Egypt Local Government Websites Maturity: Current Status

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Abstract. This paper investigates the maturity of Egyptian local e-government websites. The paper develops a model that fits a developing country context and is based on Quirk's Maturity Model and the Municipal e-Government Assessment Project (MeGAP) Model. The model is used to carry out a detailed content analysis of 22 governorates' web sites in Egypt. The results show a significant variability in websites' maturity in various spaces of the model. Information features have proved to be dominating, while features related to e-service and e-commerce are the least available on the local government websites.

Keywords: Egypt, local e-government, Quirk model, maturity, content analysis, MeGAP.

1 Introduction

Government bureaucracy is often held to be inefficient due to the lack of incentives to please its customers. Moreover, the potential customers, the citizens, have no alternative service provider available [1]. Electronic government or e-government has provided a means through which governments can improve citizen interaction with their government and at the same time change the traditional model of government [2]. In fact, the vital necessity of modernization and the introduction of enhanced business models that replace traditional ones have been realized by governments through e-government worldwide [3-4].

Technology allows governments to serve citizens in a timely, effective, and cost efficient way [1]. The key reasons for this public sector reform are to increase the efficiency of government operations, strengthen democracy, enhance transparency, and provide better and more versatile services to citizens and businesses [3, 5]. Local government, being closer to citizens and their interactions with the various levels of governments, is in a unique position to inform the public with the direction of future policy and to reflect the government's new vision and strategy. Like many other countries worldwide, the local e-government initiatives were set off in Egypt to improve the capabilities of enhancing service delivery to their citizens.

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Broadly defined, e-government is the use of information and communication technology (ICT) to promote more efficient and effective government, facilitate more accessible government services, allow greater public access to information, and make government more accountable to citizens [6]. E-Government systems are becoming an essential element of modern public administration [7]. Assessing the effectiveness of these systems is becoming a necessity in order to ensure successful implementation [8].

This paper presents the results of a content analysis of 22 websites of Egyptian governorates. Following the introduction, the rest of this paper is organized as follows. Section 2 provides a brief introduction providing the context of Egypt e-government. The research methodology is presented in Section 3, followed by results in Section 4 and, finally, conclusions in Section 5.

2 Context

2.1 Egypt Local Government

The Arab Republic of Egypt (ARE or Egypt) lies in the south-eastern corner of the Mediterranean, mainly in Africa, with the Sinai Peninsula in Asia, separated by the Suez Canal. The majority of the country is desert across which the river Nile flows from the south to the Mediterranean in the north forming a Delta. Egypt has been a unified country for over five thousand years, mainly due to the river Nile.

Egypt area is 1 million square kilometers, with a population of around 78 million living on 5 % of the total area of Egypt. Ninety-seven percent of the population lives in the Nile valley with up to one-third of the population living in either Cairo or Alexandria. The United National Development Program (UNDP) has calculated that 46.8% of the economic and social establishments are in the governorates of these two cities, and that 23% of the labor force is in the same area. Most of the power is held by the central and not the local government.

Egypt is a unitary country that comprises of 29 administrative sections, called governorates (or municipalities), each of various sizes, populations, and resources. Governorates are administratively further divided into cities and districts which are, in turn, divided into smaller entities called neighborhoods in cities and villages in the districts.

The local entities have a certain degree of administrative freedom. Nevertheless, they are financially and politically managed by the central government. Local governments – represented in governorates – manage their operations based on rules, regulations and legal requirements created by the central government. However, they have autonomy in how they provide their service to citizens and how they manage their processes. Consequently, governorates might be organized in different ways. They have a degree of administrative autonomy, which when properly used can result in good administration, totally depending on the personality and abilities of the governor.

2.2 Egypt Local Government Development Program

Egypt has established its ICT strategy in 2001 in what has been known as the Egyptian Information Society Initiative (EISI). EISI was built on seven pillars; one of

which was e-Government. This initiative was put into action and, hence, the e-government program in Egypt started in 2001. In 2004, program ownership was transferred to the Ministry of State for Administrative Development (MSAD), where the former e-Government Program Director (Dr. Ahmed Darwish) was appointed as the minister. This reflects the Egyptian understanding of e-Government as a natural component of administrative development and reform. Thus, the e-government program in Egypt became one of the two mandates of MSAD, the other one being the public administration institutional reform.

Initially, the e-government program consisted of four main subprograms among which came the Egyptian Local Government Development Program (ELGDP). In turn, ELGDP has three main projects: (1) service enhancement in municipalities which includes automation of services provided to citizens; (2) development of web portals for the governorates; and (3) citizen relationship management (CRM) systems.

3 Research Methodology

Many attempts have been made to establish models of e-Government maturity [9]; e.g. the United Nations [10] outlined a five stage model used to benchmark government web sites at a national level and other models have been presented in [11-13]. Local e-Government, however, needs to offer more than electronic replication of existing information and services as it provides an opportunity to offer new and enhanced services to the public, to increase the involvement of communities in policy making and improved service provision [9]. Some potential shortcomings in the stage models' capacity to capture the drivers and evolution of e-government [14] have derived alternative suggestions that appeared later [15-16] to show that governments mature in various spaces rather than in distinct linear stages.

This section presents the local e-government assessment methodology and its implementation procedure. The section starts by stating research questions and proceeds to detail different aspects of the methodology used.

3.1 Research Questions

The focus of this investigation was on two principal research questions: (1) What is a well suited model for assessing local government websites in the Egyptian context? (2) What is the status of local government websites in Egypt? To what extent have Egyptian governorates implemented more matured e-government services?

Most, if not all, available maturity models and assessment frameworks were designed and implemented in developed countries. The focus of the first research question will be on determining the applicability of two well developed models (Quirck's and MeGAP-3) in a developing country such as Egypt.

Being closer to citizens, local governments have the majority of interactions between government and the civil society. Their websites, thus, are expected to provide – effectively and efficiently – different service needed by their citizens. The second research question applies an assessment framework to examine how sophisticated (mature) these websites are in Egypt, providing insights that will help Egypt and similar countries improve the services provided via local e-government.

3.2 Model Used

Quirk's [15] model will be the corner stone of the research methodology of this paper. This model has been selected for this research as being of the widely accepted and used in the world [17], and because it emphasizes the disparate range of functions provided by local governments [18]. As the inappropriateness of a staged model approach to describe e-local Government was recognized in literature [16, 18], Quirck's model [15] uses the term 'spaces' to describe the maturity level approached rather than using a linearly ordered stages.

The original model uses five spaces. As outlined in [15], they are: (1) e-Management: improved management of people (2) e-Service: interface with customers, (3) e-Commerce: cash transactions (4) e-Decision-making: better informed public interest decisions and (5) e-Democracy: political dialogue citizen and community. Published work, however, merges the last two spaces into one (e.g. [17]). In this research, the original five spaces model will be used.

To assess the level of maturity of various governorates' websites on each of the five spaces, a content matrix was developed and used to examine the presence of a number of features. These features were extracted from three sources: (1) application of the model on Australian municipalities [18], (2) MeGap-3 [19], and (3) the authors (research team) of features of Egyptian municipal websites. This step extended the implementation framework presented in [18] by merging it with the MeGAP model. This research used the third version of the MeGAP (MeGAP-3) which has 68 distinct web performance dimensions (features). Features in MeGAP-3 that did not fit with the Egyptian context – e.g. pets' licenses – were excluded. The list of features is provided in Appendix A.

3.3 Scoring and Sampling

To evaluate the websites, each feature is given a score of: '1' if it is fully implemented; a reduced score of '0.5' if the feature is partly implemented; or '0' if the feature does not exist. Then, the score for each space equals the total scores of its features divided by the total number of features – in this specific space – and multiplied by 100 to give a percentage.

Assessment was made by a group of eight postgraduate students (evaluators) from Information Technology and Political Sciences majors. They received/attended two training sessions in order to effectively use the assessment model. For each governorate, assessment was conducted by each evaluator independently and then, results from different evaluators were compared and discussed in groups to reach a consensus upon scores. Out of the 29 governorates, 22 (76%) had a working website at the time of assessment (July 2010). Data was collected from a content analysis of the 22 governorates' websites. This sample represents 100% of available websites.

4 Results

This section presents the result of the assessment of local government websites. First, a comparison of the total scores is presented followed by the scores of different spaces, and finally the frequencies of most common and uncommon features.

4.1 Score Comparisons

We start with discussing the findings of the aggregated level; the 22 evaluated websites. Figure 1 presents the total score per governorate, and governorates are ranked in a descending order. As the figure shows, the scores range from 6 to 65 with an average of 38. Surprisingly, the capital city (Cairo) came third with 62.5 while the highest score was for Matrouh – a less developed governorate on the western borders of Egypt.

Another surprise was the score of the second capital of Egypt (Alexandria) which scored 36. It is noteworthy that Alexandria witnessed the first and most famous Egyptian e-government project that involved automating services in all of its councils. That project was referred to later on by e-Alexandria and became the role model for subsequent projects. Upper Egypt governorates – which are far less developed – achieved the lowest five scores. Such result was also expected due to the specific conservative nature of these governorates. It equally indicated the relatively low attention given by the central government for improving these governorates.

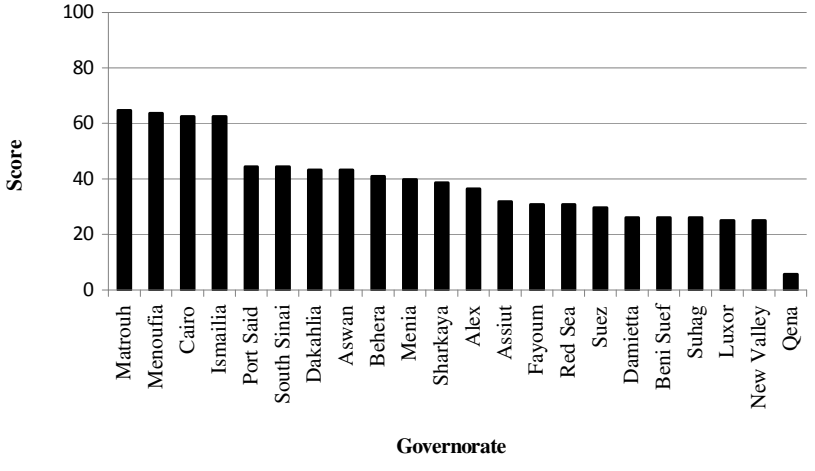

Fig. 1. Evaluation results by governorate total score ranked in a descending order

Figure 2 shows a comparison of scores of the 22 governorates with the population on the x-axis, which range from 150 thousands (South Sinai) to 7.8 million (Cairo) [20]. In line with [21], the figures depict an important point; "it is not necessarily the case that the most populous municipalities, and presumably those with the largest IT expenditures or the greatest need to offer services and functions to large and diverse populations, have the most extensive e-government solutions." As shown, the figures fail to prove the existence of a correlation between the population of a governorate and the sophistication of its website. Matrouh and Ismailia governorates have scored higher than governorates with much larger population such as Cairo and Alexandria.

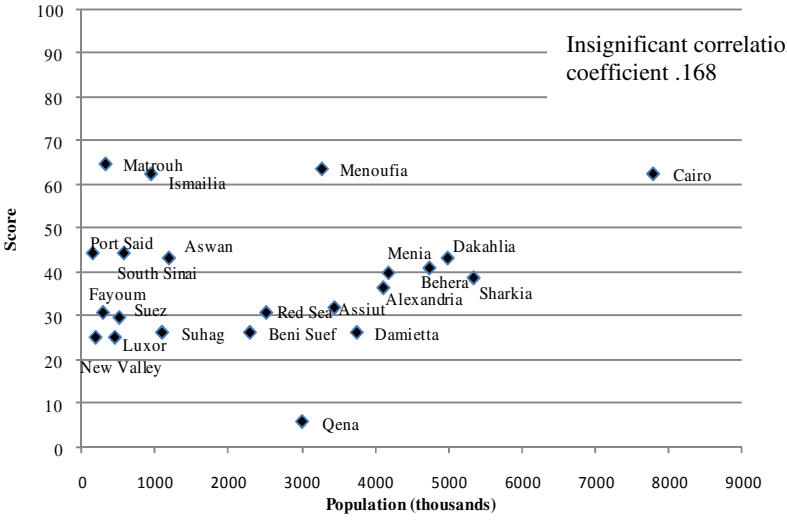

Fig. 2. Governorate total score *vs.* population

4.2 Spaces Comparison

Governorates' scores in each of the five spaces are shown in Fig. 3 through Fig 7. As expected, all websites scored in the e-management space (Fig. 3) are those intended to include features that assist citizens' navigation through the website. This space is also the first means to attract citizens to use governorate website rather than face-to-face or phone conversations. Out of the 22 governorates, 7 (32%) has a score more than 75% and 13 (59%) has a score more than 60%.

While all websites provide services, Fig. 4 shows a great deal of variability in scores with respect to the e-services space. Some provide only information about different services and necessary requirements and documents, while others provide downloadable forms and enable the citizen to obtain the service online. This space includes features which assist citizens to find information regarding different services provided by the local government. For the Egyptian context, this space has an increased importance as it provides information related to housing projects carried out by the government for low-income citizens and young families.

Scores of the third space, e-commerce, are shown in Fig. 5 revealing that only 41% of the websites have features related to e-commerce. This space covers the transaction handling involved in placing orders for services provided through the website. So, since the scores of the e-service space are already low, features related to order handling are not significantly present.

Figure.6 shows that a significant majority (95%) of websites have features belonging to the e-decision making space. The highest score, however, is 44%. This space provides information related to governorate operations on strategic and other managerial levels. Finally, the scores of e-democracy space are shown in Fig. 7. Surprisingly, a significant majority (73%) of websites have features belonging to this

space and with average score higher than e-decision making space. Features that provide means to interact directly with the citizens seem to have a good deal of attention from the governorates.

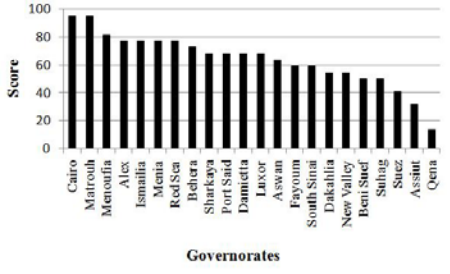

Fig. 3. E-management scores

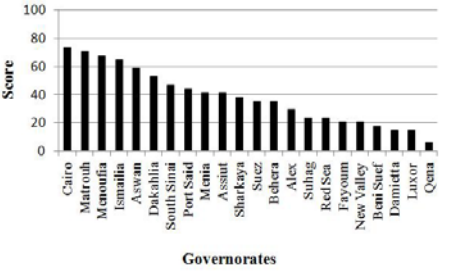

Fig. 4. E-service scores

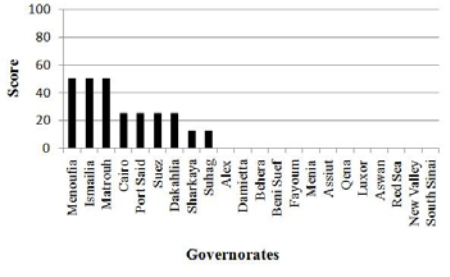

Fig. 5. E-commerce scores

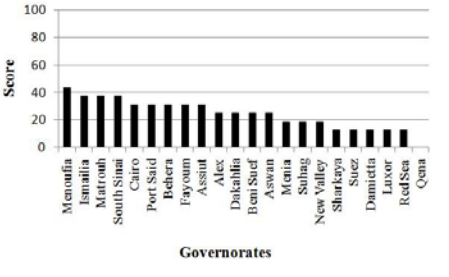

Fig. 6. E-decision-making scores

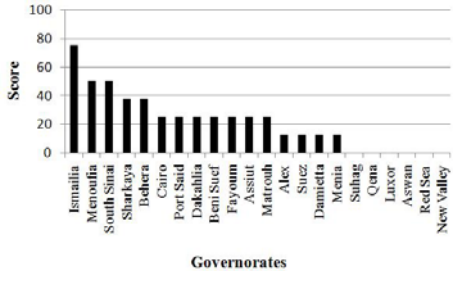

Fig. 7. E-democracy scores

4.3 Features' Frequencies among Governorates

Tables 1 and 2 partially list the different features and the number of governorates' websites supporting each feature. The percentage figures reflect a percentage of the total number of governorates. While Table 1 lists the most widespread features, which are supported by at least 60% of governorates' websites, Table 2 lists features found in few (0-30%) websites.

Table 1. Most Common Features

Feature	Space	N	%
Basic information	E management	22	100.0
Tourism	E Service	22	100.0
Website navigation	E management	21	95.5
Information for Businesses and investment	E Service	21	95.5
News and coming events	E management	20	90.9
Hierarchy	E management	19	86.4
Ownership of Content	E management	19	86.4
Contact details for the governorate	E management	18	81.8
Links to other organizations/businesses	E Decision making	18	81.8
Emergency Management	E management	17	77.3
GIS maps	E Service	15	68.2
Searchable Directory	E management	15	68.2
Sense of community	E Democracy	15	68.2
Job opportunities and training	E Service	14	63.6
Community information	E Decision making	14	63.6

Table 2. Most Uncommon Features

Feature	Space	N	%
FAQs	E Service	0	0
Online payments	E commerce	0	0
Email payment/ordering	E commerce	0	0
Economic indicators	E Decision making	0	0
Budget Report	E Decision making	0	0
Council minutes	E Democracy	1	4.5
Online support	E Service	2	9.1
Information Requests	E Service	2	9.1
Job application	E Service	3	13.6
Service tracking	E Service	4	18.2
Transaction handling	E commerce	5	22.7
Strategic Plan	E Decision making	6	27.3
Forums	E Democracy	6	27.3

Of the 15 features listed in Table 1, 11 features fall under the e-management space, 2 in the e-decision making space, 1 in each of the e-service and e-democracy spaces, and none falls under the e-commerce space. In other words, the most common functions concentrate on informing. However, e-service begins to penetrate the Egyptian community where tourism information and information for investment are among these features which reflect the attention given by local government to self revenue generation rather than solely depending on the national budget. As shown in Table 2, the bulk of e-service, e-commerce, and e-democracy features implemented totally fall under this table. This can be due to the belief that citizens would still prefer requesting local government services in person rather than online.

5 Conclusions

This paper investigates the maturity of Egyptian local e-government web sites through content analysis of 22 governorates' websites. The results show a variation in maturity levels of different governorates. Results reveal that Egyptian governorates' web sites are still in the first stage of maturity; cataloguing information [13]. This stage involves presenting information about government and its activities on the web available 24/7 to facilitate saving time and reducing cost. Most of the developing countries are still in this stage of maturity and have not reached yet the transaction stage which allows citizens to do their transactions with government electronically (i.e. citizens can pay taxes, fines, or fees). The paper, thus, suggests that more effort and attention must be given to improve local e-services provided through websites. Incentives should be given to move citizens from using physical face-to-face transactions to online services.

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References

1. Kraemer, K.L., Dedrick, J.: Computing and public organizations. Journal of Public Administration Research and Theory 7(1), 89–112 (1997)
2. Lenk, K., Traunmuller, R.: Presentation at the IFIP WG 8.5, Working Conference on Advances in Electronic Government (February 2000)
3. Ho, A.T.: Reinventing local governments and the e-government initiative. Public Administration Review 62(4), 434–444 (2002)
4. Moon, M.J.: The evolution of e-government among municipalities: Rhetoric or reality? Public Administration Review 62(4), 424–433 (2002)
5. La Porte, T.M., Demchak, C.C., de Jong, M.: Democracy and Bureaucracy in the Age of the Web - Empirical Findings and Theoretical Speculations. Administration & Society 34(4), 411–446 (2002)
6. Traunmuller, R., Lenk, K.: Electronic government. In: Hameurlain, A., Cicchetti, R., Traunmüller, R. (eds.) DEXA 2002. LNCS, vol. 2453. Springer, Heidelberg (2002)
7. Torres, L., Pina, V., Acerete, B.: EGovernment developments on delivering public services among EU cities. Government Information Quarterly 22(2), 217–238 (2005)
8. Gupta, M.P., Jana, D.: EGovernment evaluation: A framework and case study. Government Information Quarterly 20(4), 365–387 (2003)
9. Shackleton, P., Dawson, L.: Doing it Tough: Factors impacting on local e-Government maturity. In: Proceedings of the 20th Bled eConference - eMergence: Merging and Emerging Technologies, Processes, and Institutions, Bled, Slovenia, June 4-6 (2007)
10. United Nations. Benchmarking E-government: A Global Perspective - Assessing the Progress of the UN Member States. United Nations Division for Public Economics and Public Administration, New York, United States (2002)

11. Baum, C.,Maio, A.D.: Gartner's four phases of e-Government model, Gartnert Group (2000), published in http://www.gartner11.gartnerweb.com/public/static/hotc/00094235.htm
12. Layne, K., Lee, J.: Developing fully functional E-Government: A four stage model. Government Information Quarterly 18(2), 122–136 (2001)
13. Reddick, C.G.: A Two-Stage Model of E-Government Growth: Theories and Empirical Evidence for U.S. Cities. Government Information Quarterly (21), 51–64 (2004)
14. Andersen, K.V., Henriksen, H.Z.: E-government maturity models: Extension of the Layne and Lee model. Government Information Quarterly 23, 236–248 (2006)
15. Quirk, B.: From Managing Change to Leading Transformation, Paper presented at the E-Government Summit, United Kingdom (December 2000)
16. Stamoulis, D., Gouscos, D., Georgiadis, P., Martakos, D.: Revisiting Public Information Management for Effective E-government Services. Information Management & Computer Security 9(4), 146–153 (2001)
17. Nawaz, M., Issa, M., Hyder, S.I.: e-Government Services Maturity Models. In: Proceedings of the 2007 Computer Science and IT Education Conference (CSITEd), The Republic of Mauritius, November 16-18, pp. 511–519 (2007)
18. Shackleton, P., Fisher, J., Dawson, L.: Evolution of Local Government EServices: the applicability of e-Business maturity models. In: Proceedings of the 37th Hawaii International Conference on System Sciences (HICCS 2004) (2004)
19. Public Sphere Information Group, The Municipality eGovernment Assessment Project (MeGAP), http://www.psigroup.biz/megap/ (accessed June 2010)
20. Institute of National Planning. Egypt Human Development Report, Cairo, Egypt (2008)
21. Flak, L.S., Olsen, D.H., Wolcott, P.: Local E-Government in Norway: Current Status and Emerging Issues. Scandinavian Journal of Information Systems 17(2), 41–84 (2005)

Appendix A: Model Features

No.	Space	Features	Source		
			Q	M	R
01	E-Management	Basic information	√		
02		Web site navigation	√		
03		Contact details for the governorate	√		
04		News and coming events	√		
05		Hierarchy			√
06		Ownership of Content		√	
07		New features in the website			√
08		Searchable Directory		√	
09		Directions to Offices/Facilities		√	
10		Emergency Management		√	
11		Multiple languages		√	
12	E-Service	Service details	√		
13		GIS maps		√	
14		Transportation Schedule		√	
15		Education		√	
16		Information for Businesses and investment			√
17		Tourism			√
18		Service support/tracking	√		
19		FAQs	√		
20		Online support	√		
21		Tenders and auctions			
22		Information Requests		√	
23		Housing		√	
24		Building Permit Process		√	
25		Business License		√	
26		Vital Records		√	
27		Job application		√	
28		Job opportunities and training			√
29	E-Commerce	Transaction handling	√		
30		Online payments	√		
31		Ordering facility	√	√	
32		Email payment/ordering	√		
33	E-Decision-making	Community information	√		
34		Links to other organizations/businesses	√		
35		Bulletin boards	√		
36		Economic indicators		√	
37		Budget Report		√	
38		Strategic Plan		√	
39		Streaming Audio of Meetings & Hearings		√	
40		Streaming Video of Meetings/Hearings		√	
41	E-Democracy	Sense of community	√	√	
42		Forums		√	
43		Scheduled E-meetings		√	
44		Council minutes	√		

Source Legend **Q:** Quirck's [15, 18] **M**: MeGAP-3 [19] **R:** Authors (Research Team)