E-GOVERNMENT DEVELOPMENT and E-PARTICIPATION

The Performance of the OIC Member Countries

Organisation of the Islamic Conference

Statistical Economic and Social Research and Training Centre for Islamic Countries (SESRIC)

E-Government Development and E-Participation

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1 Introduction

The global financial crisis which broke out in 2007 and was considered by many economists worldwide the worst ever since the Great Depression of 1930s is a crisis on a global scale triggered by the illiquidity of the US banking system caused by the overvaluation of assets. Still a top item on many governments' agenda, the crisis had immense devastating results both on the public and private sector. These included the bankruptcy of big players in the banking and finance sector, the nationalisation of banks either for a temporary or permanent period and collapse of stock markets around the World. The financial engineering and innovation behind the United States housing bubble which peaked in approximately 2005–2006 could not be supervised by the regulatory framework since it lagged behind the financial innovation nurturing the shadow banking system, derivatives and off-balance sheet financing.

The impacts of the crisis on the global scale have been broad. The rapid development and transformation of the crisis into a global economic shock led the institutional investors leave riskier investments and take positions in stronger and more secure assets. This caused recession and significant economic slowdowns in many developing countries which obliged them to seek aid from the International Monetary Fund.

On the other hand, the OIC Member Countries in Western Asia especially Yemen, UAE and Iraq were relatively less affected from the crisis due to their weak integration into the global economy and the dependence on foreign national wealth. The substantial financial reserves of Saudi Arabia, Kuwait, Qatar, Bahrain and UAE allowed them to handle the crisis well. During the crisis, the growth of the GCC countries stayed strong and continued to be an attraction for investments. Also the reaction of Emirate of Abu Dhabi to bail out Emirate of Dubai from its debt crisis was faster when compared to that of Europe in bailing of Greece.

From the perspective of e-government implementation, the reaction of governments worldwide showed differences at the current financial and economic crisis. While some have lowered/cut their e-government budgets and postponed/decelerated the implementation of e-government projects, others have transformed crisis into opportunity by accelerating their e-government projects, thus getting closer to become a more connected knowledge society. In the times of crisis, it is important to allocate funds to more efficient and effective e-government projects which can establish more accountable and transparent public sector ecosphere. From the citizens' and government agencies' aspect, this brings not only financial gains but also citizen/agency satisfaction, productivity, involvement and commitment.

Box 1: Regional E-Government Strategies

Efforts of the GCC and the African Union

http://ww.egulf–oman.com

The Gulf region has developed e-government standards and structures that are implemented throughout the region. The countries in the Gulf Cooperative Council are working together and sharing their e-government experiences to advance the region as a whole. All GCC countries were represented at a regional e-government conference in December 2009 in Oman. Awards were presented for innovative e-government programmes, services and solutions in the region.

http://www.africa-union.org

African Ministers confirmed their willingness to promote inter-governmental cooperation in having common frameworks for e-Government regional development at a meeting in Mexico in September 2009. In February 2010, ICT [was] the focus of the Summit of the African Union, with the theme 'Information and Communication Technologies in Africa: Challenges and Prospects for Development.'

Source: UN e-Government Survey 2010, p. 77

The aim of this report is to provide an overview of the current performance of the OIC Member Countries in e-government development and e-participation. The UN E-Government Survey 2010 has been used as the main reference document while preparing this report. As in 2009 SESRIC publication of "E-Government Readiness: The Performance of the OIC Member Countries", this report includes indices of E-Government Development (EGDI), Online Service (OSI), Telecommunication Infrastructure (TII), Human Capital (HCI) and E-Participation (EPI). The comparison of the OIC Member Countries for the abovementioned indices with other regions including the World has been carried out from the data available in the UN E-Governments Surveys performed in 2007 and 2009. A more detailed analysis including the comparison of OIC subgroups with the Top-10 OIC Member Countries in each index also has been included in the report. Based on the analysis made, the Report derives conclusions and policy implications for the OIC Member Countries for the sake of improving their E-Government Development Index. Lastly, the Report includes a map for each of the indices visualising the scores of each Member Country based on a performance range.

2 Background

E-government development, replacing the former term "*readiness*" mentioned in the UN E-Government Survey 2008, is a term used to "*describe how far governments have actually advanced in this field instead of how ready or able they might be to do so, which was how 'e-government readiness' described national capacity*"[1]. As countries have adopted national strategies and action plans for e-government implementation, the assessment focus has been changed from "*readiness*" to the "*level of development*" in this regard. Beside the replacement of "*e-government readiness*" with "*e-government development*", also the UN E-Government Survey 2010 replaced the "*web measurement index*" from the UN E-Government Survey 2008 with the "*online services index*". The other two sub-indices of the EGDI remained the same in the UN E-Government Survey 2010.

3 E-Government Development Index (EGDI)

The E-Government Development Index (EGDI) is a comprehensive scoring of the willingness and capacity of national administrations to use online and mobile technology in the execution of government functions[2]. The comprehensive survey carried out for the UN E-Government Survey 2010 was composed of 95 questions on the online presence of the 192 Member Countries of the United Nations. The results from the survey are then formulated under three sub-indices; i.e. the online services index (OSI), the telecommunication infrastructure index (TII), and the human capital index (HCI).

The EGDI captures e-government development in a relative sense by rating the performance of national governments relative to one another and the EGDI scores range between a maximum of one and a minimum of zero. As a result, the score changes of the EGDI from one survey to the next should not be interpreted as degeneration since the index, as said earlier, measures e-government development of countries relative to one another within a given year. More importantly, a drop in a country's ranking may serve as a reminder of the need to devote greater resources to improving online services and expanding access to telecommunication infrastructure.

$$\mathrm{EGDI} = (0.34 \times \mathrm{OSI}) + (0.33 \times \mathrm{TII}) + (0.33 \times \mathrm{HCI}) \qquad (1)$$

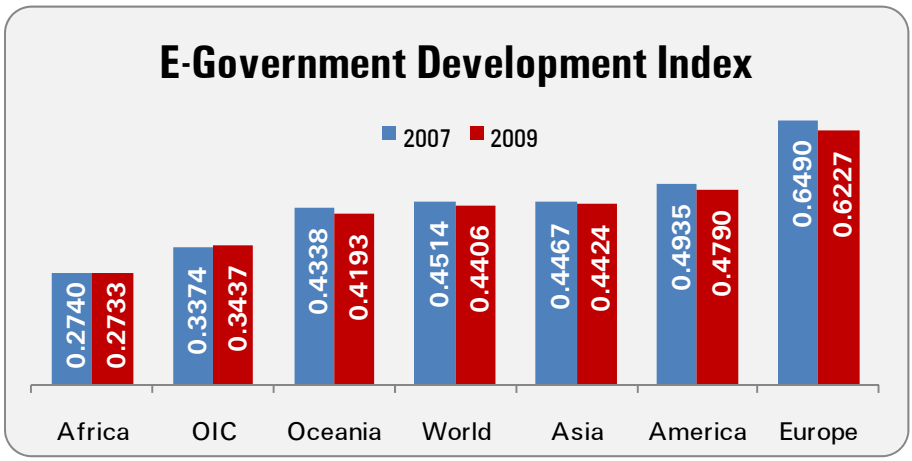
The EGDI, as seen in (1) above, is formulated as the weighted average of the linear normalized scores on the online services, telecommunication infrastructure and education which are

[1] UNPAN (2010), "UN e-Government Survey 2010", p. 3, UN, New York.
[2] ibid, p. 109

represented by the sub-indices of OSI, TII and HCI, respectively. These sub-indices of the EGDI are also calculated from different indicators which can be analysed independently.

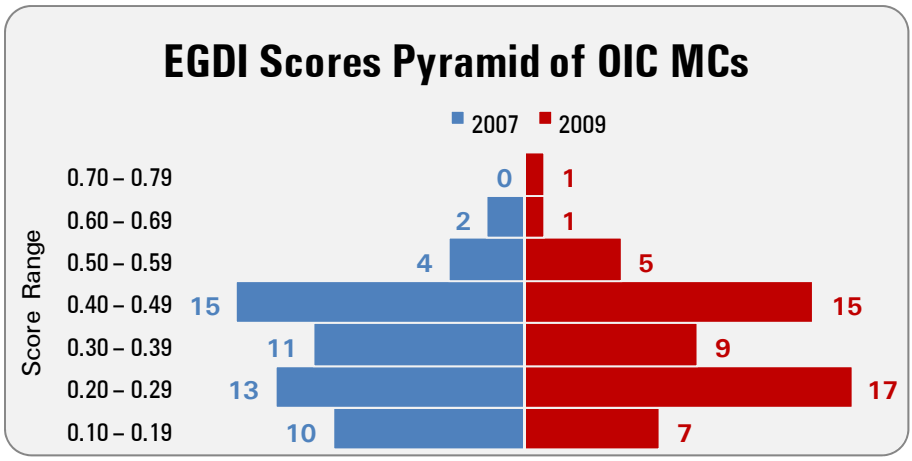
The EGDI average of the OIC Member Countries as a group increased from 0.3374 in 2007 to 0.3437 in 2009[3]. Despite the 1.88% increase, the EGDI average of the OIC Member Countries as a group in 2009 was less than that of all regional groupings except Africa. In 2009, while the EGDI averages of Africa, OIC and Oceania were less than that of the World, the averages of Asia, America and Europe was more than that of the World (Figure 1).

Figure 1: E-Government Development Index, by Regional Grouping, 2007 vs. 2009



The number of the OIC Member Countries whose EGDI scores were higher than the OIC average was 24 out of 55 in 2009. In 2007, 26 out of 55 OIC Member Countries had EGDI scores more than the OIC average. When compared to the World average in 2009, only 17 out of 55 OIC Member Countries managed to exceed the World average. However in 2007, the EGDI scores of 15 out of 55 OIC Member Countries were over the World average (Figure 2).

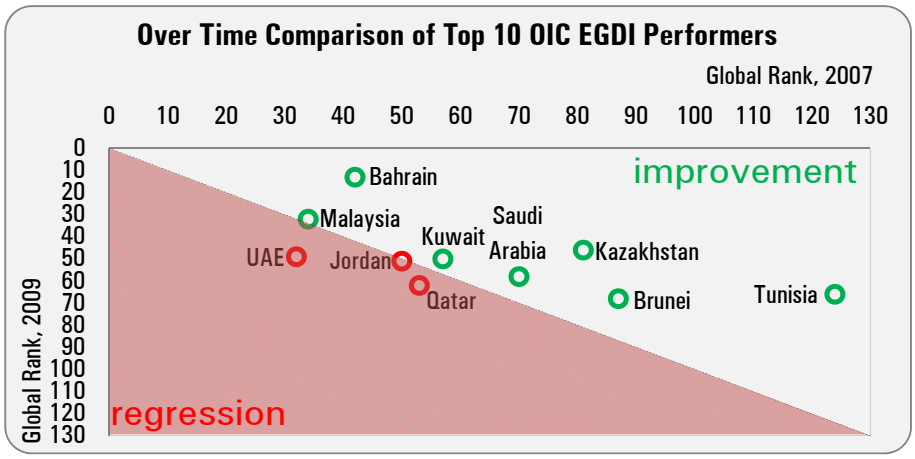
Figure 2: E-Government Development Index Scores Pyramid of the OIC Member Countries, 2007 vs. 2009



[3] Excluding Palestine and Somalia.

Figure 3 shows the over time comparison of the Top 10 OIC Member Countries by their EGDI ranks in 2007 and 2009. The global EGDI ranks of the Top 10 OIC Member Countries ranged between 13 (Bahrain) and 68 (Brunei) in 2009. Except UAE, Jordan and Qatar, the OIC Member Countries including Bahrain, Malaysia, Kazakhstan, Kuwait, Saudi Arabia, Tunisia and Brunei in the Top 10 list improved their global EGDI ranks from 2007 to 2009. Tunisia is the most prominent country in the Top 10 list to move up 58 positions from its 2007 rank of 124th place. The EGDI performance improvement of Tunisia is mainly due to its success in increasing its OSI by 0.35 point from 2007 to 2009. Tunisia also managed to increase its TII and HCI by 0.03 and 0.02 point respectively in the same period.

Figure 3: Top 10 OIC Member Countries, by Over Time Comparison of E-Government Development Index Scores, 2007 vs. 2009



The other OIC Member Countries worth mentioning in the Top 10 list following Tunisia are Kazakhstan and Bahrain which moved up their EGDI ranks by 35 and 29 positions from their 2007 ranks of 81st and 42nd place, respectively. Similar to Tunisia, the improvement in the OSI score by 0.21 point from 2007 to 2009 mainly contributed to the EGDI rank improvement of Kazakhstan. Despite a 0.05 point increase in its TII score, Kazakhstan showed a slight decline it its HCI score by 0.01 point in the same period. Emerging as the new leader country in the Top 10 list with a global EGDI rank of 13th place, Bahrain not only improved its OSI score by 0.21 point but also boosted its TII score by 0.25 point and enhanced its HCI by 0.03 point from 2007 to 2009.

As noted by the UN E-Government Survey 2010, Bahrain's recent emphasis on citizen engagement and the electronic provision of government services has propelled the country[4]. Also it was mentioned in the Survey that Bahrain's e-government portal system was launched in early 2009 with an aim to provide its citizens with a wealth of information, e-services and links to national and ministry sites. The motto for the initiative of the Government of Bahrain is 'E-Government for a Better Life'. E-participation and citizen engagement features are accessible

[4] UNPAN (2010), "UN e-Government Survey 2010", p. 61, UN, New York.

throughout the portal sites. The government also publishes a Customer Charter available in the page footer[5].

Despite being in the Top 10 list, the 2009 EGDI ranks of Jordan, Qatar and UAE showed declines by 1, 9 and 17 positions respectively from their ranks in 2007. The EGDI score decline of UAE can be mainly associated with a 0.46-point fall in the OSI between 2007 and 2009. However, UAE showed progress both in its TII and HCI by 0.16 and 0.03 point respectively in the same period. Following UAE, Qatar recorded score falls in both the OSI and TII by 0.11 and 0.04 point respectively in the same period. The HCI score of Qatar however recorded a 0.04 point increase in the period of 2007 and 2009. As to Jordan, while there was a 0.07 point fall in the OSI, no score change was observed in HCI. The improvement of TII of Jordan was limited to only a 0.01 point increase for the period-in-concern.

Box 2: Bahrain Embraces Web 2.0

Bahrain: Web 2.0

http://www.bahrain.bh

Bahrain's e-government programme has been innovative when it comes to customer's centricity. Citizen involvement has been ensured right from the strategy formulation and continuous feedback has been obtained during implementation. In continuation to this philosophy, the Bahrain e-government program has embraced the Web 2.0 to reach its customers. Ministers and senior government officials have established an open door policy to interact with citizens. The e-government program has its presence on social networking sites such as Facebook and YouTube. In addition, the national portal and ministry websites provide features such as open forums, blogs, live chats, online polls, e-newsletters and other interactive services that involve citizens in government decision making. For instance, two of the ministers and the CEO of the e-Government Authority have interacted with citizens through such blogs.

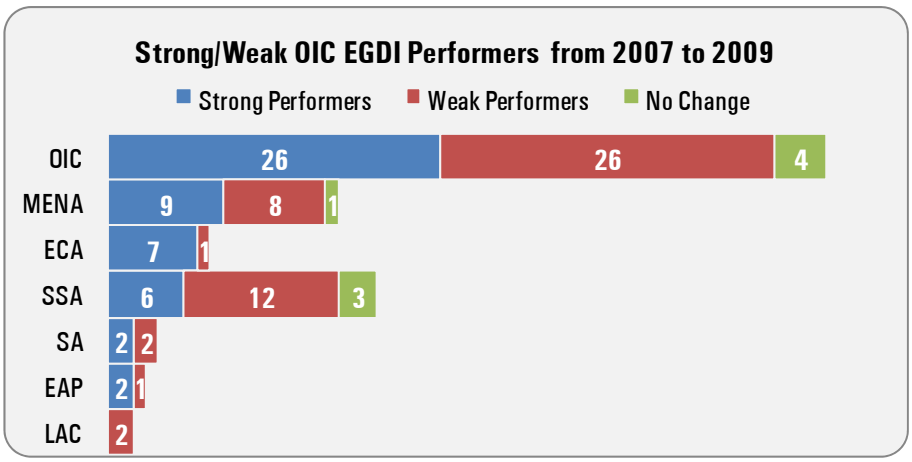
Citizens' participation and constructive feedback was recognized and implemented by changing the national portal and reprioritizing its objectives, thereby achieving 85% of customer satisfaction on the e-government programme as per the May 2009 Survey.

Source: UN e-Government Survey 2010, p. 60

[5] UNPAN (2010), "UN e-Government Survey 2010", p. 71, UN, New York.

Figure 4 exhibits the OIC Member Countries in terms of their EGDI rank changes from 2007 to 2009. Of the 56 OIC Member Countries for which data are available, while 26 of them managed to move their positions upwards, the other 26 of them recorded declines and the remaining 4 of them showed no change in their ranks between 2007 and 2009. In 2009, strong performing OIC Member Countries appear to be more in number than the weak performing ones in the Middle East and North Africa (MENA), Europe and Central Asia (ECA), and East Asia and the Pacific (EAP). 9 out of 18 OIC Member Countries in the MENA, 7 out of 8 OIC Member Countries in the ECA and 2 out of 3 OIC Member Countries in the EAP regions managed to move their ranks upwards between 2007 and 2009. As to the OIC sub-regions in which the number of weak performing OIC Member Countries surpassed that of the strong performing ones, this included the Sub-Saharan Africa (SSA) with 12 out of 20 and the Latin America and Caribbean (LAC) with 2 out of 2 OIC Member Countries in the respective regions. The number of strong and weak performing OIC Member Countries in the South Asia region was equal to each other, being 2 each, in the period 2007-2009. Beside the strong and weak performing OIC Member Countries, 3 Member Countries from the SSA and 1 Member Country from the MENA preserved their ranks of 2007 also in year 2009, thus showing no change in their ranks in the period-in-concern.

Figure 4: Number of Strong/Weak OIC E-Government Development Index Performers, by Rank Changes from 2007 to 2009



4 Online Services Index (OSI)

The Online Services Index (OSI) (formerly known as the "*web measure index*") is one of three components of the EGDI. It is a measurement of the Member Countries' online presence through their national portals/official government home pages as well as the websites of the ministries of Education, Labour, Social Services, Health and Finance. Associated portals and subsidiary websites were considered part and parcel of the parent sites and taken into consideration[6]. Accordingly, the OSI summarizes the online presence performance of the countries in a single

[6] UNPAN (2010), "UN e-Government Survey 2010", p. 110, UN, New York.

internationally-comparable value. The OSI currently considers the following four-stage model[7] of online service maturity which builds upon the previous levels of complexity of a government's online presence:

Stage I – Emerging: Countries typically begin with an ***emerging*** online presence with simple websites.

Stage II – Enhanced: Countries progress to an ***enhanced*** state with deployment of multimedia content and two-way interaction.

Stage III – Transactional: Countries advance to a ***transactional*** level with many services provided online and governments' soliciting citizen input on matters of public policy.

Stage IV – Connected: Countries finally advance to a ***connected*** web of integrated functions, widespread data sharing, and routine consultation with citizens using social networking and related tools.

The OSI score of a country shows how close the online presence performance of the country to the top performing country's score. In mathematical terms:

$$\text{OSI} = (\text{Country's OSI} - \text{OSI Lowest}) / (\text{OSI Highest} - \text{OSI Lowest}) \quad (2)$$

gives us a ratio of the distance between the country's OSI score and the lowest performing country's score; and the distance between the highest and lowest performing country's scores. Since the formulation of the OSI is based on this relative distance measurement, the interpretation of OSI score changes from one year to another should be made carefully. Rather than the scores, the changes in the ranks of the countries can tell more about the current situation of the online presence performance.

Box 3: Malaysia – Utilizing Mobile Technology

Malaysia: mySMS System

http://www.mysms.gov.my

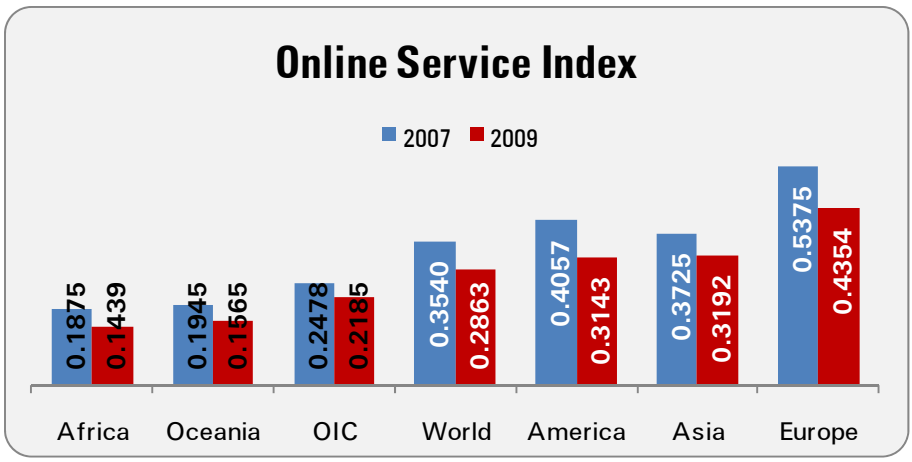
Malaysia's mySMS system won the 2009 APICTA award given to projects of creativity and excellence in ICT in Malaysia. The system enables users to receive information on demand, documents on demand, and broadcast information from government agencies, including emergency information to basic notifications. The system also allows users to provide complaints to government agencies.

Source: UN e-Government Survey 2010, p. 70

[7] The previous UN E-Government Survey released in 2008 considered a five-stage model which also included an *interactive* stage as a third level of e-government online presence complexity.

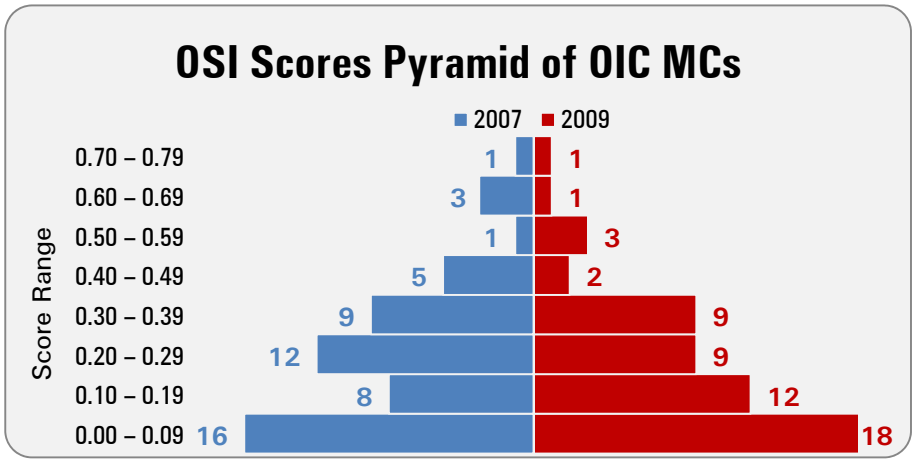
Figure 5 illustrates that the OIC OSI average[8] decreased from 0.2478 to 0.2185 between 2007 and 2009 as a result of the structural change in the assessment survey carried out for the UN E-Government Survey 2010. Although the OIC Member Countries as a group recorded about a 12% decrease, the magnitude of this decrease was less than those of the other regions. The decrease rates of the other regions including the World ranged between 14% (Asia) and 23% (Africa). However, the OIC OSI average was only higher than that of the Africa and Oceania but lower than that of the World, America, Asia and Europe in 2009.

Figure 5: Online Service Index, by Regional Grouping, 2007 vs. 2009



The decline in the OSI average of the OIC Member Countries as a group was also a reflection of the change in the OSI scores pyramid of the OIC Member Countries. Figure 6 shows the number of OIC Member Countries in each range category between 2007 and 2009. From 2007 to 2009, the number of the OIC Member Countries in the ranges 0.00 – 0.09, 0.10 – 0.19 and 0.50 – 0.59 was increased by 2, 4 and 2 countries, respectively. However, the number of the OIC Member Countries in the ranges 0.20 – 0.29, 0.40 – 0.49 and 0.60 – 0.69 was decreased by 3, 3 and 2 countries, respectively. No change was observed in the ranges 0.30 – 0.39 and 0.50 – 0.59 in the same period.

Figure 6: Online Service Index Scores Pyramid of the OIC Member Countries, 2007 vs. 2009

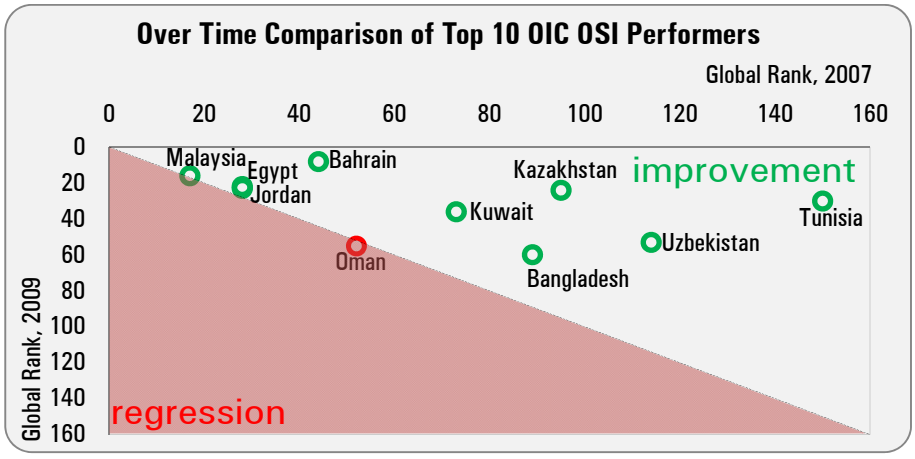


[8] Excluding Palestine and Somalia.

As a natural result of expansion of the base (lower OSI score ranges) and shrinking of the apex (higher OSI score ranges) of the OSI scores pyramid, the OIC OSI average recorded a decrease from 2007 to 2009. When the number of the OIC Member Countries whose OSI scores were higher than the OIC average was taken into account, 25 out of 55 in 2009 versus 26 out of 55 OIC Member Countries in 2007 had OSI scores more than the OIC average. When compared to the World average in 2009, only 16 out of 55 OIC Member Countries managed to exceed the World average. However in 2007, the OSI scores of 14 out of 55 OIC Member Countries were over the World average.

The over time comparison of the Top 10 OIC Member Countries by OSI ranks in 2007 and 2009 is displayed in Figure 7. The OIC Member Countries in the Top 10 list had global OSI ranks ranging between 8 (Bahrain) and 60 (Bangladesh) in 2009. From 2007 to 2009; except Oman, the OIC Member Countries including Bahrain, Malaysia, Jordan, Egypt, Kazakhstan, Tunisia, Kuwait, Uzbekistan and Bangladesh in the Top 10 list improved their global OSI ranks. Tunisia is the most notable climber in the Top 10 list to move up 120 positions from 150th place in 2007 to 30th place in 2009.

Figure 7: Top 10 OIC Member Countries, by Over Time Comparison of Online Services Index Scores, 2007 vs. 2009



The other notable climbers following Tunisia are Kazakhstan and Uzbekistan whose OSI ranks in 2009 were up by 71 and 61 positions from their 2007 ranks of 95th and 114th place, respectively. By taking the OIC OSI leadership from UAE, Bahrain achieved a global OSI rank in the 8th place by improving its 2007 OSI rank by 36 positions in 2009. The UN E-Government Survey 2010 also cites Bahrain among seven countries[9] in which citizens can pay registration fees, fines, etc. via mobile access provided through the national portal. Bahrain also offers extensive integrated transactional e-services that cater to many segments of its society[10].

[9] Besides Bahrain, Sudan is also among the seven countries with payment services via mobile access.
[10] UNPAN (2010), "UN e-Government Survey 2010", p. 80, UN, New York.

Although Oman is in the OIC Top 10 OSI Performers list, it got a global OSI rank of 55 in 2009 meaning a 3-position-fall from its 2007 rank. However, two initiatives of the government of Oman draw attention. The first one is an e-government initiative in employment called "*Oman Royal Court Affairs – Mobile Recruitment*", which won the World Summit Award in 2009. The "*Mobile Recruitment*" initiative is an electronic evaluation system that receives job applications via short messaging system (SMS). It was one of eight winners in a contest following on the United Nations' World Summit on the Information Society. Every job application is processed in a few seconds and the recruitment process is completed in about two weeks. The system simplifies the filtering of candidates by integrating the National Manpower Register with a mobile-based job application, screening and short-listing of jobseekers. Results of automated screening process are forwarded via SMS. The automated mobile recruitment system saves time, cost and effort[11]. The second e-government initiative is from the Ministry of Education of Oman which promotes e-learning by having its own e-learning system. The system features virtual classrooms and a self-learning system. Communication can occur via audio, video and text. The Ministry also employs an SMS feature for parents. Through Oman Mobile, the Ministry has set up a system that allows parents to follow their children's school performance on mobile phones. Parents can track student attendance, receive calls for school visits, learn about temporary suspensions, pull student ID, and receive grade reports[12].

Figure 8: Number of Strong/Weak OIC Online Service Index Performers, by Rank Changes from 2007 to 2009

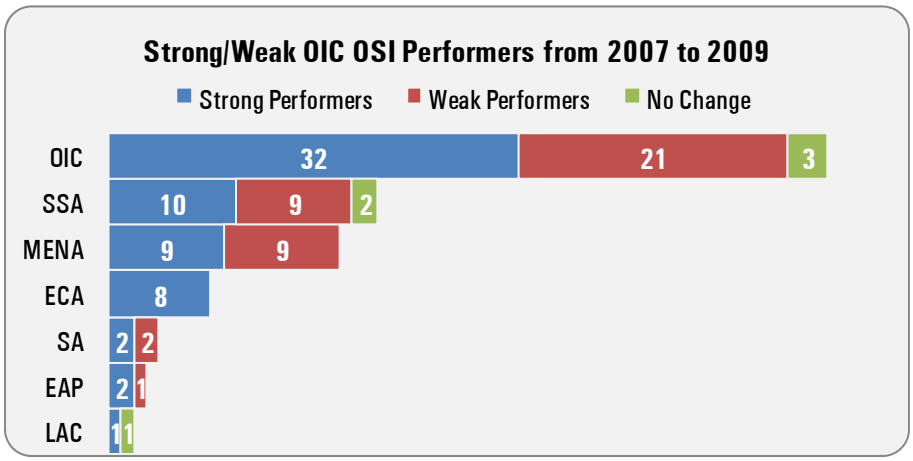


Figure 8 presents the OIC Member Countries in terms of their OSI rank changes from 2007 to 2009. 32 out of 56 OIC Member Countries for which data are available performed strongly by climbing from their 2007 ranks within a range of 1 (Malaysia) and 120 (Tunisia) positions in 2009. The other 21 of them recorded declines and the remaining 3 of them showed no change in their ranks between 2007 and 2009. In 2009, strong performing OIC Member Countries appeared to be more in number than the weak performing ones in the SSA, ECA, and EAP. 10 out of 21 OIC

[11] UNPAN (2010), "UN e-Government Survey 2010", p. 46, UN, New York.
[12] ibid, p. 71

Member Countries in the SSA, all the 8 OIC Member Countries in the ECA and 2 out of 3 OIC Member Countries in the EAP regions managed to move their ranks upwards between 2007 and 2009. The number of strong and weak performing OIC Member Countries in the MENA and SA regions was equal to each other, being 9 and 2 Member Countries respectively, in the period 2007-2009. Beside the strong and weak performing OIC Member Countries, no improvement or regression was observed in 2 Member Countries from the SSA and 1 Member Country from the LAC in year 2009 from their ranks in year 2007.

5 Telecommunication Infrastructure Index (TII)

The Telecommunication Infrastructure Index (TII) is another component of the EGDI. Constructed as a composite measure, the TII takes five indicators, each with a 20% weight, into account: number of personal computers per 100 persons (PCp100), number of Internet users per 100 persons (IUp100), number of telephone lines per 100 persons (TLp100), number of mobile cellular subscriptions per 100 persons (MCSp100) and number of fixed broadband subscribers per 100 persons (FBSp100)[13].

For each variable under the TII, a country's values are then normalized on a linear basis which yields a relative distance measure giving an idea about where the telecommunication infrastructure performance of the country is located relative to the top performing country's values. Taking the index calculation of PCs per 100 persons, one of the components of the TII, as an example; the linear normalization can be applied by dividing the distance between the country's value and the lowest performing country's value, and the distance between the highest and lowest performing countries' values:

$$\text{PCs per 100 persons index} = \frac{\text{PCs per 100 in the country} - \text{PCs per 100 of the lowest performer}}{\text{PCs per 100 of the highest performer} - \text{PCs per 100 of the lowest performer}} \quad (3)$$

To arrive at the TII score of the country, then a simple average operation is applied on the normalized values of the five indicators mentioned above. In mathematical terms, TII is obtained from:

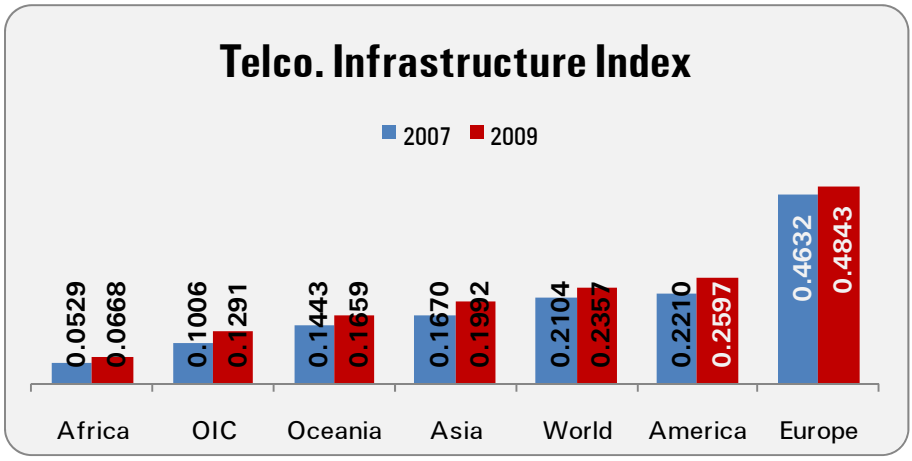
$$\text{TII} = \frac{\text{PCp100 Index} + \text{IUp100 Index} + \text{TLp100 Index} + \text{MCSp100 Index} + \text{FBSp100 Index}}{5} \quad (4)$$

As to the performance of the regions in the telecommunication infrastructure in 2009, all regions made a progress between 4.56% (Europe) and 28.27% (OIC). Although the OIC Member Countries as a group made the most significant progress between 2007 and 2009, the OIC TII

[13] UNPAN (2010), "UN e-Government Survey 2010", p. 113, UN, New York.

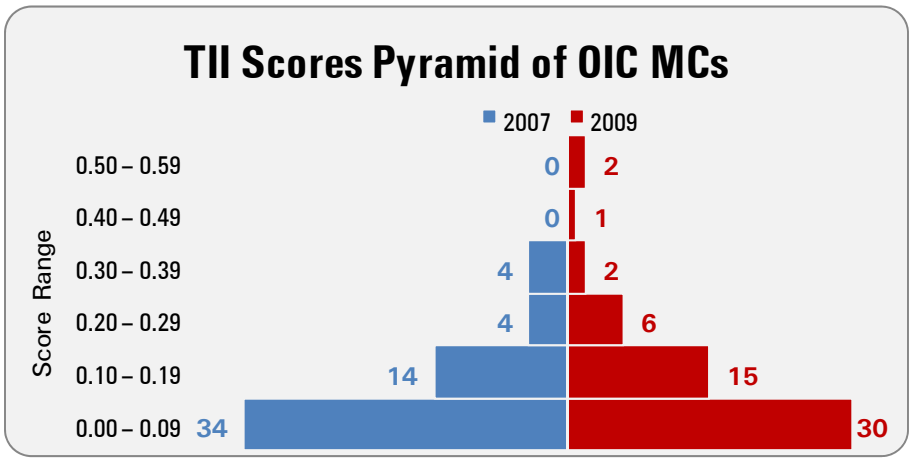
average[14] was only higher than that of Africa but lower than that of all remaining regions including the World. While the TII averages of Europe and America were better than the World average, the averages of Africa, OIC, Oceania and Asia were below the World in 2009 (Figure 9).

Figure 9: Telecommunication Infrastructure Index, by Regional Grouping, 2007 vs. 2009



As depicted in Figure 10, the TII scores pyramid of the OIC Member Countries also reveals the progress recorded in the OIC TII average in the period between 2007 and 2009. The number of OIC Member Countries in the score ranges 0.10 – 0.19, 0.20 – 0.29, 0.40 – 0.49 and 0.50 – 0.59 increased by 1, 2, 1, and 2 countries respectively from 2007 to 2009. In addition to that, the number of OIC Member Countries in the score ranges 0.00 – 0.09 and 0.30 – 0.39 decreased by 4 and 2 countries respectively in the same period. In contrast to the structure of the OSI scores pyramid; while the base of the TII scores pyramid began shrinking, new apex score range was reached and the score ranges in the middle had increases in the number of Member Countries in 2009.

Figure 10: Telecommunication Infrastructure Index Scores Pyramid of the OIC Member Countries, 2007 vs. 2009

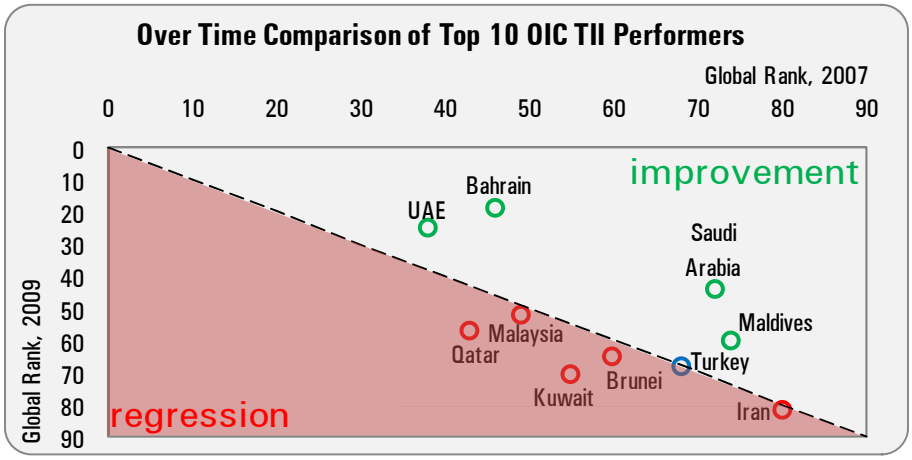


[14] Excluding Palestine

The amelioration of the situation in the score ranges resulted in an increase in the OIC TII average in 2009. When the number of the OIC Member Countries whose TII scores were higher than the OIC average was taken into account, 18 out of 56 in 2009 versus 22 out of 56 OIC Member Countries in 2007 had TII scores more than the OIC average. When compared to the World average in 2009, only 9 out of 56 OIC Member Countries managed to exceed the World average. However in 2007, the TII scores of 8 out of 56 OIC Member Countries were over the World average.

Figure 11 presents the over time comparison of the Top 10 OIC Member Countries by TII ranks from 2007 to 2009. Among the OIC Member Countries in the Top 10 list, their global TII ranks ranged between 19 (Bahrain) and 82 (Iran) in 2009. As 4 Member Countries showed a progress, one OIC Member Country showed no change and the remaining 5 Member Countries saw decreases in their TII ranks in the same period. Bahrain, as the new best OIC TII performer, followed by UAE, Saudi Arabia and Maldives are the OIC Member Countries in the Top 10 TII Performers list which recorded improvement from 2007 to 2009.

Figure 11: Top 10 OIC Member Countries, by Over Time Comparison of Telecommunication Infrastructure Index Scores, 2007 vs. 2009



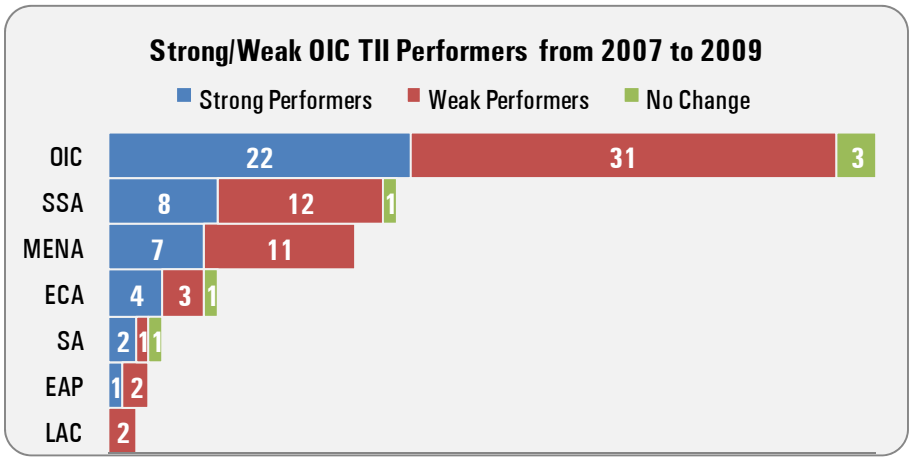
Saudi Arabia has made the most notable leap in the Top 10 list to move up 28 positions from 72nd place in 2007 to 44th place in 2009. As the new leader of the Top 10 OIC TII Performers list, Bahrain also jumped 27 positions from 46th place in 2007 to 19th place in 2009. Bahrain's success lies in continuous investment in its telecommunication infrastructure. On 16 December 2009, Bahrain launched a 16Mbps broadband package countrywide for residential and business use to cater for high bandwidth applications like streaming and downloading of high definition video and audio[15].Following Bahrain, the TII ranks of Maldives and UAE were up by 14 and 13 positions from their 2007 ranks of 74th and 38th place respectively. The global TII rank of Turkey showed no change from its 2007 rank of 68th place in 2009. However; despite taking place among the Top 10

[15] http://www.ameinfo.com/218649.html

TII performers, Kuwait, Qatar, Brunei, Malaysia and Iran moved their ranks downwards by 16, 14, 5, 3 and 2 positions respectively during the same period.

Figure 12 summarizes the situation of the OIC Member Countries in terms of TII rank changes from 2007 to 2009. Although 49 out of 56 OIC Member Countries managed to increase their TII scores from 2007 to 2009, only 22 out of 56 Member Countries exhibited strong performance when the ranks obtained by the Member Countries in 2009 are considered. The global TII ranks of the OIC Member which showed a positive growth in 2009 climbed within a range of 2 (Morocco) and 28 (Saudi Arabia) positions in 2009. The other 31 of them recorded declines and the remaining 3 of them showed no change in their ranks between 2007 and 2009. In 2009, strong performing OIC Member Countries appeared to be more in number than the weak performing ones in the ECA and SA. 4 out of 8 OIC Member Countries in the ECA and 2 out of 4 OIC Member Countries in the SA regions managed to show a progress between 2007 and 2009. The number of weak performing OIC Member Countries in the SSA, MENA, EAP and LAC regions surpassed that of the strong performers, being 12, 11, 2 and 2 Member Countries respectively, from 2007 to 2009. Beside the strong and weak performing OIC Member Countries, no improvement or regression was observed in 1 Member Country from the SSA, ECA and SA in year 2009 from their ranks in year 2007.

Figure 12: Number of Strong/Weak OIC Telecommunication Infrastructure Index Performers, by Rank Changes from 2007 to 2009



6 Human Capital Index (HCI)

The last component of the EGDI is the Human Capital Index (HCI). The HCI is a composite index which includes the adult literacy rate (ALR) and the combined primary, secondary and tertiary gross enrolment ratio. Similar to the TII, the calculation of the HCI first requires the normalization of each indicator under the HCI for each country on a linear basis. As a result of the linear normalization of each indicator, a relative distance measure is obtained portraying the

indicator performance of the country relative to the top performing country's performance. The application of the linear normalization is the same as in the TII: After subtracting the lowest performing country's value from the country's value on the nominator side and from the highest performing country's value on the denominator side, the calculated differences are then proportioned to each other as shown in (5) for the adult literacy rate indicator [16]:

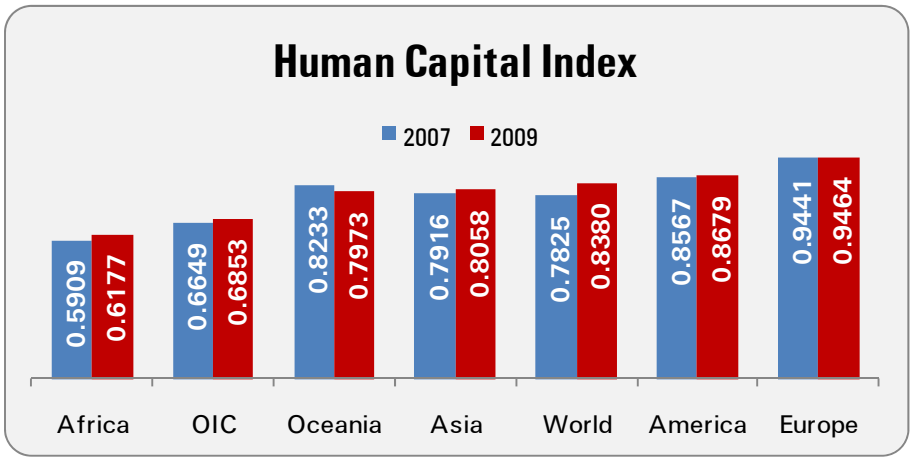
$$\text{Adult Literacy Index} = \frac{\text{ALR of the Country} - \text{ALR of the Lowest Performer}}{\text{ALR of the Highest Performer} - \text{ALR of the Lowest Performer}} \quad (5)$$

The HCI is calculated as shown in (6) by taking the weighted average of the two normalized indicators with two thirds weight given to the adult literacy rate and one third to the gross enrolment ratio:

$$\text{HCI} = \left(\frac{2}{3} \times \text{Adult Literacy Index}\right) + \left(\frac{1}{3} \times \text{Gross Enrolment Index}\right) \quad (6)$$

The human capital performance improved in all regions except Oceania between 0.25% (Europe) and 7.09% (World) from 2007 to 2009. The performance decline of the Oceania was 3.16%. Only outperforming that of the Africa, the human capital performance of the OIC Member Countries as a group recorded an increase of 3.06%. The OIC HCI average[17] was 0.6853 in 2009 and lower than that of Europe, America, World, Asia and Oceania. The America and Europe were the only two regions whose averages were above that of the World in 2009 (Figure 13).

Figure 13: Human Capital Index, by Regional Grouping, 2007 vs. 2009

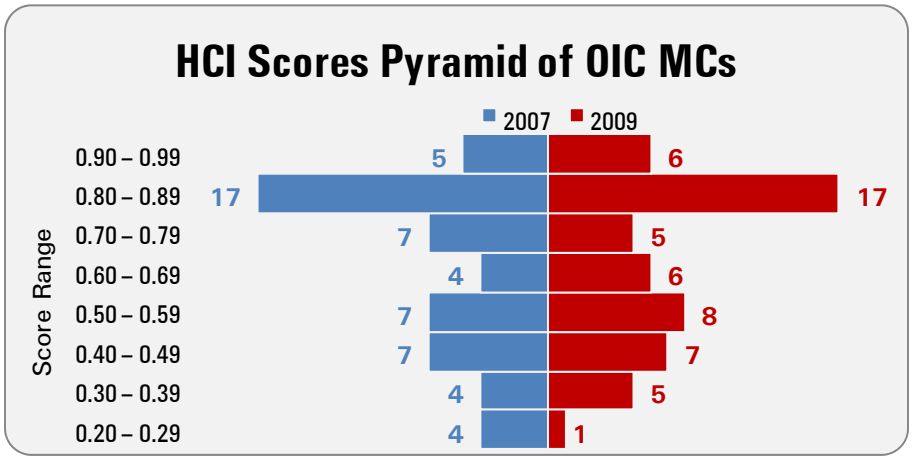


It can be seen from Figure 14 that the HCI scores pyramid of the OIC Member Countries shows a concentration in the score range 0.80 – 0.89 both in 2007 and 2009. Additionally, while the number of OIC Member Countries in the lowest score range of 0.20 – 0.29 decreased, most of the higher score ranges contain more member countries in 2009 when compared to 2007. Actually, the geometry of the HCI score ranges of the OIC Member Countries is a reverse pyramid showing that more countries are located close to its apex. When looked at in more detail, the number of

[16] UNPAN (2010), "UN e-Government Survey 2010", p. 113, UN, New York.
[17] Excluding Palestine and Somalia

OIC Member Countries in the score ranges 0.60 – 0.69 and group of 0.30 – 0.39, 0.50 – 0.5 and 0.90 – 0.99 increased by 2 and 1 countries, respectively. No change in the number of OIC Member Countries was seen in the score ranges 0.40 – 0.49 and 0.80 – 0.89. The number of OIC Member Countries within the score ranges 0.20 – 0.29 and 0.70 – 0.79 decreased by 3 and 2 countries, respectively in 2009. As to the number of the OIC Member Countries above the OIC HCI average, 31 out of 55 in 2009 versus 30 out of 55 OIC Member Countries in 2007 had HCI scores more than the OIC average. When compared to the World average in 2009, 20 out of 55 OIC Member Countries managed to exceed the World average. However in 2007, the HCI scores of 24 out of 55 OIC Member Countries were over the World average.

Figure 14: Human Capital Index Scores Pyramid of the OIC Member Countries, 2007 vs. 2009

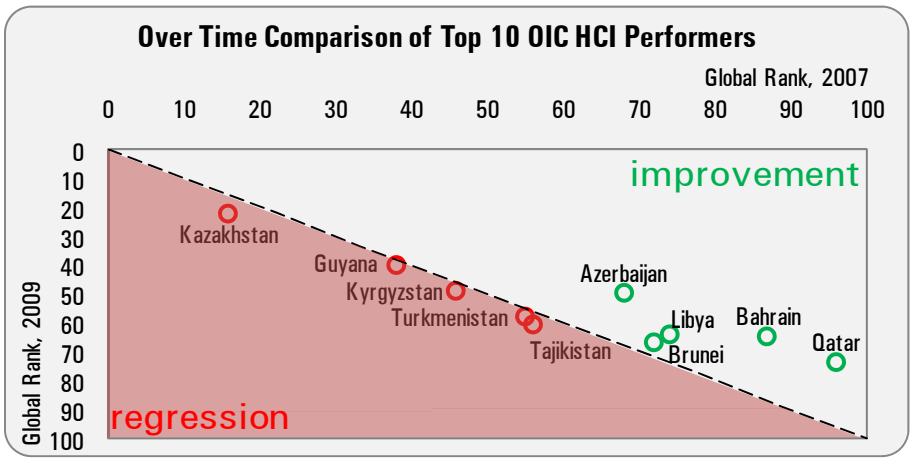


The over time comparison of the Top 10 OIC Member Countries by HCI ranks from 2007 to 2009 is shown in Figure 15. The global HCI ranks of the OIC Member Countries in the Top 10 list ranged between 22 (Kazakhstan) and 74 (Qatar) in 2009. While 5 Member Countries showed a progress by moving within the range of 5 (Brunei) and 22 (Bahrain and Qatar) positions upwards, the HCI ranks of the other half of the Member Countries in the Top 10 list declined within the range of 6 (Kazakhstan) and 2 (Guyana) positions downwards in the same period. Among the OIC Member Countries in the Top 10 list from the ECA region, only Azerbaijan managed to improve its rank by moving 18 positions upwards.

From the MENA region, Qatar draws attention with its HCI performance due to its investments in its human capital. His Highness the Emir Sheikh Hamad Bin Khalifa Al Thani of Qatar set up in 1995 the Qatar Foundation for Education, Science and Community Development, with the aim to find a solution for Qatar's shortage of qualified people. Now under the chairpersonship of Her Highness Sheikha Moza bint Nasser Al Missned, the Consort of His Highness the Emir of Qatar, the Foundation has persuaded some quality schools to establish Qatar campuses in its Education City which was inaugurated in autumn 2003. Education City is a prototypical campus of the future, bringing branches of renowned international universities to Qatar to provide top class

degree programs and to share research and community-based ventures. The campus currently includes six universities and programs of study including Carnegie Mellon, Georgetown, Northwestern, Texas A&M, Virginia Commonwealth Universities and Weill Cornell Medical College in Qatar. Education City also includes educational institutions at the primary and secondary level which help prepare students for admission to the programs above, as well as programs in the region and abroad. Other entities currently on campus include Qatar Science and Technology Park, Sidra Medical and Research Center, RAND-Qatar Policy Institute, the Faculty of Islamic Studies and more[18].

Figure 15: Top 10 OIC Member Countries, by Over Time Comparison of Human Capital Index Scores, 2007 vs. 2009



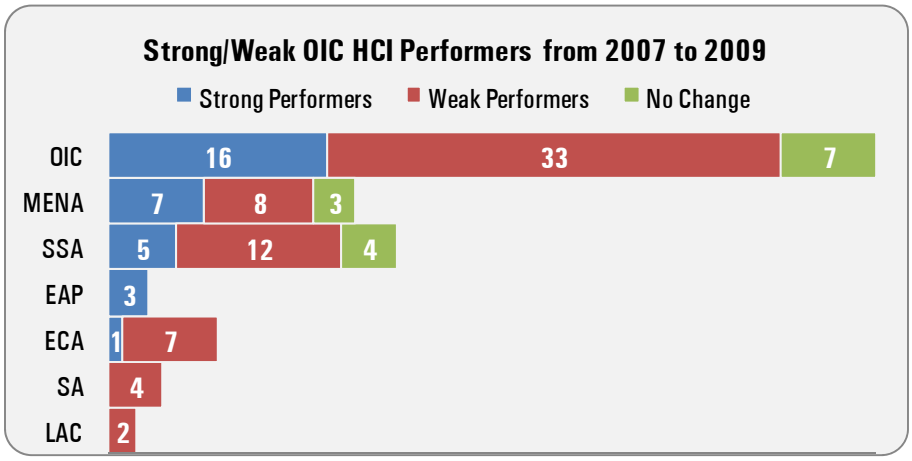
With regard to the HCI rank changes of the OIC Member Countries from 2007 to 2009, the number of OIC Member Countries with a progress is the lowest among the sub-indices of the EGDI. Although 44 out of 55 OIC Member Countries managed to increase their HCI scores from 2007 to 2009, only 16 out of 55 Member Countries improved their ranks in the period-in-concern. The global HCI ranks of the OIC Member Countries with positive growth in 2009 moved within a range of 1 (Malaysia) and 22 (Bahrain and Qatar) positions upwards in 2009. As the ranks of the other 33 Member Countries declined, the remaining 7 of them showed no change in their ranks from 2007 to 2009.

In 2009, OIC Member Countries with strong HCI performance appeared to be more in number than the weak performing ones only in the EAP. All 3 OIC Member Countries in the EAP including Brunei, Indonesia and Malaysia increased their ranks between 2007 and 2009. The number of weak performing OIC Member Countries in the SSA, MENA, ECA, SA and LAC regions surpassed that of the strong performers, being 12, 8, 7, 4 and 2 Member Countries respectively, from 2007 to 2009. Uzbekistan from the ECA recorded the maximum drop among all others by 27 positions in the same period. Beside the strong and weak performing OIC

[18] http://www.businessweek.com/magazine/content/10_12/b4171052610071_page_2.htm, http://www.mozahbintnasser.qa/EducationCity.html

Member Countries, no change was seen in 4 Member Countries from the SSA and 3 Member Countries from the MENA in year 2009 from their ranks in year 2007.

Figure 16: Number of Strong/Weak OIC Human Capital Index Performers, by Rank Changes from 2007 to 2009



Box 4: Kazakhstan – Putting Citizens First

Kazakhstan: User-Friendly Site

http://www.e-gov.kz

The national website of Kazakhstan is a user-friendly one-stop-shop that allows a one click access to e-gov.kz, the country's e-government portal, which offers a comprehensive selection of e-services for citizens. The portal also provides information on the national e-government development programme with 17 different projects aimed at improving services to the citizen in a convenient (online) and cost-effective manner. E-services include e-payments, e-documents, e-registrations, e-signatures, e-forms, etc. The portal also contains videos and educational programmes for children, online discussions and consultations, and other citizen engagement tools. This distinctive approach is intended to enhance the role of the government and facilitate building citizens' trust in government authorities.

Source: UN e-Government Survey 2010, p. 69

7 E-Participation Index (EPI)

Although not a direct component of the EGDI, the E-Participation Index (EPI) complements the EGDI. UNPAN defines "e-participation" as the area of online services that opens up channels for online participation in public affairs[19]. Three benchmarks play a role in measuring a country's strength in e-participation:

1. *E-Information*: This benchmark tries to measure to what extent the national government publishes information on items under consideration. The focus is on the use of the Internet to facilitate provision of information by governments to citizens.
2. *E-Consultation*: This benchmark tries to show the number of ways that the public can engage in consultations with policy makers, government officials and one another. The focus in on the stakeholder interaction.
3. *E-Decision-Making*: This benchmark tries to measure the direct influence of citizens on decisions, for example by voting online or using a mobile telephone. The focus in on the engagement of citizens in decision-making process.

The usefulness and the extent of the adoption of these three benchmarks by one country compared to all other countries are then reflected in the EPI score of the country. By this way, one can see what kind of online tools are being used by countries to promote the participation process. Similar to the TII and HCI, the EPI scores of the countries are then normalized on a linear basis as shown in (7):

$$\text{EPI} = \frac{\text{EP Score of the Country} - \text{EP Score of the Lowest Performer}}{\text{EP Score of the Highest Performer} - \text{EP Score of the Lowest Performer}} \tag{7}$$

Box 5: Algeria Alerts Citizens to Their New National Hotline for H1N1

Algeria: H1N1 National Hotline

http://www.ands.dz

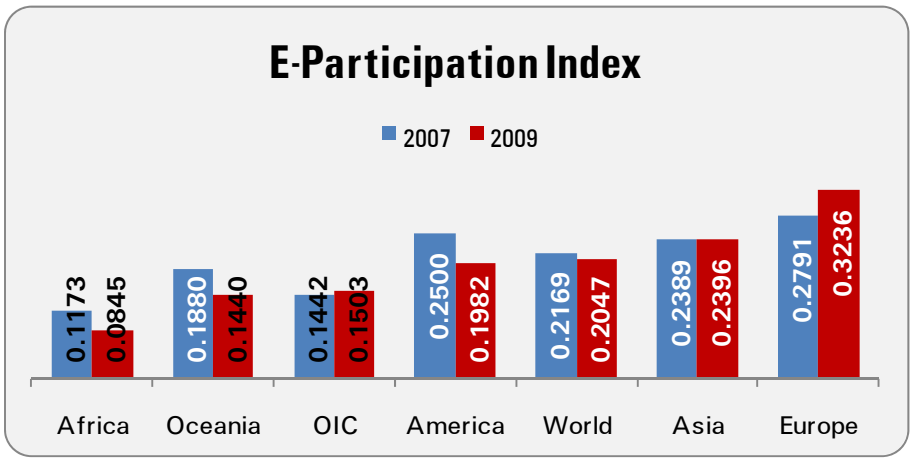
On the national portal of Algeria (www.ands.dz) there is a link titled "Alerte Grippe Porcine", for the H1N1 flu. The feature takes the user to a portal page with a specific section for health care professionals along with resources for citizens with links to information and medical resources, a new telephone hot line number, audios from radio spots sharing information on symptoms to watch for and hygiene protocol, and weekly health newsletters have been archived.

Source: UN e-Government Survey 2010, p. 64

[19] UNPAN (2010), "UN e-Government Survey 2010", p. 83, UN, New York.

An improvement in the EPI averages was seen in three regional groupings, namely Asia (0.29%), OIC[20] (4.18%) and Europe (15.95%) in 2009. Beside this improvement, four regional groupings recorded declines from their 2007 EPI averages in 2009. Among the regional groupings with EPI average decline, Africa performed the weakest with a drop of 27.98%, followed by Oceania, America and the World with drop rates of 23.43%, 20.71% and 5.63%, respectively in 2009. The 2009 EPI average of the OIC as a regional grouping (0.1503) was only over that of Africa and Oceania. The regional groupings whose EPI averages lay above that of the World (0.2047) included Asia (0.2396) and Europe (0.3236) in 2009 (Figure 17).

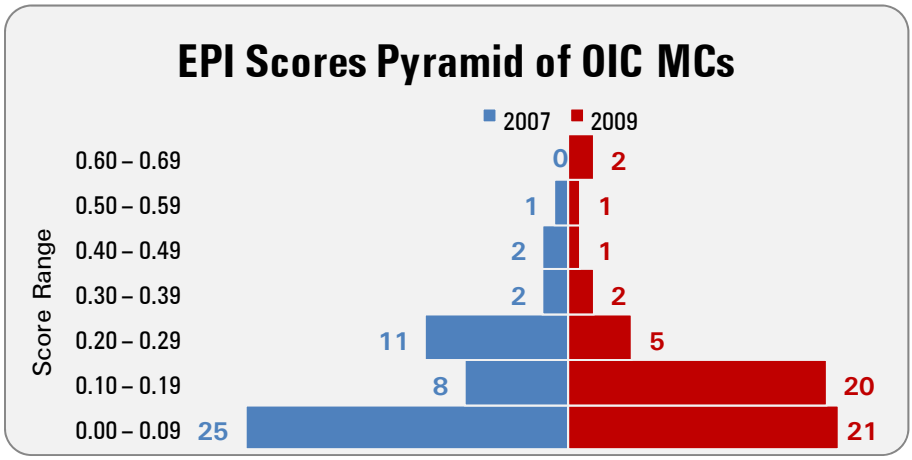
Figure 17: E-Participation Index, by Regional Grouping, 2007 vs. 2009



As can be seen in Figure 18, about 80% of the OIC Member Countries were found in the score ranges between 0.00 and 0.19 of the EPI scores pyramid in 2009. Although the base of the EPI scores pyramid of the OIC Member Countries shrank from 25 in 2007 to 21 in 2009, the majority of the EPI scores of the OIC Member Countries were still concentrated at the bottom of the pyramid as a result of the increase in the score range 0.10 – 0.19 from 8 in 2007 to 20 in 2009. The number of the OIC Member Countries in the score ranges 0.20 – 0.29 and 0.40 – 0.49 dropped by 6 and 1 countries, respectively from 2007 to 2009. While the number of the OIC Member Countries in the score ranges 0.30 – 0.39 and 0.50 – 0.59 stayed constant with 2 and 1 countries, respectively; 2 OIC Member Countries climbed to the apex of the EPI score pyramid (score range 0.60 – 0.69) in the same period. As to the number of the OIC Member Countries above the OIC EPI average, 18 out of 52 in 2009 versus 18 out of 49 OIC Member Countries in 2007 had EPI scores higher than the OIC average. When compared to the World average in 2009, 11 out of 52 OIC Member Countries managed to go above the World average. However in 2007, the EPI scores of 9 out of 49 OIC Member Countries were over the World average.

[20] Excluding Palestine, Sierra Leone, Somalia, Suriname and Turkmenistan

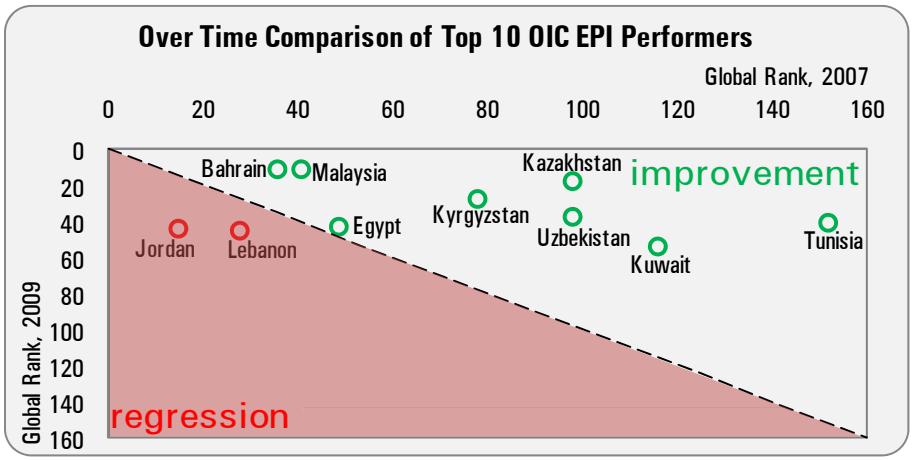
Figure 18: E-Participation Index Scores Pyramid of the OIC Member Countries, 2007 vs. 2009



The Top 10 OIC Member Countries by EPI ranks from 2007 to 2009 are compared over time in Figure 19. The range of the 2009 EPI ranks of the OIC Member Countries in the figure is between 11 (Bahrain) and 54 (Kuwait). The number of the Member Countries in the Top 10 OIC EPI Performers list which showed strong performance by climbing in a range of 6 (Egypt) and 111 (Tunisia) positions between 2007 and 2009 is 8; whereas, 2 Member Countries recorded declines between 18 (Lebanon) and 29 (Jordan) positions in their ranks in the same period. Among the Member Countries in the Top 10 OIC EPI Performers list, the most attention-grabbing performance came from Tunisia by rising 111 positions from 152nd place in 2007 to 41st place in 2009.

As the EGDI leader in Africa, Tunisia's Ministry of Finance provides a number of e-services and a wealth of information and scored the highest among all ministries in the region. In addition, each ministry's website in Tunisia (health, education, labour and social services) receives the highest scores in the region in its respective category[21].

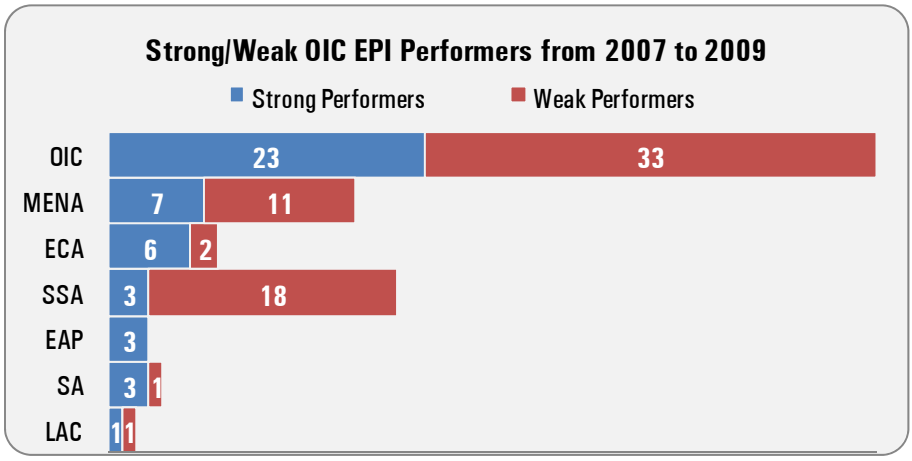
Figure 19: Top 10 OIC Member Countries, by Over Time Comparison of E-Participation Index Scores, 2007 vs. 2009



[21] UNPAN (2010), "UN e-Government Survey 2010", p. 63, UN, New York.

When the EPI rank changes of the OIC Member Countries from 2007 to 2009 are considered; 23 out of 56 Member Countries increased their ranks, the remaining 33 out of 56 Member Countries recorded falls in their ranks. The OIC Member Countries which improved their EPI ranks in 2009 moved within a range of 4 (Guyana) and 111 (Tunisia) positions upwards in 2009. The decline range of the weak performing Member Countries was between 1 (Mali) and 114 (Senegal). In 2009, OIC Member Countries with strong EPI performance appeared to be more in number than the weak performing ones in the ECA, EAP and SA. 6 out of 8 Member Countries from the ECA, all 3 Member Countries from the EAP and 3 out of 4 Member Countries from the SA increased their ranks from 2007 to 2009. The number of weak performing OIC Member Countries in the SSA and MENA regions surpassed that of the strong performers, being 18 and 11 Member Countries respectively, from 2007 to 2009. While Guyana recorded a 4 position increase, Suriname dropped by 10 positions from the LAC Region in the same period.

Figure 20: Number of Strong/Weak OIC E-Participation Index Performers, by Rank Changes from 2007 to 2009



8 Conclusion and Recommendations

Breaking out in the United States in 2007, the overvaluation of financial instruments in the financial markets resulted in illiquidity in the global banking system. Consequently, financial instruments and the financial institutions and investors holding these instruments met the destructive face of financial engineering, rapidly lost their values and finally some of them either went bankrupt or were taken under government control in the countries affected by the global financial crisis.

The effects of the global financial crisis on developing countries have been immense both from the economic and social perspective. Supranational financial organisations have begun imposing pressures on developing countries to reduce their debts, which means reducing public expenditures.

The effects of the policies under effect due to the crisis were also reflected in the EGDI averages of the regional groupings. Except the OIC Member Countries as a regional grouping, all other regions including Africa, America, Asia, Europe, Oceania and the World recorded drops in their EGDI averages in 2009 compared to 2007. Even though the EGDI average of the OIC Member Countries as a regional grouping slightly increased from 0.3374 to 0.3437 in this two-year-time contrary to the performance of other regional groupings, still there is a lot more way to go in e-government development as the OIC EGDI average was only higher than that of Africa (0.2733). With the exception of 4 out of 56 OIC Member Countries which maintained their ranks both in 2007 and 2009, there was a tie in the number of Member Countries as 26 out of 56 of them improved their ranks, the other 26 of them showed weak performance. Among the 56 OIC Member Countries, only Bahrain entered in the "*Top 20 Countries in E-Government Development*" list of the UNPAN with an EGDI rank of 13th place in 2009.

Due to the UNPAN's restructuring of the survey used for measuring the OSI, first component of the EGDI, the averages of all regional groupings dropped in 2009 compared to 2007. The highest drop rates in the OSI average were of Africa and America being over 20%. The drop rate of the OIC OSI average was 11.84%, the lowest among all regional groupings. As the OSI scores of the 30 out of 55 OIC Member Countries were concentrated in the score ranges of 0.00 – 0.19, the OSI average of the OIC Member Countries as a regional group (0.2185) still was only in front of the OSI averages of Africa (0.1439) and Oceania (0.1565) in 2009. As 32 out of 56 OIC Member Countries with available OSI rank information increased their ranks in the two-year period of 2007 and 2009, this has been a reflection of the national governments of the OIC Member Countries transforming their governmental websites into more enhanced and transactional online presences. Especially, Bahrain (ranked 8th) from the MENA region and Malaysia (ranked 16th) from the EAP region entered in the "*Top 20 Countries in Online Service Development*" list in 2009.

As being the second component of the EGDI, the TII showed improved performances in all regional groupings from 2007 to 2009. The investments in the telecommunication infrastructure by the OIC Member Countries resulted in the highest increase rate (28.27%) among all other regional groupings in 2009. Due to the requirement of financial strength and a long-term on return-on-investment of telecommunication infrastructure development, the OIC TII average (0.1291) was still behind that of all regions except that of Africa (0.0668) in 2009. Despite the gradual improvement, 30 out of 56 Member Countries of the OIC had a score within the range of 0.0 – 0.09 in 2009. However, when the TII ranks of the OIC Member Countries both in 2007 and 2009 are compared, the number of weak performing countries exceeded the strong performing ones, 31 versus 21 OIC Member Countries, while 3 of them maintained their ranks. Among the 21 strong performing OIC Member Countries in the 2009 TII rankings, only Bahrain managed to place in 19th position globally.

The third and last component of the EGDI, the HCI also requires long-term investment for human capital development as in the case of telecommunication infrastructure. The HCI average of the OIC Member Countries as a regional grouping went up by 3.06% between 2007 and 2009. However, the OIC HCI average (0.6853) was only better than that of Africa (0.6177) in 2009. 51% of the OIC Member Countries had HCI scores in the range between 0.70 – 0.99, while the other 49% of the Member Countries had scores less than the OIC average in 2009. Despite the HCI score increase, the number of weak performing OIC Member Countries regarding the change of HCI rank between 2007 and 2009 was more than the strong performing Member Countries. As 7 Member Countries maintained their HCI ranks in the two-year period, the ranks of 33 out of 56 Member Countries dropped. Among the 16 strong performing OIC Member Countries regarding the HCI ranks, none could enter the global Top 20 HCI Performers list. Although it was in 16th position in 2007, Kazakhstan came 22nd in HCI rank performance in 2009.

Although not a direct but rather complementary component of the EGDI, the EPI is still in an emerging state in many countries as a result of the disconnection between government and citizens[22]. With an EPI average of 0.1503, the OIC Member Countries as a regional grouping showed a positive growth of 4.18% in 2009 but the OIC EPI average was only higher than that of Africa (0.0845) and Oceania (0.1440). Approximately 80% of the OIC Member Countries had EPI scores in the range between 0.00 – 0.19 in 2009 versus 67% in 2007. As in the case of TII and HCI, the number of weak HCI performers was more than the strong performers, being 33 weak performers versus 23 strong performers in 2009. However, three OIC Member Countries had global EPI ranks in the Top 20 being Bahrain (11th position), Malaysia (12th position) and Kazakhstan (18th position).

The "*e*" of the e-government cannot be restricted to a change based on technology. Rather, the ever increasing importance of education and vocational training is an undeniable factor in the quest for raising a stronger human capital to build the future knowledge society. Having a strong capital will not only produce and use modern technology but also make the public services run efficiently and successfully.

Given this state of affairs, the following encapsulates the recommendations for stronger e-government development in the OIC Member Countries:

1. Capacity Building for E-Government Development
    a. Social capital is an indispensable element for e-government development. As such, capacity building plays an important role in building the social capital. For this objective, the policy makers of the Member Countries should consider the OIC-VET as a means for their initiatives on e-government capacity building.

[22] UNPAN (2010), "UN e-Government Survey 2010", p. 4, UN, New York.

b. University students of social sciences; i.e. public administration, political science, international relations, law, finance, etc., and technical sciences; i.e. computer science, computer engineering, etc., should be offered courses with an objective to give consciousness and knowledge of e-government applications.
c. The achievements and failures of e-government applications should be shared with relevant stakeholders within the Member Countries to increase the learning curve for current and prospective e-government projects. Online platforms can be used for this purpose.
d. Study visits and workshops related to the matters in e-government should be organised among the OIC Member Countries. OIC-VET should also be considered as a means of increasing capacity building in this case.

2. E-Government as a Platform for Economic Growth
    a. The policy makers should make necessary legal regulations to enable universities, research institutions or relevant organisations to establish and operate incubators which encourage small and medium sized enterprises (SME) to develop software / hardware oriented towards e-government. These SMEs should be exempted from taxes in full or partially until reaching a competitive level with the strong players in the sector. These incubators should also provide relevant support for patenting the intellectual property produced within these incubators and exporting the software / hardware to other countries.
    b. The National Statistical Organisations of the OIC Member Countries should develop and maintain indicators that will provide an assessment of the innovation performance in related sectors of e-government. By doing so, the Member Countries can detect the problems of underperformance and take necessary measures to sustain the economic development.
    c. The policy makers should take necessary measures to promote the usage and mutual ownership of current and prospective e-government applications among the economic agents to accelerate the transformation into knowledge society.
    d. Thematic trade fairs of e-government solutions including both software and hardware produced in the OIC Member Countries should be organised each year to increase the trade volume of high technology products in e-government sector among the Member Countries.
3. Experience Sharing for Better E-Government Development
    a. An e-government experts working group (EGOVWG) composed of experts from the public sector, private sector and civil society should be formed immediately. The EGOVWG should be organised as a platform for setting the roadmap for e-government development in the OIC Member Countries.
    b. Conferences such as eGovSharE2009 should be organised annually to act as a medium where participants from the OIC Member Countries can relay their experiences among each other.
    c. More e-government experts should be encouraged to record their data on the current *E-Government Experts Database* hosted at SESRIC.

4. Promotion of E-Government Applications and Alternative Delivery Channels
    a. The OIC Member Countries should promote the usage of e-government applications by advertising the available services on the current e-government platforms with the help of mass media and communication channels.
    b. Incentives can be introduced to the stakeholders for using the services on the e-government platform.
    c. Social networking tools and sites, such as blogs, social media should be a companion to the e-government applications. However, the OIC Member Countries should establish their own social networking websites respecting user privacy and not posing a threat both at the national and end-user level.
    d. Mobile versions of the current e-government applications available for the computer environments should be designed. Not only smart phones or PDAs but also cellular phones capable of text based SMS services should be considered for mobile versions.

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STATISTICAL APPENDIX

Statistical Appendix

Table A.1: E-Government Development Index Values and Ranks of the OIC Member Countries, 2007 vs. 2009

Country	Region	E-Government Development Index (EGDI)				
		EGDI, 2009	Rank, 2009	EGDI, 2007	Rank, 2007	Rank Change
Afghanistan	South Asia	0.2098	168	0.2048	167	▼1
Albania	Europe & Central Asia	0.4519	85	0.4670	86	▲1
Algeria	Middle East & North Africa	0.3181	131	0.3515	121	▼10
Azerbaijan	Europe & Central Asia	0.4571	83	0.4609	89	▲6
Bahrain	Middle East & North Africa	0.7363	13	0.5723	42	▲29
Bangladesh	South Asia	0.3028	134	0.2936	142	▲8
Benin	Sub-Saharan Africa	0.2017	173	0.1860	171	▼2
Brunei	East Asia & Pacific	0.4796	68	0.4667	87	▲19
Burkina Faso	Sub-Saharan Africa	0.1587	178	0.1542	176	▼2
Cameroon	Sub-Saharan Africa	0.2722	149	0.2734	149	↓↑0
Chad	Sub-Saharan Africa	0.1235	182	0.1047	182	↓↑0
Comoros	Sub-Saharan Africa	0.2327	160	0.1896	170	▲10
Côte d'Ivoire	Sub-Saharan Africa	0.2805	144	0.1853	173	▲29
Djibouti	Middle East & North Africa	0.2059	170	0.2279	157	▼13
Egypt	Middle East & North Africa	0.4518	86	0.4767	79	▼7
Gabon	Sub-Saharan Africa	0.3420	123	0.3228	129	▲6
Gambia	Sub-Saharan Africa	0.2117	167	0.2253	159	▼8
Guinea	Sub-Saharan Africa	0.1426	180	0.1402	180	↓↑0
Guinea-Bissau	Sub-Saharan Africa	0.1561	179	0.1521	177	▼2
Guyana	Latin America & Caribbean	0.4140	106	0.4375	97	▼9
Indonesia	East Asia & Pacific	0.4026	109	0.4107	106	▼3
Iran	Middle East & North Africa	0.4234	102	0.4067	108	▲6
Iraq	Middle East & North Africa	0.2996	136	0.2690	151	▲15
Jordan	Middle East & North Africa	0.5278	51	0.5480	50	▼1
Kazakhstan	Europe & Central Asia	0.5578	46	0.4743	81	▲35
Kuwait	Middle East & North Africa	0.5290	50	0.5202	57	▲7
Kyrgyzstan	Europe & Central Asia	0.4417	91	0.4195	102	▲11
Lebanon	Middle East & North Africa	0.4388	93	0.4840	74	▼19
Libya	Middle East & North Africa	0.3799	114	0.3546	120	▲6
Malaysia	East Asia & Pacific	0.6101	32	0.6063	34	▲2
Maldives	South Asia	0.4392	92	0.4491	95	▲3
Mali	Sub-Saharan Africa	0.1815	176	0.1591	175	▼1
Mauritania	Sub-Saharan Africa	0.2359	157	0.2028	168	▲11
Morocco	Middle East & North Africa	0.3287	126	0.2944	140	▲14
Mozambique	Sub-Saharan Africa	0.2288	161	0.2559	152	▼9
Niger	Sub-Saharan Africa	0.1098	183	0.1142	181	▼2
Nigeria	Sub-Saharan Africa	0.2687	150	0.3063	136	▼14
Oman	Middle East & North Africa	0.4576	82	0.4691	84	▲2
Pakistan	South Asia	0.2755	146	0.3160	131	▼15
Qatar	Middle East & North Africa	0.4928	62	0.5314	53	▼9
Saudi Arabia	Middle East & North Africa	0.5142	58	0.4935	70	▲12
Senegal	Sub-Saharan Africa	0.2241	163	0.2531	153	▼10
Sierra Leone	Sub-Saharan Africa	0.1697	177	0.1463	178	▲1
Somalia	Sub-Saharan Africa	N/A	184	N/A	183	▼1
Sudan	Sub-Saharan Africa	0.2542	154	0.2186	161	▲7
Suriname	Latin America & Caribbean	0.3283	127	0.3472	123	▼4
Syria	Middle East & North Africa	0.3103	133	0.3614	119	▼14
Tajikistan	Europe & Central Asia	0.3477	122	0.3150	132	▲10
Togo	Sub-Saharan Africa	0.2150	165	0.2191	160	▼5
Tunisia	Middle East & North Africa	0.4826	66	0.3458	124	▲58
Turkey	Europe & Central Asia	0.4780	69	0.4834	76	▲7
Turkmenistan	Europe & Central Asia	0.3226	130	0.3262	128	▼2
Uganda	Sub-Saharan Africa	0.2812	142	0.3133	133	▼9
United Arab Emirates	Middle East & North Africa	0.5349	49	0.6301	32	▼17
Uzbekistan	Europe & Central Asia	0.4498	87	0.4057	109	▲22
Yemen	Middle East & North Africa	0.2154	164	0.2142	164	↓↑0

Table A.2: Online Service Index Values and Ranks of the OIC Member Countries, 2007 vs. 2009

Country	Region	Online Service Index (OSI)				
		OSI, 2009	Rank, 2009	OSI, 2007	Rank, 2007	Rank Change
Afghanistan	South Asia	0.2317	106	0.2676	119	▲13
Albania	Europe & Central Asia	0.3111	75	0.3913	80	▲5
Algeria	Middle East & North Africa	0.0984	148	0.2241	129	▼19
Azerbaijan	Europe & Central Asia	0.3238	69	0.3946	78	▲9
Bahrain	Middle East & North Africa	0.7302	8	0.5201	44	▲36
Bangladesh	South Asia	0.3556	60	0.3512	89	▲29
Benin	Sub-Saharan Africa	0.1175	143	0.1237	151	▲8
Brunei	East Asia & Pacific	0.2825	88	0.2642	121	▲33
Burkina Faso	Sub-Saharan Africa	0.1556	129	0.1940	137	▲8
Cameroon	Sub-Saharan Africa	0.1524	131	0.1371	149	▲18
Chad	Sub-Saharan Africa	0.0190	181	0.0134	186	▲5
Comoros	Sub-Saharan Africa	0.0286	175	0.0268	183	▲8
Côte d'Ivoire	Sub-Saharan Africa	0.3238	69	0.0635	170	▲101
Djibouti	Middle East & North Africa	0.0476	167	0.1137	152	▼15
Egypt	Middle East & North Africa	0.5302	23	0.6054	28	▲5
Gabon	Sub-Saharan Africa	0.0794	156	0.0769	163	▲7
Gambia	Sub-Saharan Africa	0.0825	154	0.1739	142	▼12
Guinea	Sub-Saharan Africa	0.0349	173	0.0702	166	▼7
Guinea-Bissau	Sub-Saharan Africa	0.0159	184	0.0234	184	↓↑0
Guyana	Latin America & Caribbean	0.1810	119	0.2375	127	▲8
Indonesia	East Asia & Pacific	0.2444	102	0.3344	92	▼10
Iran	Middle East & North Africa	0.2667	93	0.2575	123	▲30
Iraq	Middle East & North Africa	0.1524	131	0.1070	156	▲25
Jordan	Middle East & North Africa	0.5333	22	0.6054	28	▲6
Kazakhstan	Europe & Central Asia	0.5270	24	0.3211	95	▲71
Kuwait	Middle East & North Africa	0.4603	36	0.4147	73	▲37
Kyrgyzstan	Europe & Central Asia	0.3175	72	0.2977	105	▲33
Lebanon	Middle East & North Africa	0.2667	93	0.3913	80	▼13
Libya	Middle East & North Africa	0.1365	135	0.0803	161	▲26
Malaysia	East Asia & Pacific	0.6317	16	0.6756	17	▲1
Maldives	South Asia	0.1619	127	0.2943	106	▼21
Mali	Sub-Saharan Africa	0.1841	116	0.1773	139	▲23
Mauritania	Sub-Saharan Africa	0.0889	150	0.0602	175	▲25
Morocco	Middle East & North Africa	0.2381	104	0.2074	134	▲30
Mozambique	Sub-Saharan Africa	0.1714	124	0.3110	97	▼27
Niger	Sub-Saharan Africa	0.0381	172	0.0736	164	▼8
Nigeria	Sub-Saharan Africa	0.0952	149	0.2241	129	▼20
Oman	Middle East & North Africa	0.3683	55	0.4849	52	▼3
Pakistan	South Asia	0.2476	100	0.4247	70	▼30
Qatar	Middle East & North Africa	0.2794	90	0.3913	80	▼10
Saudi Arabia	Middle East & North Africa	0.3111	75	0.4649	60	▼15
Senegal	Sub-Saharan Africa	0.1778	120	0.3077	99	▼21
Sierra Leone	Sub-Saharan Africa	0.0032	189	0.0569	176	▼13
Somali	Sub-Saharan Africa	N/A	190	N/A	190	↓↑0
Sudan	Sub-Saharan Africa	0.1556	129	0.0635	170	▲41
Suriname	Latin America & Caribbean	0.0222	179	0.0368	179	↓↑0
Syria	Middle East & North Africa	0.0413	170	0.2408	125	▼45
Tajikistan	Europe & Central Asia	0.0889	150	0.0368	179	▲29
Togo	Sub-Saharan Africa	0.0698	160	0.0870	157	▼3
Tunisia	Middle East & North Africa	0.4825	30	0.1304	150	▲120
Turkey	Europe & Central Asia	0.3460	62	0.4214	71	▲9
Turkmenistan	Europe & Central Asia	0.0286	175	0.0468	177	▲2
Uganda	Sub-Saharan Africa	0.1016	146	0.2676	119	▼27
United Arab Emirates	Middle East & North Africa	0.2508	99	0.7157	12	▼87
Uzbekistan	Europe & Central Asia	0.3778	53	0.2742	114	▲61
Yemen	Middle East & North Africa	0.0476	167	0.0736	164	▼3

Table A.3: Telecommunication Infrastructure Index Values and Ranks of the OIC Member Countries, 2007 vs. 2009

Country	Region	Telecommunication Infrastructure Index (TII)				
		TII, 2009	Rank, 2009	TII, 2007	Rank, 2007	Rank Change
Afghanistan	South Asia	0.0327	163	0.0158	169	▲6
Albania	Europe & Central Asia	0.1629	98	0.1251	97	▼1
Algeria	Middle East & North Africa	0.1248	111	0.1230	100	▼11
Azerbaijan	Europe & Central Asia	0.1329	105	0.1077	104	▼1
Bahrain	Middle East & North Africa	0.5855	19	0.3346	46	▲27
Bangladesh	South Asia	0.0330	161	0.0246	153	▼8
Benin	Sub-Saharan Africa	0.0454	150	0.0363	145	▼5
Brunei	East Asia & Pacific	0.2703	65	0.2653	60	▼5
Burkina Faso	Sub-Saharan Africa	0.0201	174	0.0126	173	▼1
Cameroon	Sub-Saharan Africa	0.0411	156	0.0266	151	▼5
Chad	Sub-Saharan Africa	0.0182	177	0.0075	180	▲3
Comoros	Sub-Saharan Africa	0.0203	172	0.0137	171	▼1
Côte d'Ivoire	Sub-Saharan Africa	0.0622	137	0.0391	140	▲3
Djibouti	Middle East & North Africa	0.0148	180	0.0202	162	▼18
Egypt	Middle East & North Africa	0.1255	110	0.0886	116	▲6
Gabon	Sub-Saharan Africa	0.1110	119	0.0973	109	▼10
Gambia	Sub-Saharan Africa	0.0955	123	0.0530	132	▲9
Guinea	Sub-Saharan Africa	0.0285	168	0.0056	186	▲18
Guinea-Bissau	Sub-Saharan Africa	0.0358	159	0.0159	168	▲9
Guyana	Latin America & Caribbean	0.1284	106	0.1375	93	▼13
Indonesia	East Asia & Pacific	0.1142	116	0.0702	122	▲6
Iran	Middle East & North Africa	0.2157	82	0.1747	80	▼2
Iraq	Middle East & North Africa	0.0552	148	0.0127	172	▲24
Jordan	Middle East & North Africa	0.1806	90	0.1693	82	▼8
Kazakhstan	Europe & Central Asia	0.1796	91	0.1306	96	▲5
Kuwait	Middle East & North Africa	0.2523	71	0.2777	55	▼16
Kyrgyzstan	Europe & Central Asia	0.0917	124	0.0475	135	▲11
Lebanon	Middle East & North Africa	0.1964	85	0.1930	76	▼9
Libya	Middle East & North Africa	0.1125	117	0.1170	101	▼16
Malaysia	East Asia & Pacific	0.3437	52	0.3022	49	▼3
Maldives	South Asia	0.2885	60	0.1959	74	▲14
Mali	Sub-Saharan Africa	0.0290	167	0.0171	167	↓↑0
Mauritania	Sub-Saharan Africa	0.0798	130	0.0590	126	▼4
Morocco	Middle East & North Africa	0.1768	93	0.1349	95	▲2
Mozambique	Sub-Saharan Africa	0.0250	169	0.0206	161	▼8
Niger	Sub-Saharan Africa	0.0116	184	0.0036	191	▲7
Nigeria	Sub-Saharan Africa	0.0593	143	0.0492	133	▼10
Oman	Middle East & North Africa	0.2091	83	0.1559	87	▲4
Pakistan	South Asia	0.0770	131	0.0540	131	↓↑0
Qatar	Middle East & North Africa	0.3168	57	0.3549	43	▼14
Saudi Arabia	Middle East & North Africa	0.4031	44	0.2110	72	▲28
Senegal	Sub-Saharan Africa	0.0710	133	0.0559	128	▼5
Sierra Leone	Sub-Saharan Africa	0.0179	179	0.0038	190	▲11
Somalia	Sub-Saharan Africa	0.0122	183	0.0144	170	▼13
Sudan	Sub-Saharan Africa	0.0710	134	0.0664	124	▼10
Suriname	Latin America & Caribbean	0.1213	113	0.1600	84	▼29
Syria	Middle East & North Africa	0.1208	114	0.0923	111	▼3
Tajikistan	Europe & Central Asia	0.0614	140	0.0172	166	▲26
Togo	Sub-Saharan Africa	0.0453	151	0.0364	144	▼7
Tunisia	Middle East & North Africa	0.1941	86	0.1636	83	▼3
Turkey	Europe & Central Asia	0.2581	68	0.2191	68	↓↑0
Turkmenistan	Europe & Central Asia	0.0414	155	0.0382	141	▼14
Uganda	Sub-Saharan Africa	0.0479	149	0.0184	164	▲15
United Arab Emirates	Middle East & North Africa	0.5434	25	0.3813	38	▲13
Uzbekistan	Europe & Central Asia	0.0853	126	0.0381	142	▲16
Yemen	Middle East & North Africa	0.0297	166	0.0286	149	▼17

Table A.4: Human Capital Index Values and Ranks of the OIC Member Countries, 2007 vs. 2009

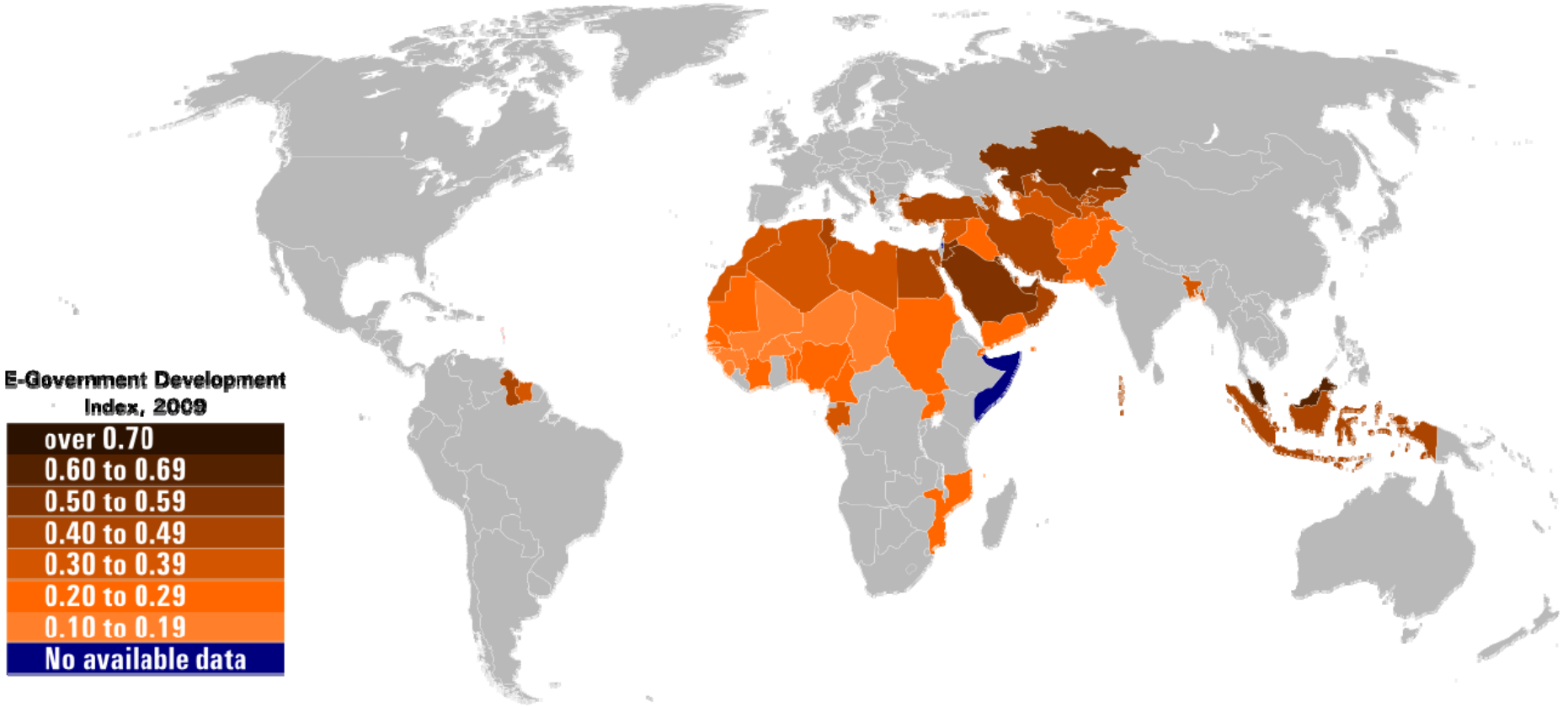
Country	Region	Human Capital Index (HCI)				
		HCI, 2009	Rank, 2009	HCI, 2007	Rank, 2007	Rank Change
Afghanistan	South Asia	0.3641	179	0.3293	178	▼1
Albania	Europe & Central Asia	0.8860	82	0.8869	64	▼18
Algeria	Middle East & North Africa	0.7377	131	0.7114	131	↓↑0
Azerbaijan	Europe & Central Asia	0.9185	50	0.8822	68	▲18
Bahrain	Middle East & North Africa	0.8932	65	0.8640	87	▲22
Bangladesh	South Asia	0.5182	167	0.5033	164	▼3
Benin	Sub-Saharan Africa	0.4447	173	0.4000	173	↓↑0
Brunei	East Asia & Pacific	0.8917	67	0.8769	72	▲5
Burkina Faso	Sub-Saharan Africa	0.3005	182	0.2549	182	↓↑0
Cameroon	Sub-Saharan Africa	0.6268	149	0.6604	140	▼9
Chad	Sub-Saharan Africa	0.3363	180	0.2959	179	▼1
Comoros	Sub-Saharan Africa	0.6553	146	0.5334	158	▲12
Côte d'Ivoire	Sub-Saharan Africa	0.4540	172	0.4570	168	▼4
Djibouti	Middle East & North Africa	0.5599	156	0.5531	151	▼5
Egypt	Middle East & North Africa	0.6973	138	0.7323	129	▼9
Gabon	Sub-Saharan Africa	0.8436	101	0.8015	109	▲8
Gambia	Sub-Saharan Africa	0.4609	171	0.4504	169	▼2
Guinea	Sub-Saharan Africa	0.3676	178	0.3469	177	▼1
Guinea-Bissau	Sub-Saharan Africa	0.4206	175	0.4209	172	▼3
Guyana	Latin America & Caribbean	0.9395	40	0.9435	38	▼2
Indonesia	East Asia & Pacific	0.8540	97	0.8299	99	▲2
Iran	Middle East & North Africa	0.7926	118	0.7923	111	▼7
Iraq	Middle East & North Africa	0.6955	139	0.6922	134	▼5
Jordan	Middle East & North Africa	0.8694	92	0.8677	85	▼7
Kazakhstan	Europe & Central Asia	0.9677	22	0.9759	16	▼6
Kuwait	Middle East & North Africa	0.8764	88	0.8714	81	▼7
Kyrgyzstan	Europe & Central Asia	0.9196	49	0.9171	46	▼3
Lebanon	Middle East & North Africa	0.8583	95	0.8706	82	▼13
Libya	Middle East & North Africa	0.8978	64	0.8749	74	▲10
Malaysia	East Asia & Pacific	0.8542	96	0.8390	97	▲1
Maldives	South Asia	0.8754	90	0.8617	89	▼1
Mali	Sub-Saharan Africa	0.3311	181	0.2823	180	▼1
Mauritania	Sub-Saharan Africa	0.5434	160	0.4934	165	▲5
Morocco	Middle East & North Africa	0.5739	153	0.5437	153	↓↑0
Mozambique	Sub-Saharan Africa	0.4918	170	0.4345	170	↓↑0
Niger	Sub-Saharan Africa	0.2818	183	0.2668	181	▼2
Nigeria	Sub-Saharan Africa	0.6567	145	0.6480	143	▼2
Oman	Middle East & North Africa	0.798	116	0.7659	122	▲6
Pakistan	South Asia	0.5025	168	0.4659	167	▼1
Qatar	Middle East & North Africa	0.8886	74	0.8521	96	▲22
Saudi Arabia	Middle East & North Africa	0.8346	106	0.8056	108	▲2
Senegal	Sub-Saharan Africa	0.425	174	0.3940	174	↓↑0
Sierra Leone	Sub-Saharan Africa	0.4931	169	0.3810	175	▲6
Somalia	Sub-Saharan Africa	N/A	184	N/A	183	▼1
Sudan	Sub-Saharan Africa	0.5388	162	0.5307	159	▼3
Suriname	Latin America & Caribbean	0.8505	99	0.8542	93	▼6
Syria	Middle East & North Africa	0.7768	123	0.7549	125	▲2
Tajikistan	Europe & Central Asia	0.9005	61	0.8993	56	▼5
Togo	Sub-Saharan Africa	0.5341	163	0.5381	155	▼8
Tunisia	Middle East & North Africa	0.771	126	0.7498	126	↓↑0
Turkey	Europe & Central Asia	0.8338	108	0.8116	106	▼2
Turkmenistan	Europe & Central Asia	0.9066	58	0.9019	55	▼3
Uganda	Sub-Saharan Africa	0.6996	137	0.6553	141	▲4
United Arab Emirates	Middle East & North Africa	0.8192	110	0.7908	112	▲2
Uzbekistan	Europe & Central Asia	0.8883	77	0.9088	50	▼27
Yemen	Middle East & North Africa	0.5739	154	0.5446	152	▼2

Table A.5: E-Participation Index Values and Ranks of the OIC Member Countries, 2007 vs. 2009

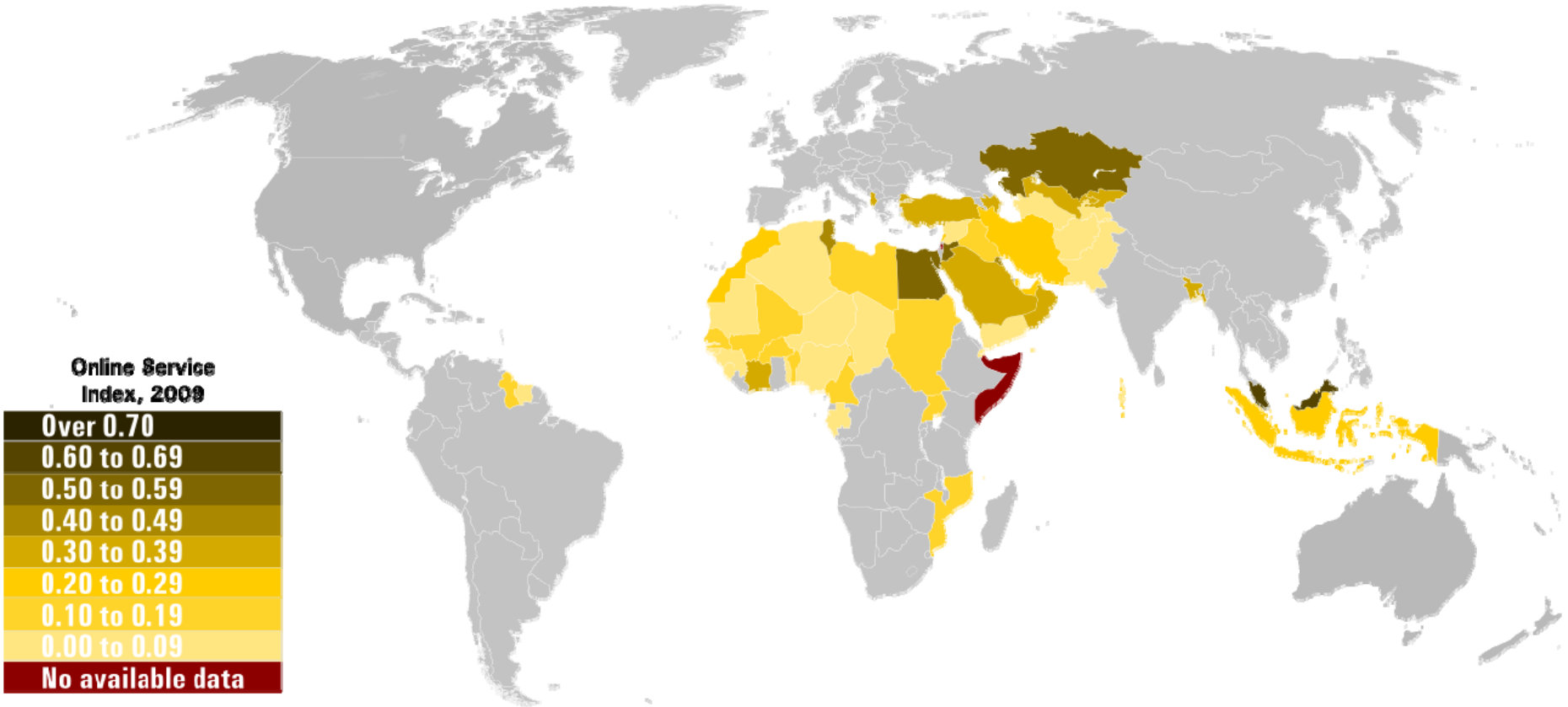
Country	Region	E-Participation Index (EPI)				
		EPI, 2009	Rank, 2009	EPI, 2007	Rank, 2007	Rank Change
Afghanistan	South Asia	0.0571	127	0.0455	135	▲8
Albania	Europe & Central Asia	0.1286	86	0.0227	152	▲66
Algeria	Middle East & North Africa	0.0143	157	0.0227	152	▼5
Azerbaijan	Europe & Central Asia	0.1714	68	0.2500	49	▼19
Bahrain	Middle East & North Africa	0.6714	11	0.3409	36	▲25
Bangladesh	South Asia	0.1000	102	0.1364	78	▼24
Benin	Sub-Saharan Africa	0.0714	119	0.1136	87	▼32
Brunei	East Asia & Pacific	0.1714	69	0.0909	98	▲29
Burkina Faso	Sub-Saharan Africa	0.0571	128	0.2045	60	▼68
Cameroon	Sub-Saharan Africa	0.1571	77	0.1591	74	▼3
Chad	Sub-Saharan Africa	0.0571	129	N/A	170	▲41
Comoros	Sub-Saharan Africa	0.0571	130	0.0682	116	▼14
Côte d'Ivoire	Sub-Saharan Africa	0.1714	71	0.0909	98	▲27
Djibouti	Middle East & North Africa	0.0286	144	0.0227	152	▲8
Egypt	Middle East & North Africa	0.2857	43	0.2500	49	▲6
Gabon	Sub-Saharan Africa	0.0286	148	0.0455	135	▼13
Gambia	Sub-Saharan Africa	0.0143	160	0.0227	152	▼8
Guinea	Sub-Saharan Africa	0.0286	149	0.0455	135	▼14
Guinea-Bissau	Sub-Saharan Africa	0.0714	122	N/A	170	▲48
Guyana	Latin America & Caribbean	0.0857	112	0.0682	116	▲4
Indonesia	East Asia & Pacific	0.1286	89	0.0455	135	▲46
Iran	Middle East & North Africa	0.0714	123	0.0909	98	▼25
Iraq	Middle East & North Africa	0.0429	139	0.2045	60	▼79
Jordan	Middle East & North Africa	0.2857	44	0.5455	15	▼29
Kazakhstan	Europe & Central Asia	0.5571	18	0.0909	98	▲80
Kuwait	Middle East & North Africa	0.2286	54	0.0682	116	▲62
Kyrgyzstan	Europe & Central Asia	0.4286	28	0.1364	78	▲50
Lebanon	Middle East & North Africa	0.2714	46	0.4091	28	▼18
Libya	Middle East & North Africa	0.1714	72	0.2045	60	▼12
Malaysia	East Asia & Pacific	0.6571	12	0.2955	41	▲29
Maldives	South Asia	0.0714	124	0.0227	152	▲28
Mali	Sub-Saharan Africa	0.1143	99	0.0909	98	▼1
Mauritania	Sub-Saharan Africa	0.1143	100	0.1136	87	▼13
Morocco	Middle East & North Africa	0.1286	92	N/A	170	▲78
Mozambique	Sub-Saharan Africa	0.1143	101	0.4318	25	▼76
Niger	Sub-Saharan Africa	0.1000	106	0.1136	87	▼19
Nigeria	Sub-Saharan Africa	0.0143	165	0.0682	116	▼49
Oman	Middle East & North Africa	0.1571	81	0.2045	60	▼21
Pakistan	South Asia	0.1714	74	0.0909	98	▲24
Qatar	Middle East & North Africa	0.1286	93	0.1818	71	▼22
Saudi Arabia	Middle East & North Africa	0.1000	107	0.3182	38	▼69
Senegal	Sub-Saharan Africa	0.0143	174	0.2045	60	▼114
Sierra Leone	Sub-Saharan Africa	N/A	180	0.0227	152	▼28
Somalia	Sub-Saharan Africa	N/A	180	N/A	170	▼10
Sudan	Sub-Saharan Africa	0.1000	108	0.2045	60	▼48
Suriname	Latin America & Caribbean	N/A	180	N/A	170	▼10
Syria	Middle East & North Africa	0.0143	176	0.0455	135	▼41
Tajikistan	Europe & Central Asia	0.0286	155	N/A	170	▲15
Togo	Sub-Saharan Africa	0.1000	109	0.2045	60	▼49
Tunisia	Middle East & North Africa	0.3000	41	0.0227	152	▲111
Turkey	Europe & Central Asia	0.2143	57	0.1364	78	▲21
Turkmenistan	Europe & Central Asia	N/A	180	0.0227	152	▼28
Uganda	Sub-Saharan Africa	0.0714	126	0.0909	98	▼28
United Arab Emirates	Middle East & North Africa	0.1286	96	0.2955	41	▼55
Uzbekistan	Europe & Central Asia	0.3143	38	0.0909	98	▲60
Yemen	Middle East & North Africa	0.0429	143	N/A	170	▲27

MAPS

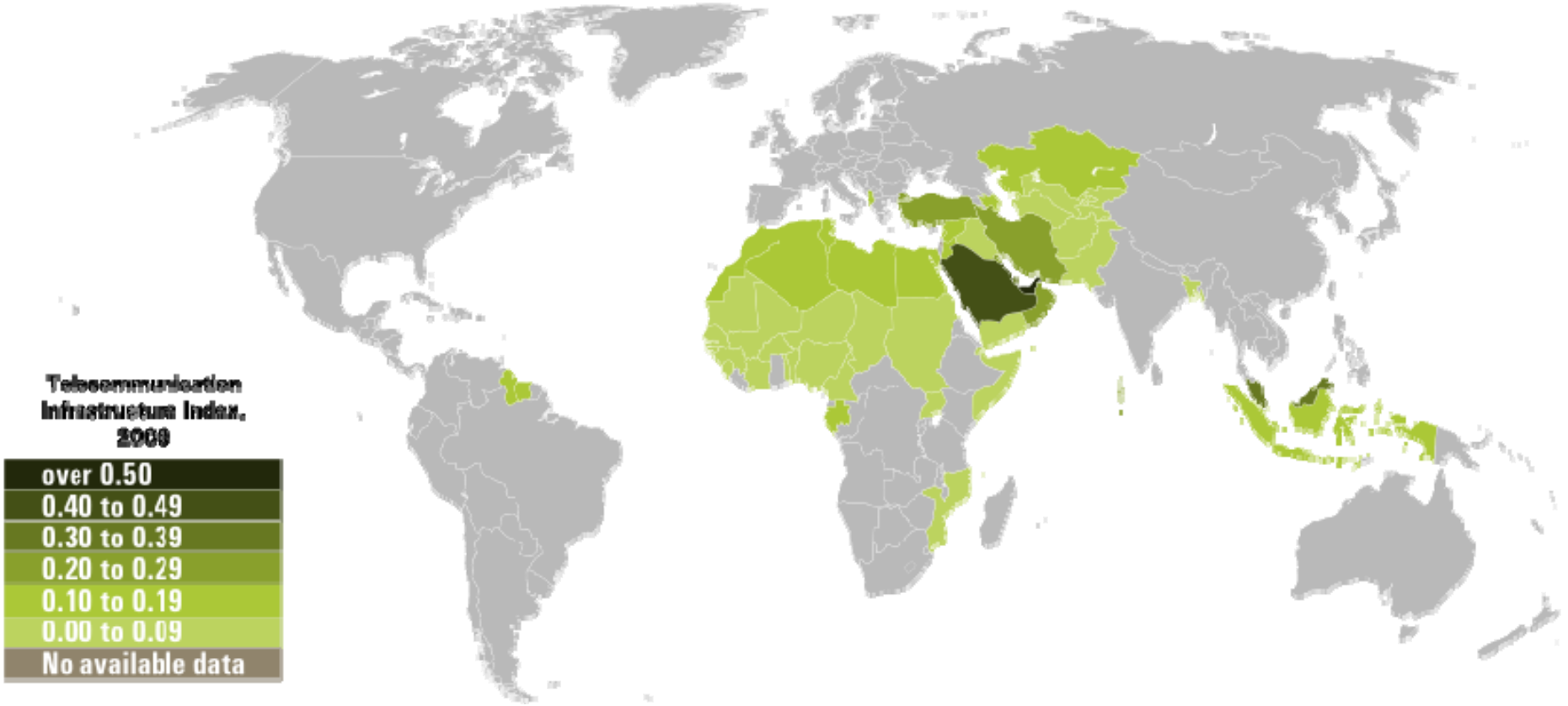
Map 1: E-Government Development Index of the OIC Member Countries, by Index Value Grouping, 2009



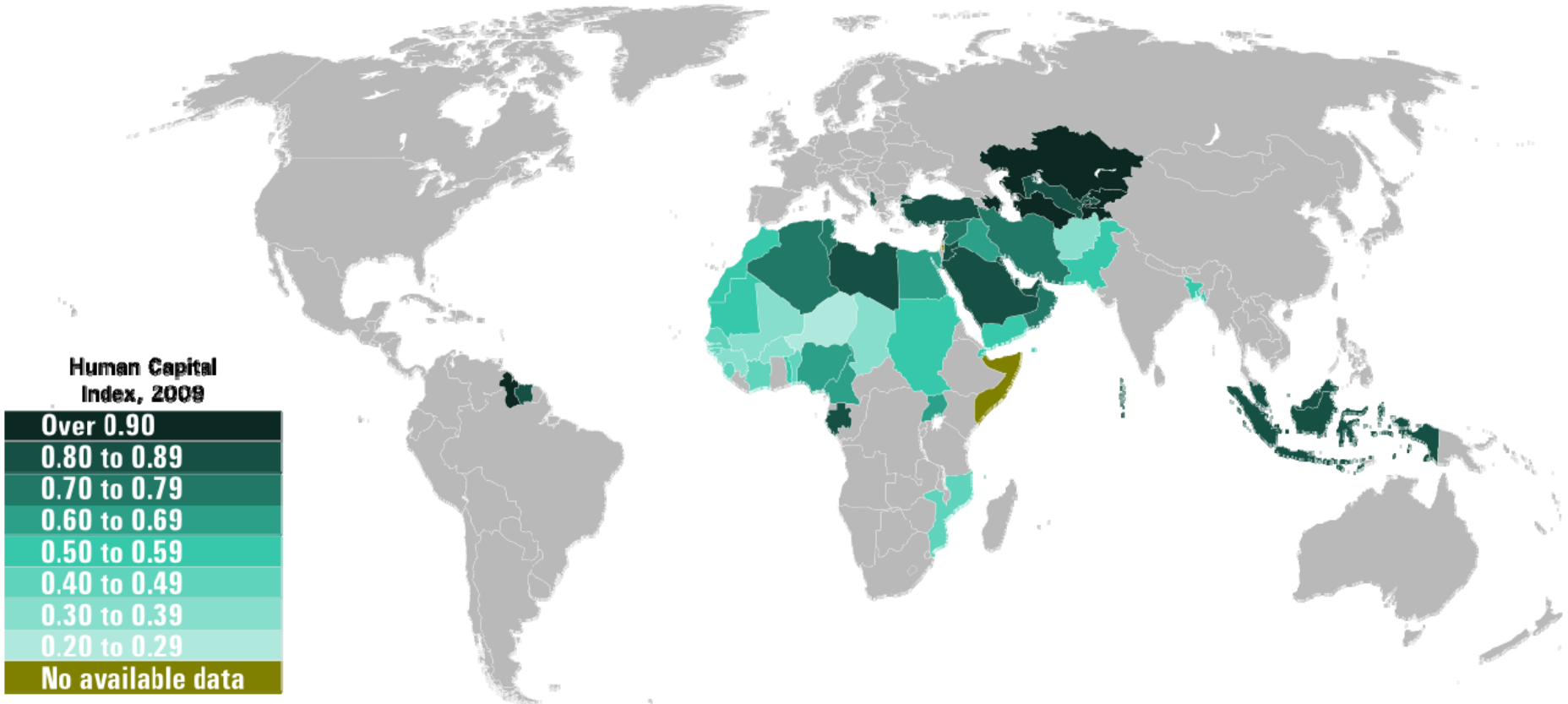
Map 2: Online Service Index of the OIC Member Countries, by Index Value Grouping, 2009



Map 3: Telecommunication Infrastructure Index of the OIC Member Countries, by Index Value Grouping, 2009



Map 4: Human Capital Index of the OIC Member Countries, by Index Value Grouping, 2009



Map 5: E-Participation Index of the OIC Member Countries, by Index Value Grouping, 2009