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Success and failure factors for e-government projects: A case from Egypt

Hatem Elkadi *

Faculty of Computers and Information, Cairo University, Giza, Egypt

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Abstract E-government implementations in developing countries still face difficulties, leading to a large failure ratio. This is too high a cost for developing countries. Analysis of the reasons behind success and failure of e-government projects is still an interesting domain of investigation. Several approaches were advanced and success and failure factors have been stipulated, but factors pertinent to Public Administration have yet to be investigated and analyzed. This work builds on the results of earlier research, analyzing the factors behind the change in performance of the different sites of a specific project, reasons of their original success, and the relapse of one site. It reviews in detail the factors advanced by previous works and integrates for the first time the results obtained by 3 different research methodologies. It clarifies the causality between different factors presumed to individually affect the e-government implementations, thus enabling the disambiguation between the main and secondary less effective causes of failure. The success and failure factors significance and relative importance are identified, revealing the recommended track of action for the set-back remedy.

1. Introduction

E-government is perceived as a tool to increase citizens' trust and confidence in their governments [1–4]. It can simply be considered an additional service channel, among many, that citizens can use to interact with public administration and government entities [5,6]. Citizens can choose using "modern" channels or remain on traditional ones depending on the level of barriers to access technology (notably internet and computers): the mental access, material access, skills access, and usage access [7].

Internet advocates always praise the merits of web based e-government including the ease, convenience, and effectiveness of using the internet. However, citizens' satisfaction using this channel was not always up to their expectations [8].

Citizens contact government for various reasons such as trying to influence public policy, to addressing personal concerns that they have, conducting government transactions, and finding information on benefits and services that government offers [9].

* Tel.: +20 1001401012.
E-mail address: Hkadi19@gmail.com
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A multichannel environment for public service delivery is increasingly being viewed as a logical paradigm [9]. A citizen may first use the website for general information needed, may use the phone for clarification, and finally mail in the form or take it directly to the government office. Therefore, e-government may be one step, among many steps, in public service delivery.

Most governments have engaged into e-government initiatives, having different views of e-government including better public service delivery, better governance and participation as well as better public resources management. These initiatives achieved different levels of success, and only a very limited percentage of the e-government systems in developing countries are successful cases, while the rest are either total or partial failures [10].

A number of proposed theoretical models tried to analyze the reasons for the failure of such a huge failure proportion of e-government projects [11–13].

These models include ''ITPOSMO model'' [14], ''design-reality'' gaps, challenges for e-government initiatives [15], and e-projects challenges and barriers [16].

Egyptian e-government program started as early as 2001 and implemented several pilot projects. Some of these pilots succeeded and were rolled out all over the country, while others were less successful, and were either discontinued or re-modeled and re-implemented. Some roll-out projects succeeded and others were less successful than their pilots. For the same type of project, some implementation sites were more successful than others, some started successfully and then relapsed while similar ones continued successfully. Identifying the reasons for success and failure of these projects is of utmost importance for future implementations.

The author of this work was closely engaged in the design and implementation of the Egyptian e-government project from its early beginnings in 2001; as the e-government services project manager, then the director of the Government Services Modernization Program as of 2006. The author managed tens of projects, of which some won regional and international awards while others faced problems. He recently returned to the academia with a vision to join his field-acquired experience with the scientific research techniques, to definitely identify the critical failure factors and help the community avoid them.

Several research works tried to identify reasons of success and failure for e-government projects. Different views have been advanced and different factors have been identified as success or failure factors [13]. Luckily, one of the Egyptian e-government projects was reviewed at different phases of its existence, using different research approaches. This represents a wealth of information that can be exploited beyond the limits of each individual research.

Originally, a research team reviewed the system implementation and operation at one of the governorates of Egypt (Matrouh), just a few months after its implementation [17]. The team confirmed the success of the system as it reduced the process number of steps and the step duration. The project was accordingly declared successful.

A few years later, the Matrouh site was revisited together with a new implementation at a different governorate (site named Al-Tor) [18]. It was then realized that the project had relapsed in Matrouh, while it was performing well at Al-Tor. The different success and failure factors for each site were thus identified, which mostly indicted the human resources for the collapse of the Matrouh site.

Still, 2 years later, the 2 former sites were revisited, as well as a more recent implementation in the city of Port Said [19] in order to identify the main factor for the ''system success.'' It was then identified the ''system quality'' as the most dominant Success/Failure factor, according to the Information System Success Model.

The 3 papers [17–19] represent a rare opportunity to study the evolution of identical e-government project's implementation in different sites (and from different perspectives) and the factors of their success or failure.

This paper is an effort trying to identify in a more definitive way the reasons of e-government projects failure, and what are the most important pitfalls to avoid, in order to ensure success.

In the following, the author will review and scrutinize the findings of the papers mentioned above. Then, he will uncover the intricate relationship between the different factors adopted by different methodologies, their interdependence, and their relative importance. By doing so, he will finally identify the main factors that lead to success or failure of the project and recommend the actions required to avoid future failures.

2. Background

2.1. Egypt

Egypt is considered to be one of the oldest states in history [20] and is characterized by a highly central government. Local administration is performed through antennas of the central government in a number of administrative divisions named governorates, which in turn are divided into cities and districts. Local governments – governorates – have a limited level of autonomy in the way they provide their services to citizens and the way they manage their administrative processes.

One important department at the governorate level is the investment department and is directly managed by the governorate. Its function is to promote and supervise investment in the governorate and ensure it is in the best interest of the community. It approves investors' project proposals, allocates the required lands to these projects, and tracks the conformity of ongoing projects with their approved proposals.

2.2. Local e-government in Egypt

The Egyptian e-government program in Egypt started in 2001 within the Ministry of Communication and Information Technology (MCIT) and was a component of the Egyptian Information Society Initiative (EISI), Egypt Information and Communication Technology (ICT) strategy. In 2004, the program was transferred to the Ministry of State for Administrative Development (MSAD), as an element of administrative reform and development, together with the institutional reform of public administration [21–23].

The Egyptian Local Government Development Program (ELGDP) is a component of the e-government Services program within the e-government Initiative [24,25]. It focuses on service enhancement in municipalities through the automation of citizen services and the establishment of the so-called Smart ''Citizen-Service-Centers.'' ELGDP projects do not aim to fully automate the services, but rather reduces service delivery time, and overcomes corruption within public administration through a rigorous monitoring and control system, using IT and modern management systems.

2.3. Project description [17]

The main objective of the project is to assist the local authorities managing investment projects within the governorate, through an information system that covers all the service related procedure, bypassing the cumbersome paper-based activities. The information system integrates MIS, GIS, and workflow functionalities and connects the relevant departments through a Local Area Network. The GIS maintains spatial information of the available and used lands, and ongoing projects, while the workflow and database maintain all related administrative information. Administrative and spatial data are consolidated in one system to be jointly analyzed and support the decision making within the governorate.

Spatial information is availed to other departments and the public, thus simplifying the identification of vacant parcels of land, fulfilling the project requirements both for staff, investors, and decision makers.

It is worthwhile pointing out that most of the department activities require human intervention and insight, and that the information system only complements it and provides oversight, tracking, monitoring and control, without which the local authorities would poorly manage its projects and resources.

2.4. Projects status at the time of comparison

The first implementation of the project was in Matrouh in 2006. The system was then successful and remained functional for several months, which led to planning for its roll-out in several other sites [17]. By the end of 2007, the information system in Matrouh faced some problems that led to its abolition by 2008, as reported in [18]. The system continued functioning in the other two sites of South Sinai (Al-Tor) and Port Said, while Matrouh site went out of operation until revived with its new management late 2010 [19].

The case, thus, was then classified as a "user failure" demonstrating that factors other than technology were the immediate reason of the set-back [18]. On the other hand, the implementation in Al-Tor remained successful after more than one year under the same management. At the time that work was prepared [18], Port Said implementation was still at start up with few months of operation and seemed to be a promising success.

In the following, a brief introduction of the three sites will be presented to familiarize the reader with the context.

2.5. Three sites

Project sites are the cities of Matrouh, Al-Tor and Port Said; capitals of the respective governorates of Matrouh, South Sinai (Al-Tor) and Port Said). For better understanding, the following is a quick description of each governorate as it was at the time of the previous research works were performed [17,18,26].

2.5.1. Matrouh

Matrouh is a border governorate with a large desert sparse area of about 17% of Egypt and a coast that stretches over 450 km along the Mediterranean Sea. Its economic activities are limited to national and timid international tourism, olive cultivation and processing, as well as other handicraft activities.

Table 1 Key indicators for the 3 governorates.

	Matrouh	South Sinai	Port Said
Population (thousands)	323,381	150,088	570,603
% Of Egypt's population	2.21	0.21	1.25
Area (1000 km^2)	166,563	31,272	1.3511
% Of Egypt's area	16.6	3.1	0.13

2.5.2. South Sinai

South Sinai is much smaller than Matrouh with area of 3.1% of Egypt. South Sinai is one of the internationally renowned resort sites. It contains historical sites like Mount Sinai and St. Catherine's Monastery, in addition to recreational diving and reserves sites. It contains 14.7% of the total number of hotels in Egypt and is attractive to investors.

2.5.3. Port Said

Port Said is rather an urban governorate, limited in area and population, with the port-city of Port Said at its center. The city of Port Said is a Free Zone Port, at the entrance of the Suez Canal on the Mediterranean. Its economic activities are basically trade, commerce, maritime service and industries as well as national tourism. The city had several institutes that were part of the Suez Canal University, out of which emerged the University of Port Said.

Table 1 presents some key indicators of the three Governorates (adapted from [26]).

As can be noted from the description above, Matrouh and South Sinai governorates are similar in many aspects, notably the investments in tourism. Land allocation for projects is usually faced by the informal land appropriation by local Bedouins.

Port Said implementation was rather a new implementation at the time of analysis, and thus, no information about the status of operation was given in [18]. In what follows, only Matrouh and Al-Tor projects will be studied.

According to [26], three types of failure have been identified in literature: System failure, Project failure, and User Failure. The Matrouh case actually achieved a system and project successes before its relapse and can be considered successful during the project span and until several months after its initial implementation. This led us, in this work, to engage into a review of the analysis of the project advanced by [18].

In the following section (Section 4), analysis of the findings of each paper and the used methodology will be presented and compared with each other. In Section 4.1, we will analyze and review the methodology and findings presented in [18]. In Section 4.2, we will review the findings of [19] and relate them to the success and failure factors analyzed in Section 4.1; hence, we will identify the factors that we accuse of being the critical failure factors if the project. In Section 4.3, we will review the findings of [27] and uncover the relation between administrative discretion and its affecting factors from one side and the failure factors identified in both Sections 4.1 and 4.2.

3. Analysis of previous findings

The situation description in [17] illustrates the situation in Matrouh (the site under investigation) recently after the

implementation of the project. It explicitly states that "The new system saved the department – and the governorate as a whole – significant time and fiscal resources that would be better allocated to other tasks. The system, further, helps promote economic development by facilitating access to data about infrastructure, business, and demographic, economic, and human resources." It also reports that the system in question leads to "the improvement in different process steps' duration and the percentage reduction in the durations respectively."

Three years later, a comparison was conducted between the Matrouh site and a recent implementation at the site of Al-Tor [18]. The Matrouh project had then relapsed, while Al-Tor was performing well. It is needless to mention that the two project were thus in different phases of their lifetime: Al-Tor was still under close supervision of the implementing body (Ministry of State for Administrative Development MSAD) while Matrouh was self-running for over 2 years.

3.1. Case I: success and failure factors using ITPOSMO

ITPOSMO [14] methodology was adopted to identify the different success and failure factors for each site; the methodology covers the 7 following factors (summarized in Fig. 1):

(1) *Information* (factors related to quality and prerequisites of system inputs and outputs);
(2) *Technology* (factors such as the availability and compatibility of hardware and software);
(3) *Processes* (alignment and integration between the system and existing/new processes to achieve stated objectives);
(4) *Objectives, Values, and Motivation* (e.g. organization culture, guiding values);
(5) *Staffing and Skills* (factors such as the availability of skilled personnel and adequacy of training provided for using the system);
(6) *Management and Structures* (factors such as managerial practice and flexibility of organizational structures); and
(7) *Other Resources* (money and time).

It is worthwhile stating here that no-one-factor is considered as the factor that resulted in the failure, but it is rather the effect of all or few of the failure factors identified.

The information factor was considered a failure factor in [18] as "it led to the reduction of potential corruption." The case in Matrouh identified information to be available and accurate. This contradicted with staff interest and indicated that their objectives and values were not aligned with the organization's. This should not turn the information factor into a failure one; otherwise, failing to provide the necessary and adequate information would be considered a success factor, which is inconceivable. The resolution in [18] making the information a failure factor is thus a composite one that included the effect of two factors: information and values. For the project to succeed, information obviously needed to be available and adequate, and this was the case.

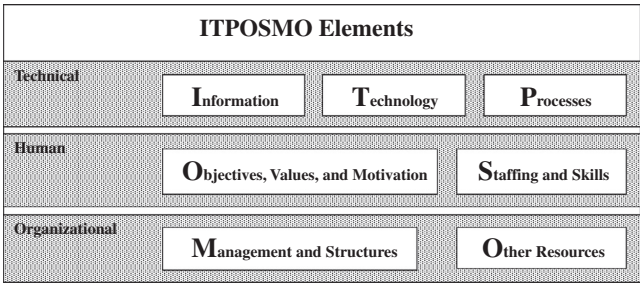


Figure 1 Elements of ITPOSMO model.

Consequently we consider the information a success factor, the failure effect is thus transferred to the Objectives, values, and Motivation factor.

The Technology factor is rather a tricky one. Originally, it was a success factor since the necessary equipment and software were made available, and the system was properly operational. With time, lack of maintenance and vulnerability to malicious software resulted in a degradation of the system. Since the system was functional with the given platform for a sufficient period before its degradation, as per the project definition, the technology was suitable and can be viewed as a success factor. Its degradation with time is a maintenance issue and should thus be reflected in the "Staff and Skills" factor.

The process factor was considered a success factor in both sites, and we did not find any reason to contest this finding.

The "Objectives, Values and Motivation" is considered a failure factor in Matrouh as shown in [18]. It identifies the Bedouins' tradition as "in contradiction" with the State values and Objectives: the Bedouin values contradicted the national government values in what relates to the land appropriation. The staff culture in Matrouh site is the dominant culture and contradicted with the organization values. These community values might affect the staff values, as part of it. But it is worth mentioning here that Al-Tor also suffers from the same Bedouins' values effect, since Sinai is also of tribal tradition. So, we concur that the community values are in contradiction with the project objectives and represent a failure factor, but it is a fact that during the initial phase of project implementation in Matrouh and in Al-Tor, this factor did not result in the system or project failure. We thus consider this factor to be a Failure Factor in Matrouh, but not sufficient by itself for failure.

It was also pointed out [18] that the existing Matrouh staff was hiding information about the existing system from their new management. This is obviously an evidence of mismatched values between the staff and the organization, but it also reveals a hidden deficiency in the institutional management related to handover procedures, as will be discussed here under.

The Staffing and Skills factor was identified in [18] as a failure factor as the staff initially refused to provide necessary information for the software developers, fearing that the IT would replace them. Staffing factor was also considered a failure factor in both sites as being used to manual procedures and requiring much time to be prepared for the new technology and work methods. It also identified the lack of professional IT maintenance personnel as a failure factor. Nevertheless, this did not prevent the project from initially succeeding in Matrouh and later in Al-Tor. We thus consider this factor not sufficient for failure.

The "Management and structure" factor was identified in [18] as the "key failure factor" in Matrouh, as the lack of proper handover procedure between managements, and the continual interest of each new management to boast its own deeds and devaluates previous deeds, as well as the change of vision

and interests which affects the steadiness of the operation of existing initiatives. It is worth noting that Al-Tor implementation was successful as long as no change in management occurred, particularly the immediate management (that is the IT or the service department manger) which was the project champion. The case in Matrouh was different since the champion was the Governor, and with the change of governors, the direct management and staff lost interest (willingly or unwillingly), and when came a new department manager, any trace of the system was already hidden.

Table 2 shows each of the factors affecting success or failure according to ITMOPSO model and its assessment for both sites as reported in [18]. The additional column is added to report additional interpretation of the assessment. It is interesting to note that despite of some factors being identified as failure factors, the project succeeded in Al-Tor and initially in Matrouh. This led the author to classify the different factors as sufficient for failure, necessary for success or just catalyst to either.

3.2. Case II: factors affecting e-gov. Effectiveness using ISSM

In [26], the Information System Success Model was adopted identifying 6 attributes for the system success. Each attribute effect was identified through a set of questions (see Table 3), which revealed the high dependence of the "system use" on the "system quality" and a moderate dependence on the "service quality."

Three of these attributes are identified as independent: Information quality, System quality, and Service quality. The three other attributes depend on the first three, either directly or indirectly. The "perceived net benefit" attribute depends mainly on the "system use" attribute and "user satisfaction," which in turn depends on the "system use." The 3 independent attributes cover only part of 4 of the above factors as shown in Table 4.

Table 3 maps the ITPOSMO factors to the questions used for the ISSM analysis. It clearly identifies that the ISSM does not cover the factors "Objectives, values and motives" nor the "Management and Structure." This is logical since ISSM focus is the "Information System" and not the entire organization and is not considered a flaw in the methodology. On the contrary, it is a useful tool to separate the different factors affecting the success of the e-government project.

It was concluded [26] that the system quality had the largest effect on both "system use" and "user satisfaction" with high significance. "Service quality" still had a slight impact on the "system use" but at a less significance.

"Information Quality" however did not seem to have an effect on the "system use" as expected/predicted according to findings of [28], and similarly "service quality" had no significant effect on "user satisfaction."

It is not the interest of this paper to explain the cultural reasons behind the discrepancies; however, we consider these results as input to our analysis trying to understand the success and failure of the "entire project," of which the "Information System" is the main, but not the only, component.

According to the elements' analysis in Tables 2 and 4, the information system satisfies most success factors and was actually successful for a period of time after which the project collapsed. Attributing the set-back to the Information System would be diverting the management efforts toward solving the wrong problem.

As per the analysis of the ITPOSMO findings above, "Objectives, values and Motives" and "Management and Structure" were identified as the main failure factors. This complements the findings above that the Information System should be successful according to ISSM.

3.3. Relation between administrative discretion and corruption

A separate study of the influence of e-government on administrative discretion was also conducted to identify the e-government factors that affect the administrative discretion. Administrative discretion is the ability of the public official to make choices among possible courses of action and inaction [29]. There are 3 ways that street-level bureaucrats can use their discretion:

- Stretch the law to determine the worthiness of a client.
- Act as gatekeepers for the service, thus increasing the level of red-tape.
- Become "rogue agents" and "punish" citizens and provide favoritism.

E-government is supposed to be capable of reducing administrative discretion by becoming the system level bureaucrat, replacing human decision making [30]. According to[27], literature claims that e-government implementation has a positive influence on the organization through positively affecting 6 factors:

Table 2 Individual success/failure factors: sites evaluation and relative importance.

ITPOSMO factor	Matrouh. As per [18]	Matrouh reviewed	AL-Tor	Catalyst, necessary or sufficient	
	(F)ailure or (S)uccess factor			As failure factor	As success factor
Information	F	S	S	Sufficient	Necessary
Technology	F	S	S	Sufficient	Necessary
Processes	S	S	S	Sufficient	Necessary
Objectives, Values, and Motivation	F	F	F	Catalyst	Catalyst
Staffing and Skills	F	F	S/F	Catalyst	Catalyst
Management and Structures	F	S- to-F	S	Sufficient	Necessary
Other Resources	F	S/F	S/F	–	–

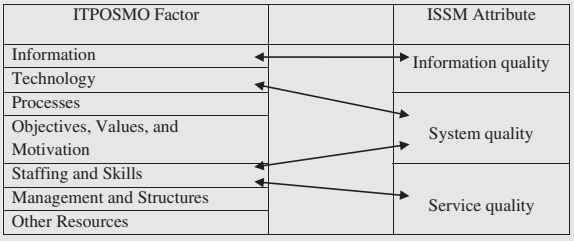
F: failure factor, S: success factor, S/F: partially success or failure factor.
S-to-F: initially success factor that turned in failure factor.

Table 3 Mapping ITPOSMO to Information System Success Model.

ISSM factor	Related question in [26]	ITPOSMO factor (s)	
Information quality	IQ1. Data needed for system operations is available	1	Information
Information quality	IQ2. The system provides the precise information that I need (Doll & Torkzadeh, 1988)	1	Information
Information quality	IQ3. The system provides up to date information (Doll & Torkzadeh, 1988)	1	Information
Information quality	IQ4. Data resulting from the system is suitable and matches business needs	1	Information
Information quality	IQ5. The system presents output data in representative and suitable way	1	Information
System quality	SQ1. The system crashed several times	2	Technology
System quality	SQ2. There is periodical maintenance of the hardware and software	2	Technology
System quality	SQ3. There is obvious and complete integration of data coming from different departments	1 + 2	Information Technology
System quality	SQ4. The system makes the process of land allocation more accurate	3	Processes
System quality	SQ5. The system instantaneously informs me about the status of the investment projects	3	Processes
System quality	SQ6. The system is easy to use (Doll & Torkzadeh, 1988)	2 + 3 + 5	Technology Processes Staffing and Skills
Service quality	SV1. The employees are qualified enough to use the system	5	Staffing and Skills
Service quality	SV2. Employees transfer their experience about the system to each other	5	Staffing and Skills
Service quality	SV3. I need more training to efficiently use the system	5	Staffing and Skills

1	Information
2	Technology
3	Processes
4	Objectives, Values, and Motivation
5	Staffing and Skills
6	Management and Structures
7	Other Resources

Table 4 Mapping the findings of [18] to the questions in [26].



1. Organization change.
2. Information security.
3. Size of government.
4. Collaboration.
5. Top management support.
6. Citizen demand for e-government.

and that these factors in turn affect the administration discretion, leading to a better performance and service. Fig. 2 represents this relation [27].

Table 5 summarizes how each of the above factors affects the administrative discretion, as explained in [27]. Analysis of these factors and how they finally affect the administration discretion leads to identification of direct and indirect effects of these factors.

Fig. 3 summarizes the inter-relation between the different factors and finally the administrative discretion, as depicted in Table 5, where we clarify the dependencies between the different factors mentioned and administrative discretion. It

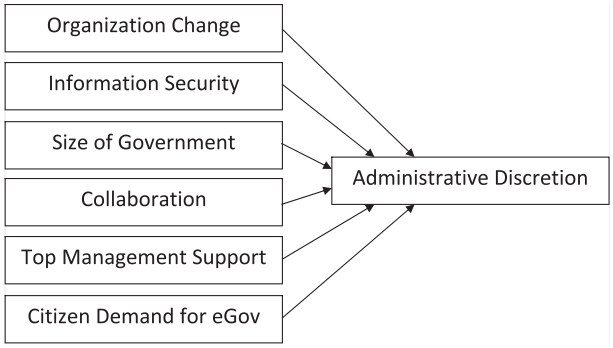


Figure 2 The influence of e-government on administrative discretion.

shows that administrative discretion is affected directly by organizational and cultural changes (and collaboration) which emanate from e-government adoption and implementation.

As mentioned previously in this section, there are 3 (negative) ways street-level bureaucrats can use their discretion. Combined with ill morals, discretion would result in intended corruption. This will be discussed in detail in the next section.

In [27], only two factors were found to affect administrative discretion: collaboration and organizational change. This is in conformity with the analysis and findings above, where the ''Management and Structure'' factor was indicted as the main failure factor for Matrouh.

4. Discussion

In Sections 4.1 and 4.2, we studied the e-government project implemented in Matrouh and Al-Tor. We demonstrated

Table 5 Factors influencing administrative discretion.

Factor	Type of influence/Influence path
Organizational Change	E-government pushes for profound transformation in the organization of public sector. It reduces manual processes leading to efficient service delivery. It also empowers employees to make more decisions on their own
E-Gov: causes → Org. Change:reduces → Admin. Discretion	
Top Management Support	Supports e-government and IT adoption, facilitating IT innovation, influencing organizational change and administrative discretion
Top Mgmt. Support:adopts → e-Gov.:influences → Org. Change	
Collaboration	E-government has re-integrated the organization putting back together many of the elements of the organization that were decentralized, creating new opportunities for collaboration, which should influence e-government and Administrative discretion
E-Gov: promotes → organization change: promotes → Collaboration:influences → e-Gov and Admin. Discretion	
Information Security	Management support for Information security is a critical success factor for e-government. A culture of awareness of the importance of information security means more effective implementation of e-government, influencing public officials' views of e-government, affecting administrative discretion
Top Mgmt. Support: Success Factor → e-government	
Cultural Change: awareness → information security: improves → e-Gov.:	affects → Admin. Discretion
Citizens' Demand for e-government	Individuals that are more satisfied with their experience with e-government are more likely to trust their government. Citizens and their demand for e-government should indicate external pressure for its implementation and effect (Cohen in USA) This statement is valid for mature democracies, where local authorities are elected by well-educated citizens, but not valid in weak democracies where local authorities are appointed by central government
Citizen:demand → e-Gov.:enhances → Service Quality:satisfies → Citizen	
Size of Government	Size affected e-government adoption in local government in the USA. Larger government has more resources to fund more advanced e-government This is also valid in mature democracies where resources are collected from local taxes. In other cases (such as Egypt), resources are drawn from the central government budget with possible local contributions. This conforms to the finding of paper 10 where the portals of Matrouh, Menoufiya, and Cairo were at the same maturity level despite the large discrepancy in the governorates' population sizes
Size of Government: affect → e-Gov	

that the Information System implemented was successful in both sites and was not the reason behind the subsequent failure of the originally successful project. We identified two factors as the possible failure factors of the project: the ''Objectives, Values and Incentives'' and the ''Organizational Structure.''

The problems that were clearly pointed out by [18] were the reluctance of the staff from cooperating with the software development company at the time of its development, the fact that they concealed the existing system from their new management that intended to develop a new system, as well as the lack of proper handover from old to new management.

The system in question is related to the allocation of lands for investments and involves large investments. The existence of the system limited the administrative discretion of the involved staff and their ability to ''selectively serve'' the investors and profit from the ''return of these services.'' Administrative discretion was then the means to corruption; which the system prevented, and getting the system off the way was the solution the staff resorted to. They succeeded in eliminating the system due to the flaw in management handover procedures. The ''Objectives, Values and Incentives'' factor was demonstrated to be a catalyst factor (necessary but not sufficient), while the Organizational Structure was a necessary factor.

In Section 4.3, we demonstrated that the e-government factors that directly affect the administrative discretion are the ''Organizational Change'' and the ''Collaboration.'' The collaboration was a result of the Organizational change factor which seems to be the main cause that directly affected the administrative discretion and thus can be the dominant factor that controls administrative discretion.

From the above, we can conclude that corruption (inherent in staff values) fights the e-government back, since it contradicts with the staff interest. Such a resistance can be overcome by proper management and institutional structure. The lack of

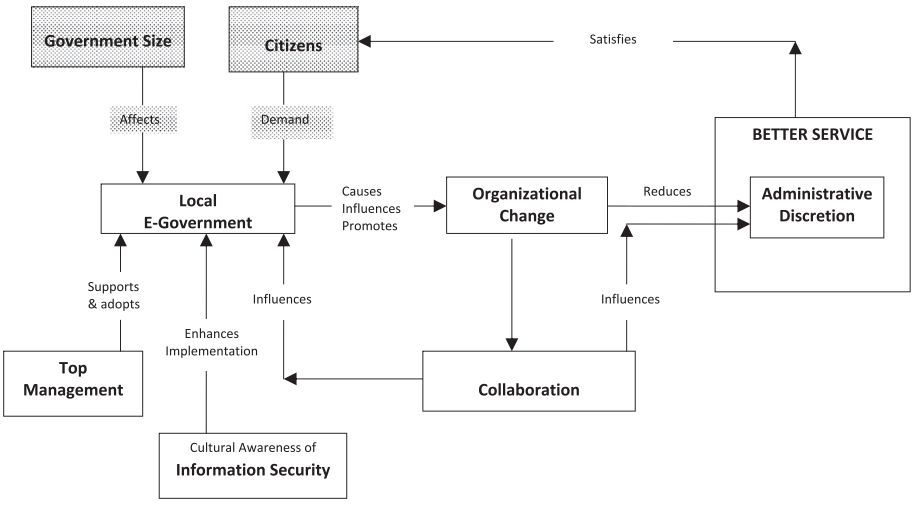


Figure 3 Administrative-discretion factors-dependency-diagram. The inter-relation between the different factors and the administrative discretion.

institutional structure can be temporarily compensated by good management, but if this latter disappears, e-government is doomed to fail.

The above findings can be translated into a set of practical recommendations to avoid the failure pitfalls and the different failure factors identified above:

- Enforce proper documentation of all public administration departments' projects and initiatives, and maintain a copy of it at the higher administrative levels to avoid organizational memory loss.
- Provide for a handover phase between management changes, supported by the above mentioned documentation.
- Establish a periodic inspection process to ensure that previously developed systems are up and running, and well utilized.

5. Conclusion

Reviewing the multiple studies assessing the e-government project in Matrouh and Al-Tor cities of Egypt, we could establish a correspondence between the different elements of two different assessment methodologies, namely ITPOSMO and ISSM.

The analysis of the previous works not only acquitted the information system from being the failure factor, but also identified the factors that have to be stressed upon in future implementation.

We could identify, among the ITPOSMO methodology, factors that can be considered critical success and/or failure factors, and others that can be only catalyzers (not sufficient by their own, but help if other factors exist). Reviewing the previous work, we could identify the projection of one factor (values) on other factors, which led to misjudgment of the effect of these factors.

The main factor that was found to be critical for both success and failure is the organizational structure which also corresponds to the organizational change factor that affects administrative discretion (and thus corruption).

This work is built around previously conducted surveys and analysis. It actually revises the conclusions made in the previous works and integrates the results from the different surveys. A dedicated survey would be in order for the verification of these findings.

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