The status of ministries' website of Middle Eastern countries in achieving e-government

Mohaddeseh Dokhtesmati
Iranian Research Institute for Information Science & Technology
Tehran, Iran
E-mail: esmati86@gmail.com

Maryam Saberi
Semnan University
Mahdishahr, Semnan, Iran
E-mail: saberi1707@gmail.com

Shima Moradi
Department of Library and Information Science
Science and research branch
Islamic Azad University
Tehran, Iran
E-mail: shmoradi@gmail.com

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Abstract:

PURPOSE –*This study aims at evaluating the process of e-government maturity of ministry websites in Middle Eastern countries and determining the status of each country in establishing e-government.*

DESIGN/METHODOLOGY/APPROACH –*In the present study, among the accessible ministry websites - 287 websites in 18 Middle Eastern countries-, 149 websites had English web pages. Due to the integrity of the websites, we tried to choose the websites which not only had English pages, but were also common among most of the countries. Therefore, among 149 English websites, 79 websites were investigated and then the indicators of e-government maturity model introduced by Layne and Lee (2001) were investigated in the sample. Finally, the data was analyzed using descriptive statistical methods and the status of Middle Eastern countries in achieving e-government was determined based on the model.*

FINDINGS –*The findings of this study show that the countries at the first stage are in a better condition than the other stages. Furthermore, Saudi Arabia, Bahrain and UAE have the first ranks of achieving e-government, while Armenia, Iran and Iraq were ranked the last respectively.*

ORIGINALITY/VALUE- *Reviewing the literature, no study was conducted in English evaluating the status of ministry websites of Middle Eastern countries in establishing e-government, especially based on Layne and Lee model. Based on this study and similar ones, ministries can improve their websites whether in native or foreign language.*

KEYWORDS
E-government, governmental organizations' websites, Middle Eastern countries, Layne & Lee Model

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INTRODUCTION

The Middle East is a region that encompasses Western Asia and North Africa and throughout its history, it has been a major centre of world affairs. According to the World Bank's (2008) World Development Indicators database published on July 1, 2009, the three largest Middle Eastern economies in 2008 were Turkey Saudi Arabia and Iran in terms of Nominal GDP and the Middle East expected economic growth rate is at about 4.1% for 2010 and 5.1% in 2011(International Monetary Fund, 2010). Despite the fact that, most Middle Eastern countries are considered amongst developing countries (MF Emerging and Developing Economies List 2010) they are deploying technology for their e-government as other countries.

The World Bank has defined e-government as the use of ICT (information and communication technologies) to promote the dissemination of information concerning political processes and public services and to facilitate both online interactions and transactions (Seifert, 2003). E-govemment is the commitment and initiative of the government to improve its relationship with citizens and the business sector through enhanced, cost-effective, and efficient delivery of services, information, and

knowledge using information and communication technologies (Rahardjo, Mirehandani and Joshi, 2007 ;Tan and Subramaniam, 2005; Ke and Wei, 2004).

E-Government is not a simple on-line information provision. It requires an evolutionary and comprehensive architecture to avoid unnecessary duplication of infrastructure and major components and to integrate disparate processes, services and activities located outside administrations. The aims of e-Government are not only the transformation of traditional information into bits and bytes and making it accessible via the Internet and moving existing government functions to an electronic platform. But it also calls for rethinking ways the government function are carried out today in order to improve processes and integration (Al-Hashmi & Darem, 2008). Identifying important functions and website features is important to the planning and deployment of e-government especially for every country. Therefore, this study attempts to evaluate the status of each Middle Eastern country ministry websites in establishing e-government based on Layne and Lee model(2001); meanwhile determining the maturity stage of the websites. The significance of the present study is that so far no English research has been done on evaluating the Middle Eastern governmental websites especially based on Layne and Lee`s model(2001).

LAYNE & LEE (2001) MODEL

To help public administrators think about e-Government and their organizations Layne and Lee provided a four stage e-Government development and proposes a 'stages of growth' model for fully functional e- Government includes (figure 1):

- Cataloguing: In stage one of cataloguing, initial efforts of state governments are focused on establishing an on-line presence for the government. At this stage, the user has no interaction with the website and just receives services in the form of downloadable forms. In fact the users just receive information from the websites.
- Transaction: In the transaction stage, e-Government initiatives will focus on connecting the internal government system to on-line interfaces and allowing citizens to transact with government electronically. Unlike the first stage, at this one the users interact with the website and constantly receive services and are able to submit their comments and requests on the website.

Vertical integration: Vertical integration refers to local, state and federal governments connected for different functions or services of government. This stage provides the possibility of linking to websites related to the system's functions at different levels (municipal, provincial, national and international).

Horizontal integration: Horizontal integration is defined as integration across different functions and services. In defining the stages of e-Government development, the vertical integration across different levels within similar functionality is posited to precede the horizontal integration across different functions. At this stage, linking to websites irrelevant to the system`s functions in different levels is possible.
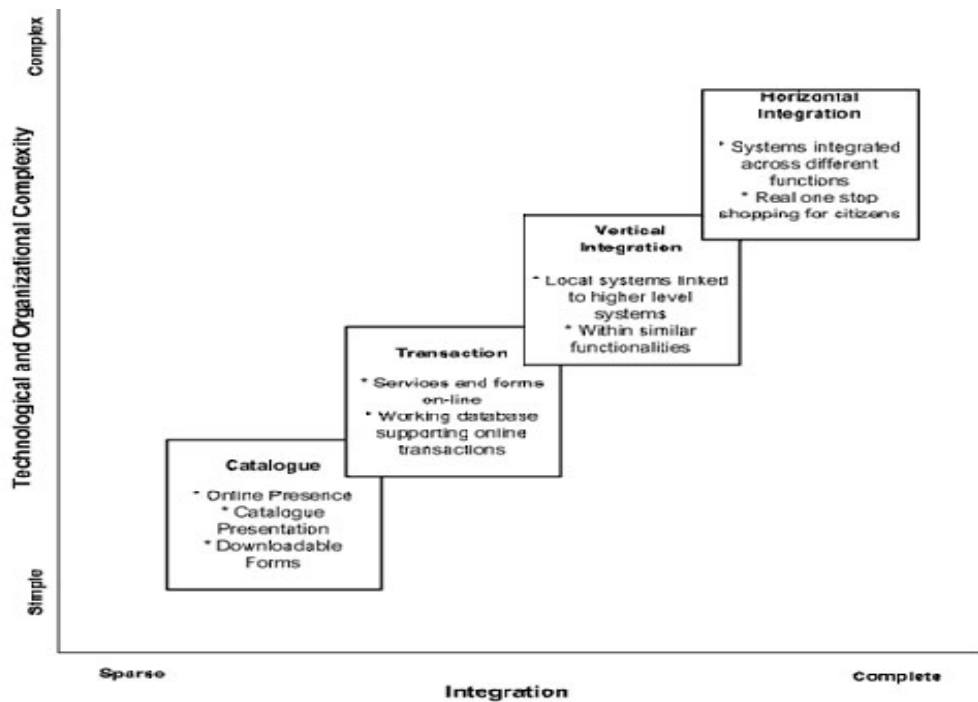
Figure 1: Layne & Lee (2001) four stages model

RELATED STUDIES

In recent years, discussion of the provision of government services has paid particular attention to notions of customer choice, improved service delivery (Mosse & Whitley, 2009) and so forth. Hence, a number of studies have been conducted evaluating e-government websites around the world.

Merkuryeva, Golubeva, and Shulakov (2004) evaluated website performance and usability of e-government sites of the city of St. Petersburg, Russia. Four relevant criteria were evaluated in reference to usability, including architecture (design&layout), links, navigability, and metadata. This study revealed that St. Petersburg's policy makers should further promote adoption of best practices in the field of e-government, and design and develop websites that efficiently serve users' needs.

Mohammadi (2005) studied all governmental ministries and institutional websites located in Tehran to confirm if they could meet the e-governance criteria using a check list. Using a five stage model presented by United nation, the results indicated the improvement of governmental websites reaching to the second level of the aboved model; however, the ministries websites showed their prominence regarding to the improvement in the levels and he claimed the Iranian governmental websites have a long way to reach to e-governance all in all.

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Lollar (2006) examined e-government development and its impact on authoritarian rule in China. He reviewed the condition of e-government by a detailed analysis of 29 government websites at the provincial/metropolitan level. He looked the websites features (information availability and services providing). The results showed that the e-government has offered new opportunities for citizens in China to engage in political activities, such as accessing political news, participating in online discussions and contacting public officials. However, there was a very small population of e-government users in China at that time.

Durrant (2006) studied the potential of 17 Caribbean governmental websites to assess their facility to achieve e-government and identified the roles of librarians and libraries in enhancing citizens' access to e-government information.

Rahardjo, Mirehandani and Joshi (2007) assessed the importance of e-government functions and website features from the perspective of Indonesian citizens (regular users and government officials). The study suggested that to develop successful e-government, it was important to consider the functionality and website features important to citizens. Improving the quality, appeal, efficiency, and personalization of e-govemment sites is necessary in order to achieve stakeholder buy-in to the services.

In United Arab Emirates, Awan (2007) evaluated the government-to-Business aspect of Dubai e-government. The research revealed that while businesses are generally aware of Dubai e-government services, they did not often use them for transactions. Another finding was that responses to businesses' queries made online or via e-mail are not rapid enough. Hence, A single e-business portal for the business community was recommended.

Abdi (2008) reviewed the broad literature of e-governance according to the surveys conducted in the advanced countries Then a pervasive list of e-Government maturity indices extracted in order to formulate a new and comprehensive model of e-Government maturity model By the informative notes received from the experts the indices have been validated. The final model was represented so as to make a foundation for those public sector organizations that were interested in evaluating their current status of electronic maturity and choose appropriate measures for taking corrective actions against their deficiencies and weaknesses. After introducing an e-government model, this study evaluated the status of Ministry of Power website in establishing e-government. According to this model, this ministry is merely at the first maturity stage.

Mosse & Whitley (2009) benchmarked 20 United Kingdom e-government websites recasting the citizen as customer. The paper focused on the adoption of website benchmarking techniques by the public sector based on the Martin Heidegger's etymological enquiry to reinterpret classification. The analysis identified the means involved in producing the classifications inherent in such benchmarking projects and related these to the more general move that was recasting the relationship between the citizen and the state, and increasingly blurring the boundaries between the state and the private sector.

Soongoo, Katerattanakul and Lee (2007) searched to provide insightful information about web accessibility based on human judgment in South Korea in comparison to the USA applying both the automated software tool and the human review of web content to measure website accessibility. Overall accessibility errors found from the Korean government websites are approximately two times higher than those from the US government websites. Moreover, the results of the manual evaluation conducted by human experts showed fewer accessibility errors than those found in the evaluation conducted by the automated software tool.

Beygijanian & Richardson (2008) studied the English language websites of the Islamic Republic of Iran to reveal the nature and extent of them. The paper provides information on the English language content of the main Iranian government websites, identifies some of the obstacles to effective access to this content, and argues for improvements in Iranian website design, so that the Iranian government can fully achieve its goals.

Dominic et al. (2011) conducted tests to measure the quality of e-government websites of five Asian countries via web diagnostic tools online proposing a methodology for determining and evaluating the best e-government website based on many criteria of website quality. The results confirmed that most Asian websites are neglecting in performance and quality criteria.

Thomas and Cherie (2011) examined whether state governments in the United States use e-government to enhance citizen engagement. By assessing the availability and usability of online information about government, voting, budgetary matters, and governmental meetings, they determined the effectiveness of state governmental websites in educating and engaging citizens. Overall, they discovered that most state governments do an inferior job of enhancing citizen engagement through websites.

The geographical analysis of the related works shows that the e-government website have been studied in different countries such as Russia (Merkuryeva, Golubeva, and Shulakov, 2004), Iran (Beygijanian & Richardson ,2008; Mohammadi 2005; Abdi, 2008), China (Lollar, 2006), Caribbean Island (Durrant,2006), Indonesia (Rahardjo, Mirehandani and Joshi, 2007), United Kingdom (Mosse & Whitley,2009), South Korea (Soongoo, Katerattanakul and Lee,2007), United Arab emirates (Awan, 2007), United States (Thomas and Cherie,2011) and Asian countries (Dominic et al.,2011). Moreover, Reviewing the literature shows that the subject "e-government" and has been taken into account from different points of view and they mostly consider to the technical aspect of e-governance which are websites: Government-to-Business (Awan, 2007), exploring and surfing governmental website (Beygijanian & Richardson ,2008), availability (Lollar, 2006;Thomas and Cherie,2011; Soongoo, Katerattanakul and Lee,2007), usablity (Merkuryeva, Golubeva, and Shulakov, 2004; Thomas and Cherie,2011), quality (Dominic et al.,2011) and from the perspective of users (Mosse & Whitley,2009; Rahardjo, Mirehandani and Joshi, 2007). To put this into a nutshell, most studies suggested developing a well-designed e-government websites which is important to citizens. This may suggest the need for legal enforcement or other additional mechanisms in most countries to improve web accessibility among their organizations.

Last but not least, they have been some studies examined governmental websites based on some models or a check lists in different countries such as Iran (Mohammadi, 2005), Asian Countries (Dominic et al. 2011), Indonesia (Rahardjo, Mirehandani and Joshi,2007), South Korea (Soongoo, Katerattanakul and Lee,2007), some of U.S. states (Thomas and Cherie ,2011) which asserted the governmental websites have not achieved e-governance totally yet and had to work on their technical aspects more.

METHODOLOGY

In this research, among the accessible websites which were about 287 websites in 18 Middle Eastern countries, 149 websites had English web pages. Due to the integrity of the ministries, the ministries chosen were those which not only had English web pages, but were also common in most countries. The Ministry of Agriculture, Ministry of Communication and Information Technology, Ministry of Health, Ministry of Foreign Affairs, Internal Affairs, Trade/Industry, Economy, Education, Higher Education, Culture/ Information, and Ministry of Justice were the common ministries which were included in this study. Thus, 79 websites were studied among 149 English websites. The number of websites is listed in Table 1. Iraqi websites were excluded because nine of them had English pages. Then the indices of Layne and Lee`s e-government maturity model (2001) were studied in this specific sample. layne and Lee model is one of the most common and well-known e-government models. This indicator is extracted by studying this model and the studies introducing this model
(Abdi, 2008; Alidousti, 2009; Mohammadi, 2005; Al-Hashmi & Darem, 2008; Gupta & Jana, Debashish,)
(2003; Jae Moon, 2002; Layne & Lee, 2001; Yagmurcu, 2007
Finally the data were analyzed using descriptive statistical methods and the status of each Middle Eastern country in achieving e-government was determined based on the model (Table 1). In fact, determining the maturity stage of each country based on Layne and Lee model in establishing e-government and the status of that country in achieving e-government is the main question of this study.

Table 1. Statistic of Websites

	Name of countries	Number of available websites	Number of websites have English page	Number of Surveyed Websites
1	Afghanistan	18	13	6
2	Armenia	17	10	2
3	Azerbaijan	16	10	6
4	Bahrain	16	12	7
5	Georgia	16	12	4
6	Iran	20	4	2
7	Iraq	13	1	0
8	Israel	13	9	4
9	Jordan	20	10	6
10	Kuwait	17	6	5
11	Lebanon	15	7	4
12	Oman	20	10	5
13	Qatar	13	7	5
14	Saudi Arabia	19	12	7
15	Syria	12	3	3
16	Turkey	15	7	5
17	United Arab Emirates	17	12	6
18	Yemen	10	4	3
	Sum of All Countries	287	149	79

RESULTS

The status of Middle Eastern countries in achieving the first stage of e-government maturity

Based on Layne and Lee model (2001), at the first stage the accessible forms and general information about the organization were investigated. As Table 2 illustrates, almost all ministries provide appropriate information about their organizations. Considering the most important indicator of the first stage, i.e. indicator of receiving downloadable files, more than half of the websites (not all) had this indicator. Iran has made the least and Saudi Arabia the most attempt in achieving the first stage of the model.

Table 2. First Stage: Cataloging

	Layne & Lee Model Stages	First Stage: Cataloging		
	Indicators	Access to general information about organization	Downloadable Forms	Sum of indicators
1	Afghanistan	5	6	11
2	Armenia	2	1	3
3	Azerbaijan	6	4	10
4	Bahrain	7	4	11
5	Georgia	4	1	5
6	Iran	2	0	2
7	Israel	4	4	8
8	Jordan	6	4	10
9	Kuwait	4	2	6
10	Lebanon	4	3	7
11	Oman	5	4	9
12	Qatar	5	4	9
13	Saudi Arabia	7	5	12
14	Syria	3	1	4
15	Turkey	5	2	7
16	United Arab Emirates	6	3	9
17	Yemen	3	2	5
	Sum of All Countries	77	47	

The status of Middle Eastern countries in achieving the second stage of e-government maturity

Based on Layne and Lee model (2001), the second stage of e-government maturity is transaction. We studied the following items:

The possibility of getting online services, the possibility of communicating via electronic devices, and the presence of comment form or page. As illustrated in Table 3, at the second stage of e-government maturity fewer ministries were apt for the study compared with the first stage. At the second stage, electronic communication devices such as video conferences, emails, chat and web-based forms were used more than other items, but these electronic devices merely included emails and did not include other devices such as chat which provides ministries the opportunity to interact more with their website users. The most important indicator of this stage is the possibility of getting online services which only less than half of the websites are equipped with this possibility and compared with the first stage, the ministries are in a worse condition. Like the first stage, Saudi Arabia ranks first and Iran last.

Table 3. Second Stage: Transaction

	Layne & Lee Model Stages	Second Stage: Transaction			Sum of indicators
	Indicators	Possibility of getting online services	Possibility of communicating with using electronic tools	Feedback or comment form/page	
1	Afghanistan	0	5	4	9
2	Armenia	0	2	0	5
3	Azerbaijan	3	6	2	11
4	Bahrain	5	6	4	15
5	Georgia	0	4	2	6
6	Iran	0	2	0	2
7	Israel	0	4	2	6
8	Jordan	0	5	3	8
9	Kuwait	3	4	1	8
10	Lebanon	0	4	3	7
11	Oman	5	5	2	12
12	Qatar	2	5	2	9
13	Saudi Arabia	6	7	6	19
14	Syria	1	3	1	5
15	Turkey	2	4	0	6
16	United Arab Emirates	5	6	5	16
17	Yemen	0	3	1	4
Sum of All Countries		32	75	37	

The status of Middle Eastern countries in achieving the third stage of e-government maturity

Based on Layne and Lee model (2001), the third stage of e-government maturity is vertical integration which consists of having links to websites related to the system's functions at different levels(municipal, provincial, national and international). Table 3 illustrates the extent of making use of this possibility by ministry websites of Middle Eastern countries. As Table 4 shows, only 3 ministries had predicted, though limitedly, the possibility of having links to related websites through their own websites. These three ministries were the Ministry of Foreign Affairs of Afghanistan, Lebanon's Ministry of Economics and Oman's Ministry of Agriculture.

Table 4. Third Stage: Vertical Integration

	Layne & Lee Model Stages	Third Stage: Vertical Integration		Layne & Lee Model Stages	Third Stage: Vertical Integration
	Indicator	Possibility of having links to websites related to the system's functions at different levels		Indicator	Possibility of having links to websites related to the system's functions at different levels
1	Afghanistan	1	10	Lebanon	1
2	Armenia	0	11	Oman	0
3	Azerbaijan	0	12	Qatar	0
4	Bahrain	0	13	Saudi Arabia	0
5	Georgia	0	14	Syria	0
6	Iran	0	15	Turkey	0
7	Israel	0	16	United Arab Emirates	0
8	Jordan	0	17	Yemen	0
9	Kuwait	1			
Sum of All Countries		3			

The status of Middle Eastern countries in achieving the fourth stage of e-government maturity

Based on Layne and Lee model (2001), the fourth stage of e-government maturity is horizontal integration which includes the possibility of having links to websites irrelevant to the system's functions at different levels. None of the ministries in the sample had reached this stage of maturity.

Status of each country in achieving e-government

As the last column of Table 5 shows the sum of all stages, the countries' status in establishing e-government starts from Saudi Arabia with the highest rank(31) and then Bahrain, UAE, Oman, Azerbaijan, Qatar, Jordan, Lebanon, Kuwait, Israel, Turkey, Georgia, Syria, Yemen, Armenia, and Iran as having lower ranks respectively.

Iraq had no English pages for its websites and thus was omitted from the list, that is to say Iraq had the lowest status in establishing e-government.

Table 5. Total stages

1	Name of Countries	Total stages				
		First Stage: Cataloging	Second Stage: Transaction	Third Stage: Vertical Integration	Fourth Stage: Horizontal Integration	Sum of all stages
2	Afghanistan	11	9	1	0	21
3	Armenia	3	5	0	0	8
4	Azerbaijan	10	11	0	0	21
5	Bahrain	11	15	0	0	26
6	Georgia	5	6	0	0	11
7	Iran	2	2	0	0	4
8	Israel	8	6	0	0	14
9	Jordan	10	8	0	0	18
10	Kuwait	6	8	0	0	14
11	Lebanon	7	7	1	0	15
12	Oman	9	12	1	0	22
13	Qatar	9	9	0	0	18
14	Saudi Arabia	12	19	0	0	31
15	Syria	4	5	0	0	9
16	Turkey	7	6	0	0	13
17	United Arab Emirates	9	16	0	0	25
	Yemen	5	4	0	0	9

CONCLUSION AND DISCUSSION

As the findings of this study also verified, other than Iraq which lacked ministry websites with English pages, all Middle Eastern countries had relatively aimed at communicating with the users through ministry websites. However, as confirmed by other researches,
- EXPLORING AND SURFING GOVERNMENTAL WEBSITE (BEYGIJANIAN & RICHARDSON ,2008), AVAILABILITY (LOLLAR, 2006;THOMAS AND CHERIE,2011; SOONGOO, KATERATTANAKUL AND LEE,2007), USABLITY (MERKURYEVA, GOLUBEVA, AND SHULAKOV, 2004; THOMAS AND CHERIE,2011), QUALITY (DOMINIC ET AL.,2011) AND FROM THE PERSPECTIVE OF USERS (MOSSE & WHITLEY,2009; RAHARDJO, MIREHANDANI AND JOSHI, 2007), many websites have a long way to having good designs in all respects, especially in designing webpages in English which is an international language.
With regard to Layne and Lee model(2001), e-government maturity in Middle Eastern countries is unfortunately in a very low level even at the first stage; a fact also reported by Mohammadi (2005). Although these ministry websites were studied from the perspective of having English webpages, these webpages might have a better condition in their native language. Studying the four stages of e-government maturity, there is a considerable distance between the first two (cataloging and transaction) and the last two stages (horizontal and vertical integration) and ministries have a better status at the first and two stages and particularly the first one. However, the ministry activities being local at the third stage and the specific activities of ministries based on their missions might account for the low status at the last two stages of e-government maturity. Saudi Arabia, Bahrain and UAE have the first three statuses in e-government maturity while Armenia, Iran and Iraq have the last three statuses and Afghanistan, Qatar, Jordan, Lebanon, Kuwait, Israel, Turkey, Georgia, Syria and Yemen respectively fall in between. Middle Eastern countries have probably a long way to reaching e-government maturity and achieving this status requires designing websites, whether government website, ministries website or websites of governmental organizations appropriate to e-government and achieving such status requires creating proper foundations of Information technology.

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