



Indicators of E-Government between Saudi Arabia and Bahrain: A Comparative Study

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ABSTRACT

This study aims to develop e-government Indicators of E-Government between KSA and Bahrain: A Comparative Study by measuring the indicators of e-government in KSA and comparing it with Bahrain by relying on the survey conducted by the United Nations between the years 2004 and 2016. One of the most important results of this study is that the human capital index in KSA is ahead of Bahrain in 2010 and 2016 was 0.835 and 0.7995, respectively, through the emergence of this indicator positively and this is due to direct the KSA to interest in this indicator and the results of investments in human capital that oversees the state. For the rest of the years (2004, 2005, 2008, 2012, and 2014), Bahrain advanced the Human Capital Index by 0.86, 0.85, 0.861, 0.803, and 0.784, respectively. This analysis shows the KSA must further develop and improve this indicator.

Keywords

E-Services, EGDI, KSA, Bahrain, Challenges

1. INTRODUCTION

The world today is witnessing a fundamental transformation in the various social, political, and information technology aspects that have driven man to the highest levels of human scientific civilization so that this era is called the era of TII, or the digital revolution, where information and communication technology is the main driving force for mapping the features of the one century Twenty. E-commerce includes the process of buying and selling products and services between producers and consumers.[1]

The e-government depends on a process of change that will help in expanding the fields of citizens and executives to participate in the new economy based on knowledge, technology, and modern applications, as well as providing the potential of the citizens. More for citizens and their needs. [2]

The e-government aims to apply information technology in providing public services through communication. E-government is considered a new method in government work that uses informatics and electronics in managing public affairs for the nation and the citizen, thus providing more and greater transparency and scaling of corruption, and with a guarantee of confidentiality and security of information circulating at any time and any place, this definition indicates a deeper and more comprehensive meaning It included several elements: clarifying service parties in the e-government, explaining the advantages of exchanging information and providing services, implementing using electronic technologies and networks, caring for security and confidentiality when handling information, exceeding the time and place factor.[3]

The concept of e-government is one of the new concepts associated with the information and communication technology revolution and its impact on the government sector. The concept of e-government refers to providing government services to citizens and business communities with modern technologies and communication networks, to raise the efficiency of the performance of those government agencies and achieve effectiveness in dealing [12].

There are many definitions of this concept that are simplified, some of which are complex and deeper. The definitions of e-government are the ability of government sectors to exchange information between them and the citizen and between business sectors, with high speed and accuracy and at the lowest cost via the Internet, and with a guarantee Confidentiality and security of information circulating at any time and place, this definition indicates a deeper and more comprehensive meaning as it includes several elements, which are: stating the parties to the service in the e-government, clarifying the benefits of exchanging information and providing services, implementation using electronic technologies and networks, and paying attention to security and confidentiality when Circulation of information, bypassing the time and space factor [4] [12].

This research aims to evaluate e-government in KSA through surveys of e-government of the UN using indicators and compare them with the performance of Bahrain. The aim is to identify indicators of weaknesses that can affect the indicators of the United Nations e-government, as the indicators will depend on the development of e-government (EGDI) on three main dimensions: the availability of services via the Internet (OSI), information and communications technology (ICT), and the human resources index (HCI). Finally, discussing the results of the e-government performance indicator with Bahrain to improve e-government services in the KSA following the Kingdom's 2030 vision.

2. LITERATURE REVIEW

2.1 Related Work

The number of research that talked about e-government is few, especially in KSA, this research came to develop an e-government strategy by identifying the strengths and weaknesses and working to strengthen the strengths and avoid weaknesses within the Kingdom's 2030 vision for e-government.

Qwaider, 2017, this paper discussed the dependent on data collected from United Nations reports between 2010 and 2016 for the most important countries in Asia. The researcher compared Saudi Arabia's trend analysis with the best countries in Asia in this direction: the Republic of Korea, Singapore, Japan, Bahrain, UAE, Kazakhstan, Kuwait, and Qatar in



human capital technology (HCT) to develop investments in Saudi Arabia. The results of the study of human capital technology: the Republic of Korea ranked (1) 0.7710, followed by Kazakhstan rated (2), 0.7337, Japan occupies (3), 0.7250, Singapore hold (4), 0.7103, Saudi Arabia lags for (5), 0.64718.[5] .

Otniel, et al. 2015, explained EGDI in Romania illustrated by comparing the study with other neighboring European countries. The study relied on seven main factors through the indicators obtained from the survey reports conducted by the UN between (2003 – 2014), the conclusion three major dimensions were adopted for the development of e-government (EGDI), namely: (OSI), (TII), (HCI), and the study showed that Romanian ranked among the highest value compared to the countries under study (between 0.5 and 0.75). In 2014, EGDI compared with all parts of the world where Romanian outperformed the highest value of 0.56315.[6]

Alshomrani, 2012, proposed his study, it is possible to EGDI in KSA by comparing it with EGDI indicators in the US. The study relied on UN survey reports and indicators between 2003 and 2010. The results showed that there are some important observations related to the development and improvement of the KSA e-government. It also made important proposals to EGDI t in KSA.[7]

Alotaibi, et al. 2014, explained the EGDI in KSA to know whether there is a shift towards using TAM. In other words, has the level of e-government in KSA reached the level of acceptance? This paper is to identify the stage reached by the Kingdom in the field of e-government in 2014.[1]

Alfarraj, et al. 2011, the study proposed that the process of implementing e-government in Saudi Arabia done by identifying the ability and setting the status of the Ministry's websites. The extent to which these websites are capable of progress and development recognized through the electronic government websites in KSA by preparing a special form for e-government. It was known at the time that some of the Ministry's websites not yet been established [8].

2.2 E-Government in KSA

The government in KSA has paid attention to the importance of digital transformation towards electronic governance for all its government services to facilitate the citizens and companies and to keep pace with the tremendous technological progress now in all sectors, especially the e-governance sector. Royal Decree No. B / 33181/7 was issued on 7/9/2003 indicating the direct directive from the KSA Royal Court to the Ministry CIT to develop a strategy towards the digital transformation of all government services within KSA [4][11].

The KSA plan towards digital transformation and the emergence of e-government by dependency will only come with fruitful cooperation between the relevant ministries together and this is indeed what happened between the KSA Ministry of Communications and the Ministry of Finance also in 2005 AD and based on this cooperation, the National Committee for Digital Transformation was formed headed by the Minister of Economy and Planning [11], and the Transformation Unit emerged from it. Digital then to oversee the implementation of the state's plan for that transformation [2].

2.3 E-Government in Bahrain

Bahrain has made remarkable progress in the UN report on state preparedness for e-government in 2014 and measuring the quality of providing electronic services to lead the Bahrain five geographical regions, and progresses to the 18th rank in the readiness of e-government worldwide after it ranked 36 in the previous report.

In this report, which is the only one in the world that works to evaluate all the member countries of the world, 193 countries in the United Nations, Bahrain achieved the first position at the level of Arab and Middle Eastern countries in its readiness and advanced in the e-participation index with five points to occupy the 14th ranking after it was in the ranking 19 in a report last year, as it was ranked for the third time in a row among the eight best countries in the world in the web index.

It is worth noting that most of the world and e-government programs put the goal of improving the ranking in the index among its strategic goals, and this year Bahrain was ranked as the only Arab country among the countries that achieved a very high degree in the EGDI, while the rest of the Gulf countries were classified as a group of countries That achieved a high score in this indicator [9].

3. MATERIALS AND METHODS

This study used the research method and documentary analysis of EGDI in KSA and compared it with the best performance among Arab countries in e-government in Bahrain. Data collected from a variety of sources in this study . The e-government performance indicators compared between Bahrain and KSA, collecting official reports on e-government, and browsing electronic portals related to the field of study and general and research papers. The researcher examined the various indicators that affect the performance of e-government between the two countries through the documents reviewed and the UN investigative reports of e-government related to performance indicators. This study is based on secondary data collected mainly from the UN e-government surveys for the following years (2004-2016). The researcher collects data from these seven surveys and analyzes them to extract results and recommendations.

4. E-GOVERNMENT DEVELOPMENT IN SAUDI ARABIA AND BAHRAIN

The UN e-government surveys (UNDESA) between 2004 to 2016 showed seven indicators through which an analytical comparison made between KSA and Bahrain during this abundance, through Table No. 1 shows the most important study results. The table shows that the e-government index for KSA was weak, according to UN reports, and the survey shows that the KSA e-government between 90, 80, 70, 58, 41, 36 and 44 in the years 2004, 2005, 2008, 2010, 2012 and 2014 And 2016. The report shows that the e-government ranking of the KSA low compared to other Arab countries. The surveys also showed Bahrain is on the rise, according to the reports of the United Nations e-government from 2014 to 2016, as Bahrain ranked first at the level of 18 and rose to 24, in a poll around the world. In 2005 and 2012, the table shows the KSA dropped its rank in 2014 to 36 and then rose to 44. Despite the decrease in the electronic government ranking for the KSA, it is possible to see a clear and significant change in the classification of the KSA. This indicates the interest of the Kingdom of Saudi Arabia to raise its classification and global ranking in e-government between Arab countries and the world.



Table 1. EGDI and World Ranking for KSA and Bahrain

Year	BAHRAIN			SAUDI ARABIA		
	EGID	Ranking	Rank Change	EGID	Ranking	Rank Change
2004	0.5323	46	-	0.3858	90	-
2005	0.4192	53	-7	0.3769	80	+10
2008	0.5719	42	+11	0.4935	70	+10
2010	0.7363	13	+29	0.5142	58	+12
2012	0.6946	36	-23	0.6658	41	+17
2014	0.8089	18	+18	0.6900	36	+5
2016	0.7734	24	-6	0.6822	44	-8

5. EGDI TREND ANALYSIS FOR KSA AND BAHRAIN

This study relied on the method of analyzing the trend indicator to find them up and downtrend of the e-government indicators in KSA and Bahrain. In this case, the trend analysis is related to the regression analysis, where is the variable in which the forecast is and the time variable. Table 2. The indicator shows the e-government of the KSA is collapsing, and there is an evolution in the constituent parts of the online services index, the TII, and HCI. This is evident from figures 1, 2, and 3 the KSA achieved good results.

Table 2. OSI, TII, HCI of KSA and Bahrain

Year	country	OSI	TII	HCI
2004	Saudi Arabia	0.309	0.139	0.710
	Bahrain	0.405	0.332	0.860

2005	Saudi Arabia	0.3769	0.1445	0.7100
	Bahrain	0.4192	0.3152	0.8500
2008	Saudi Arabia	0.4649	0.2110	0.8056
	Bahrain	0.5201	0.3346	0.8610
2010	Saudi Arabia	0.311	0.4031	0.8346
	Bahrain	0.2483	0.1932	0.2948
2012	Saudi Arabia	0.7974	0.4323	0.7677
	Bahrain	0.8627	0.4183	0.8028
2014	Saudi Arabia	0.7717	0.5523	0.7461
	Bahrain	0.9370	0.7055	0.7840
2016	Saudi Arabia	0.6739	0.5733	0.7995
	Bahrain	0.8261	0.7762	0.7178

5.1 Measurement Online Services Index (OSI)

Figure 1 shows an analysis of e-government trends concerning the OSI. All indicators analyzed for seven years in a row (2004, 2005, 2008, 2010, 2012, 2014, and 2016).

Through the analysis, it found that Bahrain is ahead of the KSA in the OSI sector for all the mentioned years except for the 2010 index where the KSA advanced 0.311 and Bahrain 0.248.

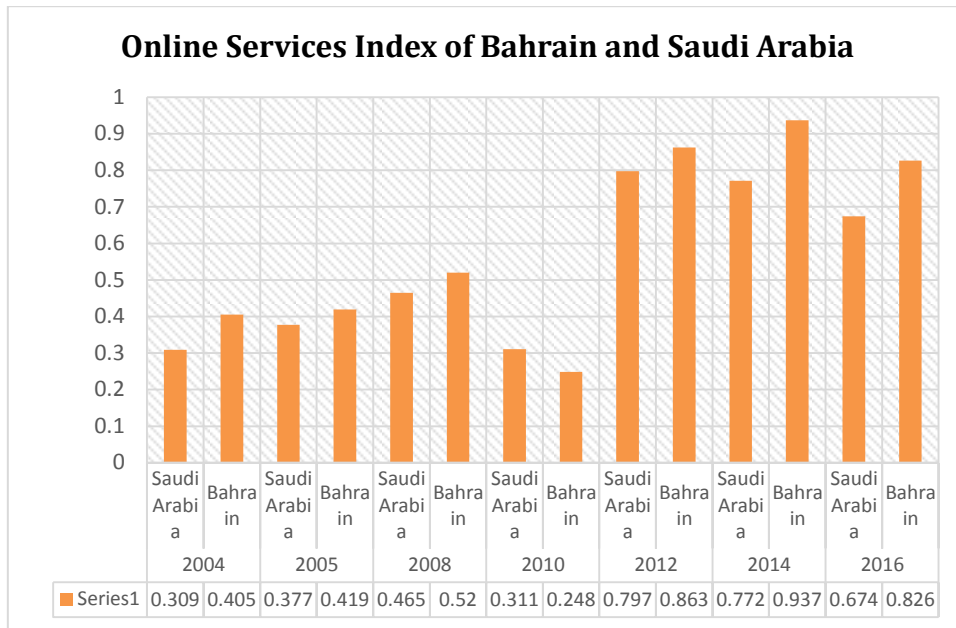


Fig 1: OSI of Bahrain and KSA

5.2 Telecomm Infrastructure Index (TII)

Figure 2 shows an analysis of the trends of e-government concerning the TII from 2004 to 2016.

The KSA Telecom Infrastructure Index for 2010 and 2012 increased by 0.403 and 0.432, respectively, while it found that Bahrain increased TII from Saudi Telecom Infrastructure for the rest of the years 2004, 2005, 2008, 2014, and 2016 (0.332, 0.315, 0.335, 0.706 and 0.776) respectively.

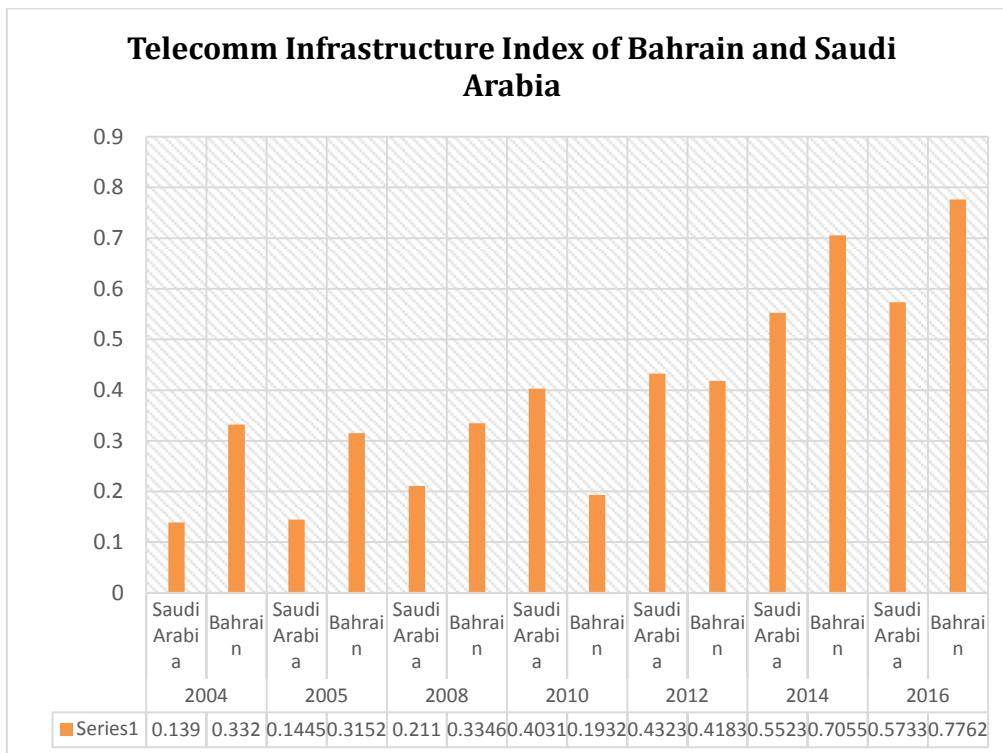


Fig 2: TII of Bahrain and KSA

5.3 Human Capital Index (HCI)

Table 3 shows an analysis of the e-government trends regarding the HCI for the KSA, provided during the two years in 2010 and 2016 were 0.835 and 0.7995, respectively, for all

the remaining years (2004, 2005, 2008, 2012 and 2014), Bahrain advanced with Human capital at 0.86, 0.85, 0.861, 0.803 and 0.784, respectively.

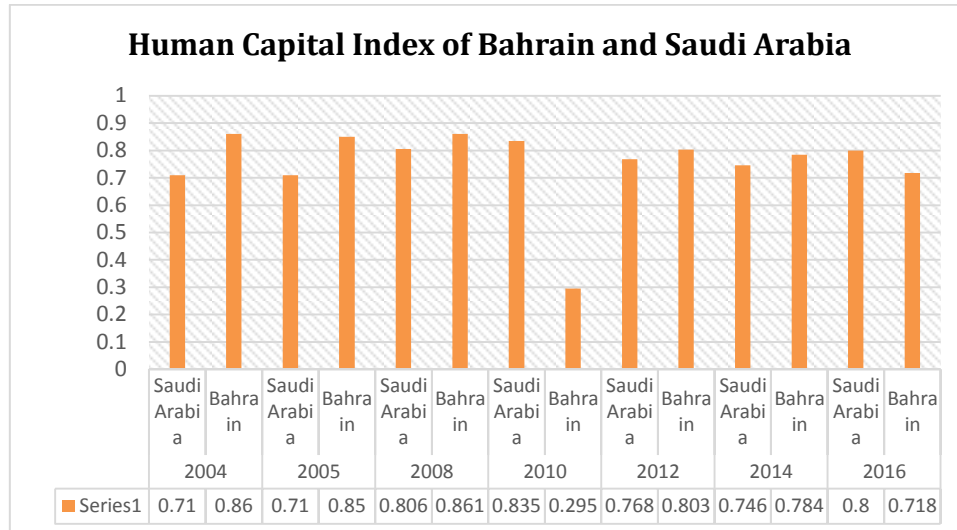


Fig 3. HCI of Bahrain and KSA

6. RESULTS AND DISCUSSION

6.1 Online service index (OSI)

The results related to electronic services reached that the OSI for Bahrain in 2016 was 0.8261, while the OSI for KSA ranked third and was 0.674, and from here we say that the OSI in the KSA low compared to Bahrain, note Figure 1. This index corresponds to the strategy of the KSA in accelerating the restructuring and organization of the postal sector, such as the "Abshir" system, which has progressed and developed significantly in recent years.

This indicator also includes developing its strategy towards achieving the Kingdom's 2030 vision by expanding its electronic services to include geographic information systems, health and educational services, and diversifying communication channels [10].

6.2 Telecomm Infrastructure Index (TII)

The results related to the TII reached the progress of Bahrain continuously in 2016 with a value of 0.7762, and the results showed that the TII for the KSA has reached 0.5733, shown in Figure 2. This indicator corresponds to the strategy towards achieving the Kingdom's 2030 vision to developing resources related to frequency spectrum for TII services to increase internet speed coverage in major and surrounding cities and improve communication quality [10].

6.3 Human Capital Index (HCI)

The results related to HCI reached the progress of the KSA in 2016 with a value of 0.7995. While the HCI for Bahrain came for the same year with a value of 0.7178, note Figure 3.

This indicator corresponds to the strategy and vision of the KSA 2030 in rehabilitating human capital in addition to identifying the needs of the labor market with the required specializations [10].

7. CONCLUSION AND RECOMMENDATION

The fact the KSA was directed to achieve its 2030 vision led to increased interest in developing e-government indicators in three main dimensions: (OSI), (TII), and (HCI) to improve e-government in the KSA. This study aimed to develop e-government in the KSA by comparing the indicators of e-

government with Bahrain. The study relied on the survey conducted by the United Nations between 2004 and 2016, which is the main source of the analysis.

The results of the analysis showed the progress of the KSA in the OSI index for Bahrain for the years 2010 and 2016 were 0.835 and 0.7995, respectively. It is also interesting to note that the KSA has made progress in its performance of the OSI index because of the development of investments in these scores. For all remaining years of the same project (2004, 2005, 2008, 2012, and 2014), Bahrain advanced OSI by 0.86, 0.85, 0.861, 0.803, and 0.784, respectively. The result of this analysis requires the KSA to further improve its policy and develop the OSI index according to the vision and strategy of the Kingdom 2030.

The research recommends that the e-government indicators should be appropriate in line with the Kingdom's 2030 vision and strategy. Developing long-term plans to qualify and train workers in line with the requirements and needs of individuals from e-government, using and applying modern technical means.

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