	High	0.7136	32	28	4 ▼
Saudi Arabia	High	0.6900	36	41	5 ▲
Qatar	High	0.6362	44	48	4 ▲
Oman	High	0.6273	48	64	16 ▲
Kuwait	High	0.6268	49	63	14 ▲

Oman, Saudi Arabia, Kazakhstan and Bahrain moved up in the worldwide rankings into 48th, 36th, 28th, and 18th places, respectively. See also Table 4. At this point, let's examine more closely the GCC bloc. One can see Bahrain has markedly improved its position from 36th in the world in 2012. All GCC countries are classified as high EGDI countries. Bahrain has breached the "glass ceiling" to join other very high EGDI countries. The GCC's average is almost identical to the European Union bloc, displaying parity in development of e-government.

Table 4: UN 2014 survey of GCC countries

Country	Level of Income	EGDI	2014 Rank	2012 Rank	Change in Rank
Very High EGDI					
Bahrain	GCC Member	0.8089	18	36	18 ▲
High EGDI					
United Arab Emirates	GCC Member	0.7136	32	28	4 ▼
Saudi Arabia	GCC Member	0.6900	36	41	5 ▲
Qatar	GCC Member	0.6362	44	48	4 ▲
Oman	GCC Member	0.6273	48	64	16 ▲
Kuwait	GCC Member	0.6268	49	63	14 ▲
Regional Average		0.6838			
World Average		0.4712			

3.3 WHAT HAS MADE BAHRAIN DIFFERENT?

Bahrain is yet another case of coordinated and determined efforts to deliver e-Government services to its citizens that allowed a major improvement from the rankings in 2012. Bahrain rose to 18th globally in 2014 from 36th in 2012. The

country's Supreme Committee for Information and Communication Technology (SCICT) under the Deputy Prime Minister's Chairmanship created their lofty goals for e-government and set up the e-Government Authority (eGA) in August 2007 by Royal Decree 69. It coordinated and executed initiatives that adhered to the plans and strategies created by the SCICT. The eGA mandate is providing direction in implementing and developing a comprehensive e-Government strategy. Bahrain has started numerous international discussions and forums to handle current issues related to mobile trends, innovation and open data, overall e-Government development and social networks, shared services and cloud computing. These concentrated efforts guaranteed high visibility for Bahrain's e-Government initiatives and guaranteed effective e-services delivery. Remarkably, Uruguay and Bahrain seem to display similarities in how they reached their current EGDI rankings.

3.4 E-GOVERNMENT IN THE EU?

At this point it's worth noting the European Union's success in not only maintaining its steady EGDI growth but also its growth as a region. Its collective average is far above the worldwide average and, more significantly, the European Union as a whole displays a High EGDI even though none of its nations are in the top three and only four are in the top ten (Finland, U.K., Netherlands, France).

As a region, Europe concentrates its e-government endeavors through the European Commission's Digital Agenda for Europe (DAE), which is guided by the Government Action Plan 2015. The 28 European Union members' e-government strategies, along with to some degree those of the region's non-member states, are shaped by the seven pillars of fast and ultrafast Internet access, the digital single market, research and innovation, interoperability and standardization, enhancement of digital literacy, trust and security, and social inclusion and skills delivering ICT-enabled benefits for European Union society. These seven distinct goals were set up by DAE as important areas for achievement through the action plan released at the end of 2012.

The DAE's success and that of the action plan can be credited to a long-term plan to developing e-government, inserting it into broader frameworks of socio-economic development instead of viewing e-government a mostly technical or stand-alone activity. Also critical is the European Union countries' voluntary commitment toward working together in working toward common goals through the Open Method of Coordination approach. European Union countries, with their concentrated e-government efforts with the action plan and the DAE, ranked high in the e-Government Development Index. Fifteen of the 28 European Union countries were in the top 30 worldwide.

4 A MICRO VIEW OF THE E-GOVERNMENT DEVELOPMENT INDEX (EGDI)

It is critical to look at the inner workings of the e-government ranking system overall, for example, the e-Government Development Index and the scoring system, to comprehend why and how some countries fared the way they did. The EGDI is made up of three parts with sub-sections in each. The three parts are weighted equally. See also Figure 3.

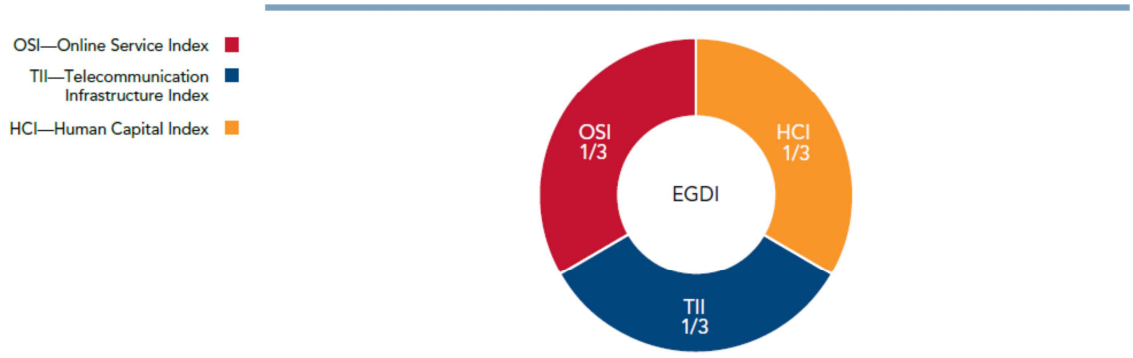

Figure 3: EGDI Score Systems

We should look at these indicators with regard to the five top countries and see what set those countries apart. These countries are depicted in Table 5.

Table 5: EGDI- Top 5 countries

Rank	Country	EGDI	Online Service Component	Telecome. Infrastructure Component	Human Capital Component
1	Republic of korea	0.9462	0.9764	0.9350	0.9273
2	Australia	0.9103	0.9291	0.8041	0.9978
3	Singapore	0.9067	0.9921	0.8793	0.8515
4	France	0.8938	1.0000	0.8003	0.8812
5	Netherlands	0.8897	0.9291	0.8175	0.9224

Numerous countries scored low on the Human Capital component and Telecom Infrastructure component in spite of all their telecommunications facilities and other IT infrastructure. This seems a bit inconsistent when you consider some of the countries that ranked lower in the survey have vast ICT infrastructure and the highest mobile telephone penetration. The answer lies in the details. The sub-component of mobile broadband has very low scores, significantly bringing down the overall telecom index. Let us examine the individual components and evaluate the scoring.

4.1 Online Service Index

Data was gathered in 2014 on providing basic e-services, attention to e-participation, adoption of open data initiatives, whole-of-government and bridging digital divides, expanding usage, and multichannel service delivery that might exist between and within countries.

In 2014, France ranked number one in online service delivery, followed by Singapore and South Korea. Among other reasons, these countries stand out because of their expanded roll-out of mobile applications, provision of opportunities for e-participation and integration of e-services. Spain (fourth), Uruguay (fourteenth), New Zealand (fifteenth), and Chile (sixteenth) all climbed into the top twenty of 2014, surpassing former 2012 leaders Malaysia, Sweden, Norway and Denmark.

Why has France topped this Index?

Securing the top spot in the 2014 Online Service Index, France scored well throughout all practice areas and online service development stages because of continuing efforts toward improving the quality of public services, integrating government websites and encouraging citizen consultation on both service delivery methods and public policy. Also see Table 6. The national administration's official website (http://www.servicepublic.fr) guides associations, businesses and individuals to necessary services by subject as well as event, encourages suggestions for administrative simplification, connects citizens with current consultations and debates, and helps interaction with government through use of a single sign-on. It not only acts as a single access point for government services but also streamlines government service by providing users with a wealth of information.

Table 6: Online Service Index's top twelve countries

Country	Online Service Index
France	1.0000
Singapore	0.9921
Republic of Korea	0.9764
Japan	0.9449
Spain	0.9449
United States	0.9449
Bahrain	0.9370
Australia	0.9291
Netherlands	0.9291
Canada	0.9134
United Kingdom	0.8976
United Arab Emirates	0.8819

Using France's perfect 1.0 as a benchmark, let's look at where other countries fell short. As shown in Table 7, the Online Service Index utilizes a four-stage model to measure online services' effectiveness.

Table 7: Four stages for measuring online services

		Stage 1 Emerging presence	Stage 2 Enhanced presence	Stage 3 Transactional presence	Stage 4 Networked presence	
Country	OSI	Stage 1	Stage 2	Stage 3	Stage 4	Total
		percentage				
France	1.0000	100	73	91	91	88
Singapore	0.9921	100	89	88	71	87
Republic of Korea	0.9764	100	82	77	88	86
Japan	0.9449	97	73	79	88	83

The picture presented here is a clear one. Countries ranking low appeared to have floundered in their Online Transactional presence and, as a result, the "whole of Government." A definite need certainly exists for an enhanced online presence to allow actual service delivery and e-transactions. The other significant contributor to "whole of government" is integrated government agencies indicated by a networked presence. These two key factors appear to have hampered other countries, using the top five countries as a benchmark.

4.2 TELECOM INFRASTRUCTURE INDEX

In the 2014 survey report, the computation of Telecommunication Infrastructure Index (TII) included a new wireless broadband subscription indicator. See also Table 8. The TII is an arithmetic average of five separate indicators: Number of Main Fixed Telephone Lines per 100 Inhabitants, Estimated Internet Users per 100 Inhabitants, Number of Fixed Broadband Subscriptions per 100 Inhabitants, Number of Wireless Broadband Subscriptions per 100 Inhabitants, and Number of Mobile Subscribers per 100 Inhabitants. The primary data source in each case is the International Telecommunication Union. Numerous countries appear to have rather low in the TII. Let's take a look at why that might be.

Table 8t: The Top 5 in the Telecommunication Infrastructure Index (TII) in detail

Country	TII	Percentage of Individuals using the Internet	Fixed telephone subscriptions per 100 inhabitants	Mobile-cellular telephone subscriptions per 100 inhabitants	Fixed (wired)-broadband subscriptions per 100 inhabitants	Wireless broadband subscriptions per 100 inhabitants
Republic of Korea	0.9350	84.10	61.42	109.43	37.25	105.14
Australia	0.8041	82.35	45.43	105.59	24.91	102.07
Singapore	0.8793	74.18	37.51	152.04	25.85	123.76
France	0.8003	83.00	61.45	97.41	37.47	51.77
Netherlands	0.8175	93.00	42.40	117.52	39.44	60.98

Looking at France, one can see that telephone connections and the number of broadband connections negatively impact the lower-ranked countries on the EGDI list. Countries such as the United Arab Emirates and India have scored lower due to these factors, in spite of widespread mobile penetration and Internet access. Fixed and mobile broadband access appears to have been viewed by the United Nations as an indicator for remote and e-services. This is a primary reason transactions, Internet access and services on mobile devices becomes so important to the service providers. Knowing that the unique demographics of African countries prohibit large-scale construction of fixed telephone lines that provide broadband Internet, mobile device usage is viewed as a method for improving access. Thus, technology needs to be capitalized and leveraged.

4.3 HUMAN CAPITAL INDEX

The 2014 survey used two new components in the Human Capital Index (HCI), (i) expected years of education; and (ii) average years of education. They were combined with the existing components of adult literacy rate and combined primary, secondary and tertiary gross enrollment ratio utilized in surveys since 2002. Once again, let's compare with the top five to see what other countries need to do to catch up.

Once again we will look at the EGDI Sub-Indexes of the Top 5 in Table 9. Aside from the TII, the HCI is viewed as weighing down the nations' composite index.

Table 9: EGDI sub-indexes of the Top 5

Rank	Country	EGDI	Online Service Component	Telecome. Infrastructure Component	Human Capital Component
1	Republic of korea	0.9462	0.9764	0.9350	0.9273
2	Australia	0.9103	0.9291	0.8041	0.9978
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5	Netherlands	0.8897	0.9291	0.8175	0.9224

In Table 10, we can see why this is the case.

Table 10: Education Index

Country	HCI	Adult Literacy (%)			Gross enrolment ratio (%)			Expected years of schooling			Mean years of schooling		
		Index value	Year	Source	Index value	Year	Source	Index value	Year	Source	Index value	Year	Source
Republic of Korea	0.9273	99.00	2005	UNESCO	99.00	2005	UNESCO	99.00	2005	UNESCO	99.00	2005	UNESCO
Australia	0.9978	99.00	2005	UNESCO	99.00	2005	UNESCO	99.00	2005	UNESCO	99.00	2005	UNESCO
Singapore	0.8515	95.86	2010	UNESCO	95.86	2010	UNESCO	95.86	2010	UNESCO	95.86	2010	UNESCO
France	0.8812	99.00	2005	UNESCO	99.00	2005	UNESCO	99.00	2005	UNESCO	99.00	2005	UNESCO
Netherlands	0.9224	99.00	2005	UNESCO	99.00	2005	UNESCO	99.00	2005	UNESCO	99.00	2005	UNESCO

It is evident from this table that education – particularly adult literacy and enrollment must be addressed aggressively. A shocking point that can be seen here is low number for expected years of education. Nonetheless, this data appears outdated for many countries compared to the top-ranking countries, with sources dating back as far as 2011.

5 Observations and Considerations of the Circle of Attention

Every one of the top-ranked countries has displayed exceptional growth from 2012, moving up several places. According to the survey, this is due to several reasons, including the following:

1. Lack of e-Government participation by the general population;
2. Lack of widespread mobile broadband penetration due to its cost;
3. Lack of an integrated e-service delivery mechanism in the Government;
4. Perceived low education levels in the country; and
5. Perceived low interoperability in government agencies, leading to a lesser "Whole of Government" approach.

Based upon the evidence and arguments presented so far, we have *circle of attention* recommendations for improving a country's e-Government Index. The ten recommendations follow next.

1. **Open Government Data**: The survey appears to have outdated data, especially regarding HCI. This highlights countries' Open Data requirements and the requirement for government agencies to participate and share information with the public. This is apparent from some of the statistics published on government and open data websites. Maybe these were not accessible or available when the UN survey was conducted.
2. **Online Transactions-** E-Commerce: This yet another of the low-ranking elements that can be fixed easily. It is evident there's more to it than simply submitting online applications with service requests or having an online presence. It is an issue of successful service fulfillment. That is accomplished only by bringing a paradigm shift to the ability to conduct secure online transactions. Achieving the volume required for is shown by the performance of the top-ranking EGDI countries.
3. **Enabling the National ID Card for Digital Payments-** This is viewed as contributing greatly to online and e-payments creating exponential growth in digital transactions.
    a. **Financial Inclusion –** of the population that is underserved by banks or not served at all with digital payment-enabled Smart ID Cards will dramatically change the number of digital transactions nationwide.
    b. **Trust in Online Services –** Using the National ID Card for digital transactions will increase the level of trust in online transactions and enhance e-service usage and delivery.
4. **Integration Platform –** A national-level Integration Platform that merges government departments with the National ID as the primary key must be established. It not only will help create integrated and seamless delivery of government services but countries that adopt it also will go up several notches on the Whole of Government Approach. Horizontal Integration instead of Vertical Integration must be pursued.
5. **Access to Broadband Internet**: Several countries ranked low in TII because of perceived limited access to broadband Internet. Adopting the latest technologies should provide low-cost, high-speed Internet access to the general population. This can be seen around the world with the managed spectrum roll-out and public allocation of the spectrum.
6. **Smart Government Services- Integrated** Services, as provided by countries such as the United Arab Emirates, are destined to upgrade Government Service Deliveries. This is viewed as a key component of universal service delivery across all mobile and fixed channels.

a. **Mobile ID-** It is a critical component of mobile transactions; an important part of smart services footing that enables governments' mobile presence with commercial transactions.

7. **Primary and Secondary Education-** This must be made mandatory. The minimum requirements for 12 years of education must be spelled out for all students. It will increase the national average of countries' expected years of education to more than 17, given that white-collar workers would average 21 years of education. The United Nations also outlined this as one of its MDGs.
8. **Social Benefits-** Identifying connected digital transactions in social benefits delivery will create auditable reports on the beneficiaries and benefactors, allowing improved reporting on the social benefits systems.
9. **Innovation Index-** must be created in the country and actively advertised. Innovation must be encouraged, creating strong knowledge economies.
10. **National e-Government Development Index**- Similar to what the United Nations did, governments around the world should adopt a plan for developing e-government and directing government agencies toward e-government maturity. An example is the United Arab Emirates' recent announcement that it is launching its e-government readiness and e-government readiness index. Performance indicators are determined for evaluation and measurement at the country's highest level.

6 CONCLUSION

The 2014 UN e-government survey certainly emerges as a global benchmarking tool for judging the world's progress in e-government. The survey gives governments an opportunity to judge their progress overall, re-order priorities and rework their e-government plans to respond to the digital age's needs.

Nonetheless, it is worth noting the amount of confusion around e-government overall. One item to keep in mind here is no right or wrong approach exists when developing e-government. Several elements might support one or another approach's success or failure; every country has its own cultural elements and uniqueness to consider.

However, simply stated, e-government's objective – its limitations notwithstanding – is reaching out and contributing to the happiness of a country's citizens. That might come across as purely symbolic but such simple goals are necessary to allow delivery of tangible outcomes and measurement of success.

Governments throughout the world have invested huge sums of money in ICT capabilities during the past two decades. In spite of these investments, the desired results remain far from being fulfilled. Thus, e-government must be re-examined without the current technical limitations, using a more holistic implementation approach that strives for citizen happiness and satisfaction.

E-government programs have operated with the same engine as when they began in the 1990s. In spite of the new realities and forces, governments throughout the world have been wary in their progress toward e-government.

If governments want noticeable results in this important area, they must fundamentally re-examine their existing mindset and ways of doing things and concentrate on achieving the goal of citizen happiness. The only workable solution may be reinventing government's mindset.

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