

1-1-2007

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Recommended Citation

Chatfield, Akemi T. and AlHujran, Omar: E-government service delivery capabilities: An analysis of the Arab countries in Africa & the Middle East 2007, 615-624.
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Abstract

Much of the existing empirical research focused on e-governments in developed countries in the Western world. In consequence, very little is known about e-government development efforts and current progress in the Arab countries. This research attempts to bridge the knowledge gap by conducting a qualitative analysis of the current practices of leading e-government Arab countries vis-a-vis those who lag behind them in their e-government maturity. The analysis results show a wide digital divide within the sixteen Arab e-government developments in terms of e-government service delivery capabilities.

Keywords

countries, africa, east, analysis, arab, capabilities, delivery, middle, service, e, government

Disciplines

Physical Sciences and Mathematics

Publication Details

Chatfield, A. T. & AlHujran, O. (2007). E-government service delivery capabilities: An analysis of the Arab countries in Africa & the Middle East. In E. El-Qawasmeh (Eds.), *The 1st International Conference on Digital Communication & Computer Applications* (pp. 615-624). Amman, Jordan: Jordan University of Science and Technology.

E-Government Service Delivery Capabilities: An Analysis of the Arab Countries in Africa & the Middle East

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ABSTRACT

Much of the existing empirical research focused on e-governments in developed countries in the Western world. In consequence, very little is known about e-government development efforts and current progress in the Arab countries. This research attempts to bridge the knowledge gap by conducting a qualitative analysis of the current practices of leading e-government Arab countries vis-à-vis those who lag behind them in their e-government maturity. The analysis results show a wide digital divide within the sixteen Arab e-government developments in terms of e-government service delivery capabilities.

Key Words: E-government, service delivery capabilities, e-government development stages, Arab countries

1. Introduction

Electronic government (e-government) refers to the rapidly emerging global phenomenon of the growing use of information and communication technology (ICT) in public administrations. While e-government development projects were initiated by governments at all levels, we focus on national level e-government development in this paper. E-government development projects often involve a complex network of stakeholders such as donors or private-sector ICT partners, giving rise to the large-scale complex e-government projects. National e-government development very often aims to improve public service delivery capability, as well as

a public administration's governance, transparency and accountability through e-government. A 2003 survey conducted by United Nations of its 191 member nations showed large variances in e-government service delivery capability development [12]. The survey results found that the leading e-governments such as United States, Sweden and Australia successfully developed new advanced e-government service delivery capabilities such as electronic payment of service fees and electronic democracy which enables the public to participate in online governance of public administration. However, most e-government websites or portals remain informational, offering very limited online capabilities. In general, the existing literature on e-government is based on surveys and case studies, reporting many innovative practices and also some large-scale project failures [7]. However, much of the previous studies focused on e-governments in developed countries in the Western world. In consequence, very little is known about e-government development efforts and current progress in the Arab countries. The major purpose of this paper, therefore, is to provide a qualitative analysis of the current practices of leading e-government Arab countries vis-à-vis those who lag behind the Arab leaders in their e-government maturity.

The structure of this paper is as follows. The next section identifies four distinct stages of e-government service delivery capabilities, which draws on prior research on a user-centric model of public value proposition for e-government development [3]. In the third section our research methodology is discussed, and in the fourth section our research results are presented. In the final section we present our conclusions, discuss this research's key contributions and future research directions.

2. Development Stages of E-Government Service Delivery Capabilities

E-government service delivery capabilities can be assessed by identification and analysis of e-government development or maturity stages. Different e-government maturity models exist, with the number of stages ranging from as few as two to as many as six different stages. Almost all the models intend to identify the development of e-government service delivery capabilities ([20]; [6]; [2]; [8]; [12]; [10]; [11]). While a detailed discussion of these different stage models is beyond the scope of this research, it should be noted that the recent research in e-government compared and contrasted the different e-government stage models for meta-synthesis [11] and public value proposition [3]. For our research purpose, what is important is that although there are large variations across the models, the central focus of the different maturity models is to identify the progressive development of e-government service delivery capabilities.

Based on our earlier work on an analysis of e-government maturity models from a user-centric perspective [3], we identify the following four stages of maturity: information, interaction, payment transaction, and e-democracy. In discussing the four stages of e-government service delivery capabilities, we do not assume the linear progression of the stages. Rather, we argue that technologically speaking, it requires greater level of systems integration when governments move stage 1 to a higher stage level of capabilities. For example, today it is technologically not difficult for national governments to launch an official e-government website or portal offering one-way information flows between government and its constituents (e.g. citizens, businesses and other government agencies) (stage 1) or two-way interaction or information exchange (stage 2) capabilities. In contrast, it is far more complex and

challenging for them to provide financial transactions (stage 3) or online participation and voting (stage 4) capabilities because these advanced capabilities require strategic management of complex interplay among technological, organizational, cultural and political factors as well as information privacy and security issues associated with large-scale multi-year e-government projects with a diverse set of different stakeholders. In the following section, the four e-government service delivery stages are discussed, which will be used later to classify the Arab e-government service delivery capabilities.

2.1 E-Government Service Delivery Stage 1: One-Way Information Flows

The first stage of e-government service delivery capability development is described by online one-way information flows from government online to the public (citizens and businesses). The State launches e-government website or Internet portal for its citizens and businesses. This provides them online access to their government services through the Internet. Citizens and businesses can access their government's website or portal through an Internet service provider. While the portal or website access is made available online, this initial stage of e-government service delivery offers rather rudimentary and limited information processing capabilities, which are characterized as one-way information flows from government to citizens, businesses or other government agencies. Prime examples of capabilities at this stage include searching a government database, downloading and/or printing a selective set of government forms, policies and documents that were made available online by government.

2.2 E-Government Service Delivery Stage 2: Two-Way Interaction

In contrast to the previous stage, e-government service delivery capability at this stage of development facilitates two-way interaction capabilities or two-way

information exchange capabilities between government and the public. They can contact government services via electronic mail (or email), complete forms online at e-government website/portal or upload completed forms and send them over the Internet from government kiosk.

2.3 E-Government Service Delivery Stage 3: Payment Transaction

The previous two stages suggest improved government access through a new online channel over the Internet. Perceived public value of e-government service delivery from a user's perspective includes convenience and speed of government services, since e-government online channel means the availability of government service anytime for 24 hours and 7 days a week (or 24/7 service delivery) and anywhere through the Internet without waiting for a long time often associated with public administration "service". However, this stage 3 differs from the previous two stages because e-government service delivery capability at this stage of development offers online financial payment transaction capabilities.

2.4 E-Government Service Delivery Stage 4: E-democracy

This stage of e-government service delivery capability enables the public to participate in

the process of transforming the government towards its democratic goals in terms of improved transparency and governance structures. Promotion of active participation of citizens and businesses is a critical success factor for this stage. United Nations [12] defines e-participation by identifying three salient functions that are important to facilitate national government democracy: e-information, e-consultation and e-decision making. On the one hand, the UN Survey of its member states concerning e-participation shows that e-information is reasonably well supported in terms of a web comment form and a calendar/directory of upcoming government events (57 percent and 55 percent, respectively). On the other hand, e-consultation and e-decision making are relatively rare. With regard to e-consultation, a formal online consultation facility was found only 14 percent of member countries, and online feedback on policies and activities even fewer at 9 percent. Similarly, with regard to e-decision making received poor results, for example, only 25 percent of member countries enable an online poll/survey, and an open-ended discussion forum, 26 percent. Table 1 below summarizes the UN Survey results on e-participation capabilities among the member states:

Table 1 UN Survey Results on E-Participation

E-Participation	No of Countries	Percent of Countries
Is there a web comment form?	99	57
Is a response timeframe indicated for submitted forms/emails?	12	7
Is there a calendar/directory of upcoming government events?	96	55
Is there an online poll/survey?	43	25
Is there a formal online consultation facility?	24	14
Is there an open-ended discussion forum?	45	26
Does the online construction allow feedback on policies and activities?	15	9
Is there a direct/clear statement or policy encouraging citizen participation?	13	8

Source: [12]

3. Research Methodology

In order to assess and analyze e-government service delivery capabilities in the Arab countries in Africa and the Middle East, a qualitative analysis of the Arab e-government development stages was performed. This involves expert reviews of the national government portal or websites to identify e-government services from a user-centric viewpoint. In other words, an analysis of e-governments focuses on what functionalities are offered to users who visit the portal or websites. Two experts independently researched and compiled a list of Arab e-government portals or relevant websites if portals for a single entry point do not exist. For the purpose of the portal and website analysis, users are defined as citizens, businesses, government employees, and other government agencies. Based on our preliminary research, we have decided to focus on e-government developments by the Arab national governments, excluding the state and the municipal levels of e-governments. This focus is justifiable because a great majority, if not all, of the Arab countries have invested in e-government developments largely at the national government level.

3.1 Development Stages of E-Government Service Delivery Capabilities

The four development stages of e-government service delivery capabilities discussed in Section 2 are used to identify and classify the development stages of the Arab e-governments. They are: one-way information flows, two-way interaction, payment transaction, and e-democracy.

3.2 Sample

A total of 20 Arab countries' portal or websites were reviewed independently by the two experts. However, due to a lack of relevant information, Libya, Somalia, Palestine, and Mauritania were omitted for further analysis and hence are not reported in this paper. Table 1 below lists the sixteen Arab countries that were analyzed in this research and their demographics. The demographic information gathered for each country include GDP per capita as a measure of national wealth, e-government readiness 2003 index, Internet hosts and Internet users that are often used as common measures of ICT demand and literacy rate. The existing Arab region classification scheme [1] was used to group the sixteen countries geographically in Africa and the Middle East Arab regions. Our sample includes six countries from Arab Gulf countries and Yemen; four as Arab heartland countries, three as Arab north-African countries, and two as Arab east-African countries. Table 2 below shows the sixteen Arab countries with their demographics.

Table 2 Sixteen Arab Countries

Arab Gulf (6) & Yemen (1)					
Country	GDP per Capita (2005 estimate) ¹	E-Government Readiness Index 2003 (UN rank) ²	Internet Hosts 2006 ¹	Internet Users 2005 ¹	Literacy 2005 (% of population) ¹
United Arab Emirates (UAE)	\$45,200	0.535 (38)	337,092	1,397,200	77.9%

Bahrain	\$23,100	0.510 (46)	2,165	152,700	89.1%
Qatar	\$28,300	0.411 (77)	301	219,000	89.0%
Kuwait	\$20,300	0.370 (90)	2,310	700,000	83.5%
Oman	\$13,500	0.355 (98)	3,555	245,000	75.8%
Saudi Arabia	\$13,100	0.338 (105)	10,931	2,540,000	78.8%
Yemen	\$900	0.188 (151)	171	220,000	50.2%
Arab Heartland (4)					
Jordan	\$4,700	0.429 (63)	3,441	629,500	91.3%
Lebanon	\$6,000	0.424 (69)	3,307	700,000	87.4%
Syria	\$3,900	0.264 (133)	66	1,100,000	76.9%
Iraq	\$1,800	n/a	5	36,000	40.4%
Arab North Africa (3)					
Algeria	\$7,200	0.370 (91)	1,202	1,920,000	70.0%
Tunisia	\$8,200	0.329 (108)	428	953,800	74.3%
Morocco	\$4,100	0.265 (131)	3,218	4,600,000	51.7%
Arab East Africa (2)					
Egypt	\$3,900	0.238 (140)	2,254	5,000,000	57.7%
Sudan	\$2,100	0.206 (146)	16	2,800,000	61.1%

Source: 1. [19]; 2. [12]

4. Results

The results of our analysis of the Arab e-governments provide strong evidence for the variances in e-government service delivery capability development that exist across the sixteen Arab countries analyzed in this study. The following two sections provide the results of our analysis of the e-government in the Arab countries. The first section categorizes the Arab countries into three groups based on their progress in e-government development. In the second section, we categorize the Arab e-governments in one of the following four stages of maturity discussed in Section 2: one-way information flows, two-way interaction, payment transaction, and e-democracy.

4.1 Arab E-government Groups

The sixteen e-governments are classified into either one of the following three groups: Arab e-government leaders, Arab e-government up-and-comings with some promising or innovative e-government service delivery capabilities or Arab e-government laggards that are far behind

other Arab counterparts in terms of their online service delivery capabilities.

4.1.1 Arab e-government leaders

UAE, Bahrain and Qatar are identified as the Arab e-government leaders. They all have a single entry point national e-government portal and provide financial transaction capabilities to users of e-government services. In addition, they all offer some level of e-democracy capabilities to its citizens. However, they have not reached the levels of payment transaction and e-democracy capabilities offered by the top three e-government countries identified in the 2003 UN Survey: United States of America, Sweden and Australia.

4.1.2 Arab e-government up-and-comings

The majority of the Arab countries are classified in this group: Jordan, Egypt, Kuwait, Lebanon, Saudi Arabia, Morocco, Tunisia, Algeria, Oman, and Syria. Within this group, we noted that Jordan, Egypt, Kuwait, and Saudi Arabia are more advanced than the others in the group in terms of e-government service delivery capabilities. For example, they have a clear

ICT and e-government strategies that are accompanied by a strong commitment of the government leadership to provide better e-government services to their citizens and businesses, hence creating greater public value.

4.1.3 Arab E-government laggards

This group of the Arab countries includes Sudan, Yemen, and Iraq. This group lags so far behind the other Arab countries in terms of advanced e-government services such as two-way interaction, payment transaction and e-democracy. Moreover, the group in general has fewer e-government websites

with limited services and information content.

4.2 Development Stages of E-Government Service Delivery Capabilities

Based on prior research on an analysis of e-government maturity models from a user-centric perspective [3], we categorize the Arab e-governments in one of the following four stages of development maturity discussed in Section 2: one-way information flows, two-way interaction, payment transaction, and e-democracy). Table 2 lists the sample in the three groups and their e-government service delivery capability development stages.

Table 3 E-Government Service Delivery Capabilities of the Sample

	One-way flows	Information Interaction	Two-way Interaction	Payment Transaction	E-democracy
Arab E-Government Leaders					
UAE	✓		✓	✓	✓
Bahrain	✓		✓	✓	✓
Qatar	✓		✓	✓	✓
Arab E-Government Up-and-Comings					
Jordan	✓		✓		✓
Kuwait	✓		✓		✓
Egypt	✓		✓		✓
Saudi Arabia	✓				✓
Lebanon	✓				
Oman	✓				
Tunisia	✓				
Algeria	✓				
Morocco	✓				
Syria	✓				
Arab E-Government Laggards					
Sudan	✓				
Yemen	✓				
Iraq	✓				

4.2.1 E-democracy capabilities

Of the sixteen Arab countries, the following seven countries offer some e-democracy capabilities:

4.2.1.1 Bahrain

The kingdom of Bahrain has been the first Arab country that introduced the e-voting system. In 2001, on the national action charter and again in parliamentary elections in 2002, the e-vote service was provided to Bahrain's citizens [5]. In addition, Bahrainis can post their opinions to senators through Shura Forum [13]. This allows and encourage citizens to participate in the

decision making process by providing them with this governmental discussion forum through which they can discuss and post their opinions regarding serious issues to the society. Bahrain's portal provides citizens with a comprehensive set of services including health services, traffic service, employment services, municipality services and information services. This makes the government more transparent and accountable to its citizens.

4.2.1.2 UAE

The federal e-government portal does not provide citizens with any e-democracy facilities. However, at state level, Dubai e-government portal provides opinion polling facility to get citizens opinions regarding issues of interest.

4.2.1.3 Qatar

The portal provides citizens with the ability to post their inquiries, complains, recommendations, and comments regarding any e-government service.

4.2.1.4 Jordan

Jordanians can post their questions and comments to government officials through the "Ask the Government" folder in the Jordan Information Centre Website [14]. By using online polling mechanism, discussion forums, and online consultation facilities provided in this website, Jordanians have the ability to exchange opinions and viewpoints on issues of importance with governments and with the members of the society.

4.2.1.5 Kuwait

The portal provides citizens with online voting mechanisms to get their opinions and viewpoints regarding issues of interest. In addition, citizens can join the mailing list provided in the portal to get up-to-date information regarding the e-government services. Furthermore, citizens can send their suggestions and comments to government through the government portal.

4.2.1.6 Egypt

Citizens can use the e-government portal to place their inquiries, complains, recommendations, and comments regarding the services provided by e-government.

4.2.1.7 Saudi Arabia

Some ministries provide discussion forums in their websites. For example, Ministry of Education [21] provides discussion forums and online consultation facilities in its website.

4.2.2 Payment transaction capabilities

Among the Arab countries only three governments provide e-payment transaction capabilities to their citizens and/or businesses:

4.2.2.1 UAE

By launching e-Dirham system on 2001 [15], the UAE is the first to introduce an electronic payment system countrywide within the Arab world. The Ministry of Finance and Industry provides this payment tool in order to ease revenues collection and to provide citizens and businesses with modern, secure, and convenient payment tool. For example, citizens can pay their bills, traffic fines, and renew license fees by using either getting e-Dirham cards from the Ministry of Finance and Industry or a credit card. To reduce the daily queue at the ministries and departments, the Ministry of Finance & Industry also has introduced the e-Stamp to authenticate the pre-paid smart cards using the e-Dirham.

4.2.2.2 Bahrain

Electronic payments could be done through the government portal [16]. For example, citizens can pay their water and electricity bills, vehicle dues payments, and vehicle registration fees through the government portal using their credit cards. However, registration is required for the electronic payment services offered on the portal.

4.2.2.3 Qatar

By using Qtel's online service [17], citizens and businesses can check their bills, view un-billed usage, change their billing address, and make their payments. In addition, they can pay their electricity and water bills, traffic valuation, and Red Crescent fund through a secure electronic payment gateway.

4.2.3 Two-way interaction capabilities

Of the sixteen Arab countries, six countries provide two-way interaction between government and citizens (G2C) and/or between government and businesses (G2B). In addition to the three of the Arab e-government leaders group, the following three countries from the up-and-comings group are presented here as some leading examples:

4.2.3.1 Jordan

Although there is no current e-government portal in Jordan, most of ministries and governments' agencies have established an online presence by providing informational websites. In their websites, the ministries also provide citizens and businesses with the ability to search databases and download forms and documents. In addition, business can benefit from the online registration facility provided by the government. For example, the Aqaba Special Economic Zone (ASEZ) electronically enabled Enterprise Registration and Permitting. This allows investors to acquire their licenses and permits online [18].

4.2.3.2 Egypt

The government portal provides citizens, business, visitors, and government with a convenient collection of information and services, such as request national ID, replacement card, vehicles infringements and vehicles licenses renewal.

4.2.3.3 Kuwait

Citizens can use the e-government portal to renew their smart national ID-cards, enquire

about their civil ID number, and access other ministries online services.

4.2.4 One-way information flows capabilities

The majority of the Arab countries are currently at this information stage of e-government development. The ten countries in our sample are at this information stage: Saudi Arabia, Lebanon, Oman, Tunisia, Algeria, Syria, Morocco, Sudan, Yemen, and Iraq. Of the ten, only Morocco provides a portal that serves as a single entry point to all government agencies, whereas others have only government websites. In their official web sites, these countries provide useful information about their services, contact details, and links to other governmental web sites.

5. Conclusions

This research made a contribution to e-government research by bridging the gap in knowledge about the Arab e-government development stages. Drawing on prior research work [3], this research conducted the expert reviews of the e-government service delivery capabilities developed by the sixteen Arab countries in Africa and the Middle East. The analysis results provided strong evidence for the large variances among the sixteen Arab countries. Of the sixteen United Arab Emirates, Bahrain and Qatar are classified as the Arab e-government leaders since they all offer the public with advanced e-government service delivery capabilities such as online payment transaction and online democracy. In comparison, Yemen, Iraq and Sudan present the Arab e-government laggards since they clearly lack the advanced online service capabilities developed by the Arab e-government leaders. The large differences between these two groups in terms of e-government service capability development may be explained by the differences in economic and human resources that exist between the two groups. On the average, the

Arab e-government leaders are much wealthier than the laggards, as measured by the group average GDP per capita, \$32,200 in comparison to \$1,600 (2005 estimation). In addition, the average literacy rate of the Arab e-government leaders is significantly higher than that of the laggards, as measured by the group average literacy rate, 83% in contrast to 50.6%.

However, national wealth alone does not explain the development of advanced e-government service delivery capabilities. Jordan, for example, has \$4,700 GDP per capita (also 2005 estimation). It is far below the group mean GDP per capita for the Arab e-government leaders. Despite this lack of economic resources, Jordan has developed relatively high-level advanced e-government service delivery capabilities in e-democracy and two-way interaction. To a lesser extent, other countries in the Arab e-government up-and-comings group such as Egypt, Saudi Arabi and Lebanon also have developed some promising or innovative e-government service delivery capabilities.

Further research on e-government in Africa and the Middle East is critically required. Future research directions include cross case analysis of these countries such as Jordan and Egypt in the Arab e-government up-and-comings with the Arab e-government leaders to identify critical success factors for e-government development particularly in terms of advanced online service delivery capabilities.

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