

A Manifest of Barriers to Successful E-Government: Cases from the Egyptian Programme

Dr. Ahmed A.M. Abdelkader

Assistant Professor

The Marketing Department – Faculty of Business Administration

Counselor

Deanship of Faculty and Staff

University of Tabuk, KSA

Abstract

E-government solutions are claimed to have greater efficiency and effectiveness of government operations. Several developing countries' governments have therefore invested in this agenda and an increasing number of e-government projects are being implemented. However, there is a lack of clear case-study material, which describes the potentials and consequences experienced by governmental organisations trying to manage this challenge. The Egyptian Ministry of State for Administrative Development (MSAD) is the organisation responsible for the e-Government programmed in Egypt since early 2004. The MSAD perceives Information and Communication Technologies (ICT), and Information Management (IM) as strategic tools that could be used to deliver governmental services to citizens efficiently and effectively through various interactive service channels at their convenience. This paper presents the findings of two case studies for a couple of e-service projects led by MSAD. The results underline key benefits resulting from these projects, explain the strategies used in implementing the e-government projects, and highlight the main obstacles encountered. The findings also explain the relationships among those identified obstacles of governmental e-service development in a developing country context.

Keywords: Developing countries, E-service projects, Egypt, E-government, Case study

1. Introduction

E-Government has become a global phenomenon. Developing countries have been initiating E-government strategies and projects, as a way to promote development and reduce poverty (Schuppan, 2009). These projects can strengthen the performance of government and public administration; and also for economic and social development. E-government projects can contribute to solving administrative problems in developing countries whose public administration is characterised by inefficiency, limited capacity, and poorly-trained personnel. Electronic or “online” channels can facilitate government communication functions more rapidly, efficiently and cheaply than offline channels (Heeks, 2001; Lau et al., 2008; Al-Mamari et al., 2013).

Yet, given the e-government requirements of very complex socio-technical system; highly dependent upon overall institutional maturity; regulatory/policy frameworks; and socio-cultural considerations; the level of e-government implementation is lower than planned or expected in developing countries (Hassan et al., 2008; 2011). The gap between developed and developing countries in Internet technological infrastructures, practices, and usage has been wider rather than narrower over recent years. Beside the lack of sufficient capital to build up an expensive national information infrastructure (NII) on which electronic service is based, developing countries also lack the sufficient knowledge and skills to develop suitable and effective strategies for establishing and promoting electronic government (Chen et al., 2007; Fedorowicz et al., 2010).

The questions this research addresses can be divided into two parts. The first focuses on the types of e-government initiatives that are being undertaken in governmental organisations in Egypt. The second question focuses on the barriers and challenges that face the Egyptian government as it tries to implement an e-government programme. This is done by investigating the factors that are impeded in the development and/or the implementation of previous and on-going successful projects.

As a result, many lessons are learned and implications are emphasised to be taken into consideration in further implementation in these projects, or in repeating the experience other new e-service projects in the Egyptian government to be successful and widespread.

This paper is structured in the following sequence. Section 2 overviews the literature and displays the most important research that has discussed the topic of e-service in the government context. Section 3 highlights the research methodology, and then all the used data collection techniques and procedures are described.

A background to the Egyptian e-government initiatives is mentioned in section 4, while section 5 provides a background to the two centrale-government projects studied in this paper: The Family Card System and the Ministry of Justice (MoJ) project. Apresentation of the key findings comes in section 6 and a discussion of these findings, the impact of both projects, and the lessons learned will follow in section 7. Finally, the paper concludes with a number of recommendations based on the findings.

2. Literature Review

Existing literature shows an increasing adoption of electronic services by governments, although the level of implementation differs from one country to another. Also some studies show that the pace with which electronic services are made available and adopted is lower than planned in the least developing countries(Vassilakis et al., 2005; Colesca&Dobrica, 2008; Criado, 2009; Paroski et al, 2013). Governments tend to be slow in releasing new services and citizens often prefer to conduct transactions with the government through paper forms and physical presence rather than using online methods (Hassan et al., 2011).

Furthermore, many literature take into consideration the differences between developing and developed countries, and they pay attention to the factors behind these differences concerning e-service development (Basu, 2004; Chen et al., 2007; Lau et al., 2008; Al-Fakhri et al., 2008; Mukabeta et al., 2008). The differences indicate that e-government in less developing countries face slower progress or even stagnation because they encounter multiple and complex challenges. Although some of the following challenges are faced by the developed countries as well, the ability of these countries to recover and overcome the challenges are far ahead of the developing countries abilities(Chengalur-Smith &Duchessi, 2002; Hamner& Al-Qahtani, 2009; Gronlund, 2010; Molinari, 2011; Ramtohul et al., 2013). The reason is the difference in internet technological infrastructures, practices, usage, the sufficient capital to build up expensive national information infrastructure and sufficient knowledge. That is why the developed countries are so far leaders in e-services reaping the vast majority of initial gains.

Identifying and overcoming these challenges for developing countries is not always easy; given that the most currently published e-service strategies are based on experiences from developed countries, which may not be directly applicable to developing countries. It takes several research disciplines to identify and understand these challenges.

- **Privacy and security risk barriers:** Privacy and security risks emerge in literature as serious concerns in the era of e-service. The reason is that if they are not properly managed, they could pose a threat to the viability of e-service. The concern about the misuse of personal information disclosed on the web, the protection of data, and the use of online financial transactions has become a significant issue in developing e-service systems in the government context (Parasuraman, 2000; Vassilakis et al., 2005; Belanger & Carter, 2008;Schwester, 2009; Molinari, 2011).
- **Legislative Barriers:** arise mainly from such issues as the lack of a suitable legal framework that addresses submission of electronic documents, liability emerging from electronic documents, and proofing value of electronic documents against paper documents. For the proof-of-identity and the electronic document integrity, there is not currently a globally accepted framework for all services. Electronic signature technology is accepted in some countries and/or for specific services, but there exist countries and services classes for which electronic signatures are considered inadequate. In addition, legal issues, such as the requirement for physical presence, physical inspections, audits, and examinations, may hinder the transition to electronic services, since some manual processes will still remain in the workflow(Vassilakis et al., 2005; Chauhan et al., 2008; Shareef et al., 2010).

- **Administrative Barriers:** Government administrators prove in some cases reluctant to promote and introduce electronic services. One main reason is the managerial and administrative issues of e-service deployment in the public sector (Vassilakis et al., 2005; Velsen et al., 2009). The development and deployment of electronic services incurs significant costs for hardware platforms, software development and licensing, and employee hiring for electronic service administration and help desk operations.

Managers may find it hard to justify these costs to citizens, especially when the service's target audience is small and/or it is doubtful whether the target audience will ultimately prefer the electronic version of the service to the traditional paper based delivery channel. Lack of methods for productivity and progress monitoring and accountability- such as the lack of indisputable authentication system- are considered some of the administrative barriers as well.

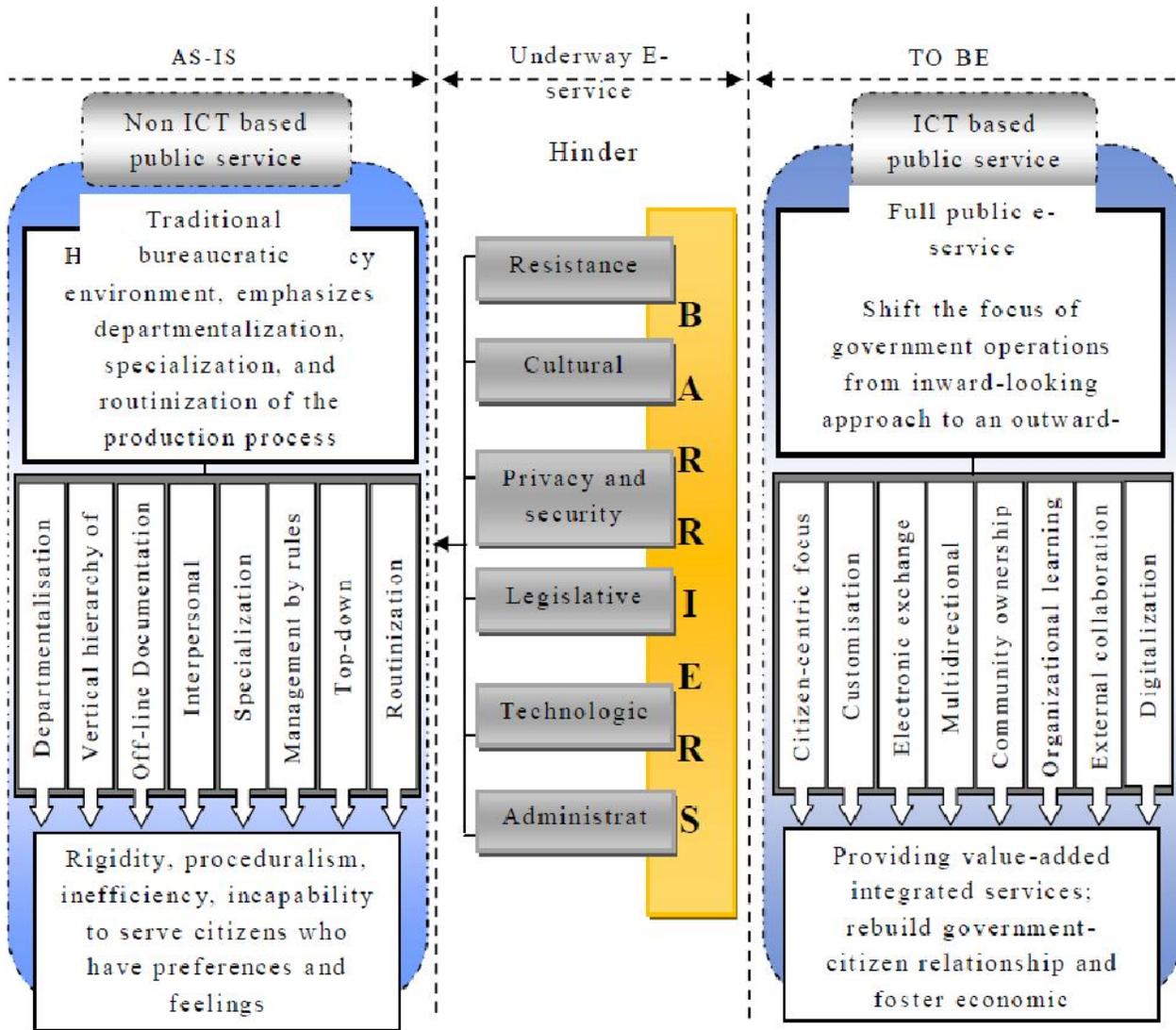
- **Technological Barriers:** Technology is viewed in literature as a major bottleneck in the implementation and maintenance of e-service systems in the public sector (Vassilakis et al., 2005; Gonzalez et al., 2009; Helbig et al., 2009; Janssen et al., 2009;). The focus of these studies is fixed on how governments deliver their services through the Web; while other potential electronic service delivery channels (e.g. I-mode, SMS, 4G phones, call centres) are not adequately considered in most studies. Studies report that Internet usage- either from home or from work- ranges from 77.4 % in North America to 58.4 % in Europe (in average), while the usage in Africa is only 10.9 % and 29.8 % in the Middle East (Internet Usage and World Population Statistics for June 30, 2010).
- **Cultural Barriers:** Cultural barriers appear to be one of the biggest obstacles for e-service implementation (Reffat, 2003; Ebrahim&Irani, 2005; Halaris et al., 2007; Hung et al., 2009). Some barriers may be ascribed to cultural or special characteristics of user communities. For example, specific citizen communities have a negative stance against electronic services and would only see "traditional" paper-based service channels. In addition, e-service designs and implementations may not take into account the language or culture background of the users. Finally, many citizens have a minimal understanding of how government processes are executed or decisions are made. This lack of awareness can prevent the citizen from actively participating in government services. Citizens and enterprises are not always informed regarding the Web addresses through which electronic services are available, or even whether an e-service exists at all.
- **Resistance:** Ebbers& Van Dijk(2007) and Ebbers et al., (2008) have defined resistance as the factor that hinders or stops the electronic services from inside the government. The employees may resist the shift of power resulting from the introduction of e-service. Employees possessing a certain amount of tacit domain knowledge are considered to have more power within the organisation. Introduction of electronic services converts tacit knowledge to explicit, depriving these employees of their source of power. Further, this initiation will generally require structural reforms in the organisation, modification of job descriptions and change in duties. Employees may be opposed to such changes especially those involved in paper-based service delivery channels, as they perceive the introduction of electronic services as a threat jeopardising their jobs. Studies in Information Systems describe how the resistance of users to a new system because of trust or other factors regularly hinders its implementation (Aladwani, 2001).

Reviewing the previous studies that have conceptualised the e-service challenges in the government sector facilitated the development of a framework (Figure 1) developed by the author as a synthesis for these studies. Also, the framework is adapted from the efforts being undertaken in developing countries, which are at a basic stage of their progress besides considering e-government lessons already learned in the developing countries world.

The framework considers the e-service development process as a transformation from the traditional rigid context; which is the current state in many developing countries; to full public e-service environment (desired end state) emphasising citizen-centric focus and digitalisation. While e-service transformation is on the move from the initial state to the desired state, a number of barriers hinder the e-service progress. The first part of the framework (the AS-IS part) represents the traditional rigid structure of the government as described by Ho(2002) as a hierarchical bureaucracy. This type of government structure is also characterised by its 'proceduralism', inefficiency and over-specialisation, making individual officials not aware of larger consequences of their actions. The designated target of the proposed framework (the TO-BE environment) is the full Information and Communication Technology (ICT) based government.

This paradigm is also characterised by emphasising the citizen-centric focus, community ownership principle, service customisation and personalisation, electronic exchange, multidirectional network, innovation, and organisational learning.

Figure (1): Framework Explaining Barriers of Governmental E-Service Development



3. Research Method

Data for the two case studies of the research is collected by conducting 10 semi-structured interviews with key senior officials involved in the e-service development process in the Egyptian government, especially those involved in these projects. The interviews duration ranged from 60 to 90 minutes each and they were all tape-recorded. All interviews were firstly transcribed in Arabic as it was the language used in interviews conversations, and then they were translated in English. Then, all records were organised as recommended by Yin (1994), and Marshal & Rossman (2010) in a database along with primary data (interview transcripts for each interviewee and author's field notes) and secondary data (official documents collected from concerned ministries).

As described in Miles & Huberman, (1994); Yin (1994); and Marshal & Rossman (2010) the information obtained from each interview was analysed separately where each interview was first broken down into themes. These themes had been already specified in the beginning of the semi-structured interview document before conducting the interviews. The reason of this thematic analysis is to identify the issues that are important to understand the e-government development initiative in Egypt. These major themes are:

- Conception of interviewee of e-government and its objectives in Egypt.

- The interviewee's views about major barriers and challenges encountered either before or during the implementation of the projects in various aspects such as: political, organisational, legislative...etc.
- The interviewee's opinion on how and why these barriers occurred and the previous and/or possible future solutions for overcoming them.
- Assessment of the benefits resulted from the project implementation and the perception of their success factors.
- The strategies, the key development and implementation steps, and the resources used for the implementation of the two projects.
- Suggestions and action plans for future planning of e-service in the public sector.

Due to the large amount of the data that needed to be analysed, coding process for the interviews has been done using the NVIVO as it is very valuable in following a systematic approach to analysing and reducing the vast amount of data. In this level of analysis, the author has developed trees of basic categories and sub-categories (Hierarchical node system) which helps in describing the features of the data, and facilitates comparisons between cases and spotting the relations between categories and sub-categories (Axial coding) (Richards, 1999; Marshal & Rossman, 2010). Using the data reduction technique available using NVIVO, the authors were able to illustrate the outcome of the data of each project in a model (network) which helped in explaining the findings.

For each case study, a model or a network is developed to display the most important dependent and independent variables (shown in nodes) and the relationships among them (shown by arrows). The plot of these relationships is directional, rather than solely correlational (i.e. some variables exert an influence on others). The approach used to generate the network is the "constructive" or "generative" approach. Accordingly, a full set of network variables are generated and come directly from the case data. This is done by listing all the events, factors, outcomes, processes that seem to be important in each case and then turn them into variables that can be scaled. For instance, the several disagreements on priorities become "organisational conflict". After rating all the variables, connections between pairs of variables that co-vary is drawn, that is variables that appear together consistently in the case, that have some kind of relationship.

4. E-Government Programme in Egypt

The project of electronic government is one of the strategic projects for building information base in Egypt. It would also pave the way for an informatics-based Egyptian society that would be able to cope with IT revolution and narrow the digital gap between Egypt and the advanced world. The Egyptian Government set up a secure hub for e-government based on the UK's Gateway system. Egypt had a deal with Microsoft to be in charge of the e-government implementation and the Government Gateway. The launch of the system for the secure e-government transactions was in 2004. Egypt initially expressed an interest in the UK Gateway technology at a meeting with UK officials two months before the licensing deal. The first services offered through Egypt's Gateway was electricity and telephone billing and payment of traffic fines.

MSAD moved on many fronts for rapid implementation and launch of this strategic project. The first stage included setting up the required infrastructure. Issuance of four documents concerning government networks, security systems, safety, application exchange and documents' archiving was achieved, in addition to putting license contracts of PC programmes into effect in cooperation with Microsoft. Following, services such as electronic payment of telephone and electricity invoices and the like were launched. The third axis focused on mechanisation of ministries' cabinets and affiliated authorities. MSAD has taken great strides in the implementation of e-government. Similar strides are needed for qualifying the Egyptian society for benefiting from the services offered by the project. Egypt has taken an e-Government initiative since the introduction of the Ministry of Communication and Information Technology (MCIT) in 1999, as part of its plan to turn Egypt into an information-based society (Azab et al., 2009). Egypt's commitment to utilising technology for the purpose of economic and social progress was further realised when the Egyptian government announced an effective e-Government programme that integrates ICT technologies to deliver government services at citizens' convenience (MCIT, 2004).

The vision of e-Government initiative in Egypt is "delivering high quality government services to the public in the format that suits them". Such vision relies mainly on three principles (MSAD, 2010):

- 1) Citizen centric service delivery;

- 2) Community participation; and
- 3) Efficient allocation of government resources.

With the new cabinet announced in Egypt in July 2004, a confirmation and commitment of Egypt to capitalise on the evolution of ICT for the purpose of government services and processes improvements were re-enhanced (Darwish, 2008). The official inauguration of the Egyptian e-government portal (www.egypt.gov.eg) took place on 25 January 2004 and was attended by Bill Gates during his first visit to Egypt, as Microsoft was chosen to be in charge of the project's implementation. The implementation of e-government was hindered by several challenges and obstacles. Accordingly, several projects were created in the programme, each directed towards a category of problems. The Family Card System project and MoJ project are among these projects created to increase efficiency and provide high-quality service delivery to citizens.

5. The Case Studies

a) The Family Card System Case Study

The system is one of the national projects which aim at linking various national databases of the family, using the national ID number. This is done using a smart card for each family to get various services such as subsidised goods, the pension security and access to health care funds in addition to other services provided to low-income families that deserve support.

The project aims to classify the Egyptian family into segments, according to the social and economic situation of the family, to determine those in need for support and optimal support value for each segment, that commensurate with the family condition. The family smart card is similar to the national ID card, designed to replace the traditional paper card. It includes all data and information about the holder and the whole family. The general manager of the project justifies the need for the project, as he explains:

“Before the initiative, the process of delivering food commodities was completely manual and paper based, which led to lack of follow up, high leakage ratios, and in-accurate delivery of the commodities to the deserved families. On the other hand, any changes that occur in the family data (new born insertion in the paper card, family address change, grocer change ...) should be registered on the paper document in the supply office, manually. The manual system is time consuming and opens the doors for inconsistency of registries, corruption, and mistakes. Not to mention the large storage space needed for filling such documents.”

Similarly, the delivery of social pensions suffered the same shortcomings before the initiative, (same process, and same disadvantages). This is the same case in the delivery of health insurance; it suffered the same weak points before the initiative. It is subject to bad manipulation and weak provision of the service. Hence, the Egyptian government has adopted smart cards as a tool to provide various social and support services (food commodities, social pension, health insurance, educational support...) to underprivileged citizens. Thus, the government relied on the use of information and communications technology as a means to manage and control the delivery of social services to citizens. Meanwhile, a database for the Egyptian family is implemented to support the decision making related to subsidised services.

b) The Ministry of Justice Case Study

This project is within the projects implemented by the MoJ to improve the delivery of services provided by the ministry. The project involves transformation of all courts and related agencies within a large framework rather than incremental improvements. Innovative methods, tools and techniques, are applied to themes such as modernisation through the provision of e-government services, change of organisational culture, administrative reforms or the overhaul of government service delivery procedures and the application of knowledge management processes. This transformation would provide timeliness, courtesy, access and client-orientation in public service delivery. The Head of Policies and Programme Sector in MSAD emphasised many benefits from the project. Also the General project manager supported this point as follows:

“Many gains are to be attained from the project like: the availability of e-government services at times and in ways that are more convenient to the public, speedy processing of applications or claims, reduction in the amount of paperwork and other activities citizens must perform in order to demonstrate compliance, streamlines processes, red tape decline, and improving coordination and increasing efficiency through the application of knowledge management processes.”

The National Databases Programme director tied the ICT role to the project as he explains:

“Owing to the new IT revolution, documentation in various forms can be utilised and can serve as evidence of a government’s conformity to legal, procedural and fiscal requirements, and improve processing of complaints and handling of grievances through e-applications.”

The project is a part of the efforts of the Egyptian Government for developing public governmental services. There were still many difficulties facing the judicial procedures and services. These difficulties result in numerous problems faced by the public, which deals with the Egyptian judicial system (citizens, businesses and foreign investors). It also negatively affects the business environment resulting in delays in implementing the national development plans.

A number of interviewees summed up the main judicial systems problems and obstacles as follows:

1. Judicial procedures are lengthy (some cases can take years to reach a verdict),
2. Ambiguity of procedures (as perceived by the public),
3. Reliance on ineffective and inefficient procedures,
4. Lack of monitoring and control of internal processes,
5. Low level of service offering to beneficiary community,
6. Need to process an ever growing large number of cases, large size of backlog (dating back up to 20 years at times),
7. Inability to follow up the execution of rulings, and unequal allocation of human and physical resources.

The following is a set of statistics expressing the main judicial difficulties: according to the estimates carried out by the Judicial Information Centre (JIC), the total number of yearly registered cases for all courts reaches 1.2 million cases (800 thousand at courts of first instance, 300 thousand at appeal courts, 100 thousand at the court of cassation); the total number of cases handled yearly for all courts is about 15 million cases, this number is expected to consistently increase, since the overall ruling capacity does not exceed 800 thousand cases annually; the capacity of collected claims resulting from fines and contraventions is about 20% of overall claims; the accumulated number of cases at the Experts Authority is increasing annually. Obviously, there were many problems with the system in place, which according to the statistics were not about to be resolved any time soon; as the number of accumulated cases was annually increasing instead of decreasing.

6. Findings

The created networks for the two case projects (shown in Figures 2 and 3) illustrated clearly the outcomes of the data analysis and helped the development of the findings. Each figure shows the different objectives for each project, the prospective benefits attained from them and the drivers that facilitated the launch and the implementation of the projects as emphasised by the group of interviewees. All these groups of elements are then associated with the groups of barriers that appeared throughout the life of each of the two projects. Both figures show this link between each of those elements (objectives, benefits, drivers) and the barriers. Some of the elements shown in the figures participate in eliminating some barriers. For example, one of the project’s main objectives can be related to overcoming a persistent problem that concerns a group of stakeholders. On the same level, one of the main benefits attained of the projects, and/or one of the main drivers behind the projects can be associated with the solution of the occurred barriers, or even has a role of the attainment of one of the main projects’ objectives.

For instance, in the Family card system, Figure (2) shows that the coordination as a driver helps to overcome the barrier of changing culture of both service provider and service recipient. The participation of ministers of both MSAD and the Ministry of Social Solidarity make people understand to some extent and convinced that the project is worth trying. The same driver (coordination) ends the barrier of lack of cooperation of some governmental entities with the project and/or the lack of cooperation that sometimes exists between employees in different departments.. Through the same driver (coordination), the objective of establishing and integrating electronic national databases could be attained. The coordination between different entities in the same government makes it easier to exchange the data among them and helps fast completion of the required databases.

As for the MoJ projects, Figure (3) shows for example that the Information Technology as a driver and facilitator of the project helps attaining the objective of case management system development, providing electronic services to citizens and other administrative issues like financial adjustments system, reservations and entries systems, along with all the departments in the courts are to be automated.

The IT driver facilitates the progress of automation in the project which includes simplification of procedures, post procedures engineering. The attainment of this objective is associated with ending the problem of increasing backlog of cases each year, and results in savings benefits for both the government and the public.

From both Figures (2) and (3), many findings could be drawn. For example, in the network in Figure (2) for example, it can be seen that the problems faced by the Family Card system were spread along the life-time of the project starting from the budgetary problems (even before the commencement of implementation) as the project manager explains:

“The main barrier that impedes the implementation in the rest of the country is the funding”.

Also, most of the interviewees stressed the lack of cooperation between the different governmental departments involved in the project and the conflict of priorities among ministries as major problems facing this particular project. This point is supported by the Executive project coordinator as he explains:

“When we ask a budget from the ministry of finance, they tend to be lazy in approving the budget right away. And they don’t provide the project the assigned budget all at once. Instead they pay it into instalments and some of these instalments get delayed resulting in the interruption of the project progress.”

This matter was also confirmed by the advisor of strategic projects in MSAD:

“The service of providing the health insurance on the electronic family card was postponed one whole year for that reason of funding.”

In the same project, it can be noticed that these problems are related to different groups of barriers. This means that, efforts to overcome these bundle of barriers have to go in different directions (organisational, resources, and cultural) for the guaranteed success of the project.

On the other hand, when examining the network in Figure (3) related to the MoJ project, it can be noticed that most of the barriers were encountered during the implementation of the project. In addition, they are mostly cultural related, the lack of motivation to use the new services, lack of awareness of the new services existence, the resistance to use them as a result of the citizens’ negative attitudes towards the new technology, or because of the corruption of some employees that make them discourage the widespread of the project. The project manager of the project explains the occurrence of this resistance and justifies the reasons as she says:

“Resistance existed, and it was a major concern at the beginning. Traditionally, people have negative stance against anything electronic and would only use 'traditional' paper-based service channels. There were many reasons behind this. For example, some employees manage to get illegal income from the traditional way of doing the service. They take advantage of the citizen lack of knowledge of work flow cycle and exploit the citizen need to get his/her service done.”

The efforts in this case are all directed to the changing the culture inside courts and other judicial organisations. Mandate decisions are to be taken to make the projects benefits in reality not only on theory. But these mandate decisions are postponed in purpose in some cases/problem. For example, knowing that people might not be aware of the introduction of the service, MoJ didn’t do anything to increase the awareness, like launching some campaigns or even exerting some pressure of indecent layers and/or employees. This is one of the important notes the general manager of the project stressed

“Themistry has a certain view regarding this issue. It is preferred to wait until the whole system is created that serves and operates better, then move to the next stage which is how to create the pressure and make the people aware of the system.”

Furthermore, when comparing the networks of the two case projects, it is noted that they share the political will as a factor that facilitates the successful implementation of the two projects. In fact all interviewees have consensus about the political will as a driver for all e-services projects implementation in the Egyptian government. They agreed that strong political will saves the projects from efforts attempting to terminate them. This cover gives the projects the legitimacy, sovereignty and mandatory shield.

Both networks show the mutual goal of the two projects which is the provision of services to citizens wherever they are. The citizen service is the core of these projects and the electronic government is a citizen-centric practice, which supports the traditional government with a main mutual goal which is public satisfaction.

Figure (2): Family Card System Project

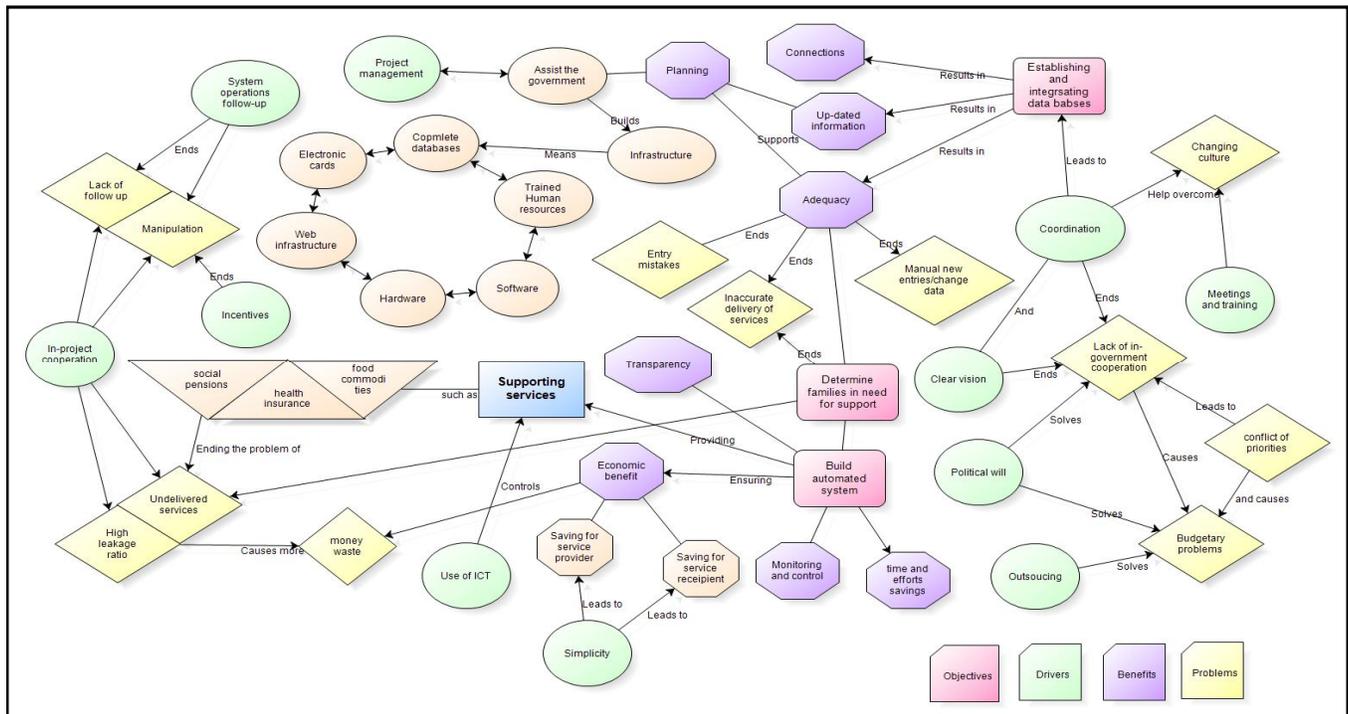
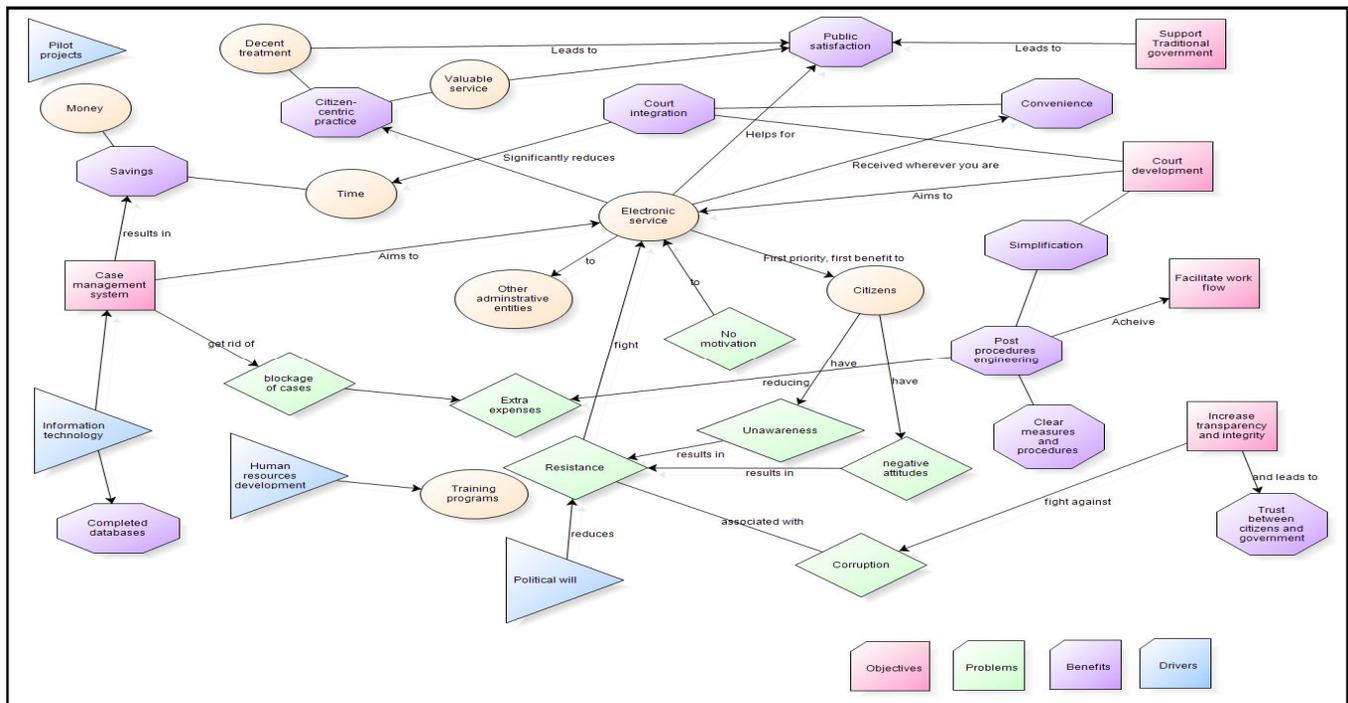


Figure (3): MoJ Project



Another network (Figure 4) is created from within the two cases analysis illustrating the categories and subcategories of barriers in a hierarchical structure through the use of parent/child relationships.

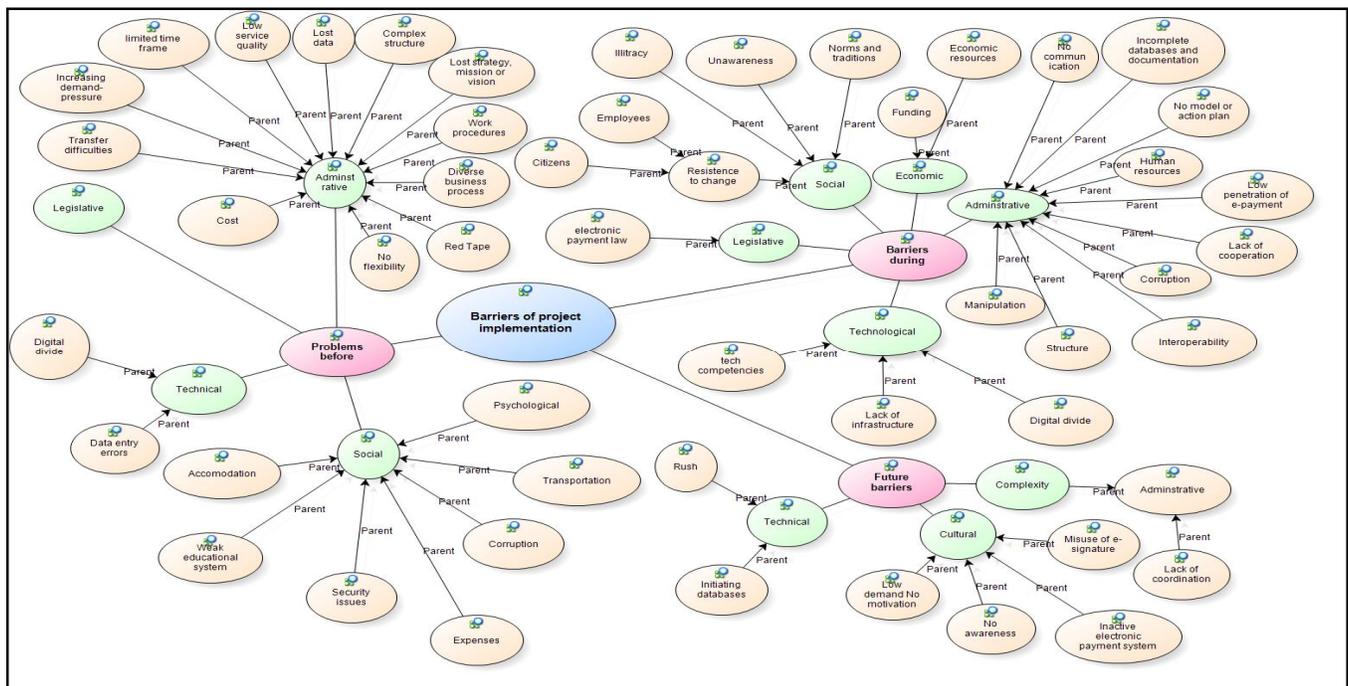
The barriers of both projects implementation are categorised according to the interviewees' perception to:

- Barriers existed before the start of the projects implementation and could have put the whole initiative at risk,
- Barriers occurred after the start and during the actual implementation of both projects,
- Possible future barriers that might be encountered in a later stage of project implementation and/or sustainability.

After analysing these groups of barriers, many key findings emerged:

- There is an enormous stress from the interviewees on the lack of coordination among many governmental ministries and organisations. This indicates that the Egyptian government is not corporate. This means that the plan is neither unified nor shared. "The corporate government" is theoretically applied in Egypt but it is not activated.
- Electronic services are not a priority for citizens (the key beneficiary from the projects). Routine is not their main consistent problem that they are looking forward to solve in the time being. Although the projects initiatives provide many opportunities for their own convenience and satisfaction, but still, there is very low demand for what is supplied by these projects.
- Officials did not deny their failure in increasing people's awareness to their projects. They admitted insufficient efforts either from the relevant ministries or the effort of the government in general. In addition, the awareness barrier existed from inside the government as government employees lack awareness regarding the potential of electronic services and the added value that they offer to society.
- Finally, there is a huge stress on the administrative system regulations barriers as they are not performed properly at the operational level. The senior officials are dragged into the operational processes. There are no policies to authorise others to do the rest. Some interviewees believe that the problem began with the lack of clear policies and strategies in the administrative system. However, the majority of the interviewees emphasise that the more serious problem is in the execution of these regulations and rules in most cases.

Figure (4): Groups of Barriers



During the interviews, Interviewees were asked about typical problems they encountered as well as the problems they are expecting to have in the future. In addition, they explained what was done about these problems and the future solutions to solve the predicted coming problems. Their notes have been coded and entered into **Thematic Conceptual Matrix** (Table 1) where more general conceptual themes can be the ordering principle. For example, the problems are clustered into groups to define which are technical, which were cultural, and which were organisational in nature.

Similar clustering has been carried out with the results of the coping strategies. For example, in the Family card project case, two types of training were applied, theoretical and on-the-job training. The objective of the training was to make the employees comfortable with the automated system. The same happened in the MoJ projects where extensive and IT training courses took place to train civil servants who thought they will be replaced by younger, computer literate employees.

This led to overcoming many problems at one time: it removed the fear from dealing with technology as a threat to employees, increased the human resources skills needed for the sustainability of the projects, and also helped reducing corruption within government agencies resulting from lack of monitoring and accountability methods associated with traditional, paper-based environment.

Many of the strategies included in Table (1) have already been adopted in both case projects (as previously explained) for the problems that already appeared. The rest of strategies are suggested to solve the future challenges that are expected to be encountered in a later phase of both projects implementations.

Table (1): Summary of Projects Problems and the Suggested Strategies

Coping Strategies	Problems				
	Economic	Cultural	Legislative	Technological	Administrative
Sovereignty and mandate		Resistance to change	Ineffective law implementation	Incomplete infrastructure	No communication
		Norms and tradition		Incomplete databases	Lack of cooperation
Decision enforcement	Budgetary problems	No demand/no motivation	Complexity of required laws	High technology set-up cost	Conflicting priorities
			Insufficient laws		
Awareness campaigns		Unawareness			Corruption
		No demand/no motivation			Lack of trust
		Inactive citizens' participation			Lack of transparency
		E-service is not priority			Lack of innovation incentives
Reform		Illiteracy		Incomplete infrastructure	Old structure and processes
				Digital divide	Complexity
					Red tape
				Incomplete databases	Poor organisational infrastructure
Partnership	Lack of financial resources	Lack of competitive pressures forcing change		Security and privacy	Lack of vision and strategy
				Lack of expert assistance	
				Insufficient authentication methods	No model or action plan
				High technology competence	
Laws amendments/initiation			Absence of legal framework		
			Unsuitable legislations		
Training	Lack of skills amongst staff	No demand/no motivation		Technical competencies	
		E-literacy			

7. Discussion

The research contribution lies in its aim to examine two e-service projects implemented within the Egyptian governmental system, known as one of the richest bureaucratic systems in the world. The nature of the traditional, large size of government and the existence of a government monopoly make Egypt an interesting case for this research. The examination of the projects has been done by focusing on the specific barriers that influence e-service development. This is believed to assist Egypt and any other country with similar characteristics across key variables in the uptake and planning for e-service. In addition, the research aims to fill the void in the in-depth empirical research on the e-service topic specifically in the Egyptian government. The process undertaken in designing this research, collecting and analysing the data has revealed some key findings and learning lessons through the identification of the key barriers that hindered the implementation the two projects.

A summary of the findings for the two cases are included in Table (2). The table compares between the findings the two projects according to certain criteria, those are: the interviewees perception about the key benefits resulting from each project, how and when the projects were implemented by defining the strategies used in the implementation, the key development and implementation steps, the main obstacles encountered and the resources used in implementation. The table also shows how both projects can be transferable and sustainable.

There were clearly a number of impacts that can be listed:

1. Reduction of the cost of providing the services.
2. Better targeting of service beneficiary (since all relevant data is stored in an electronic database, it is easy to identify them).
3. Better decision making. For example, if statistical data show fewer tendencies to use certain items, other highly demanded items can replace these items.

Major lessons learned from the examined cases which can be summarised below:

1. The main impact of both projects as emphasised by the majority of the interviewees is better management within the system, and improved public services. This was obvious in the feedback received from beneficiaries that used new services at new service outlets, as well as users of the online services, and also from the surveys conducted to measure beneficiary satisfaction with the new services.
2. The new systems, along with the institutional development and business process reengineering have lead to cost savings, and better efficiency.
3. ICTs, as the main tool utilised to reach the development goal, have many challenges to deliver, but they are not impossible to overcome. ICT, if implemented successfully can have a tremendous impact on public services.
4. The projects provide additional benefits that range from standardisation and lower maintenance by means of solution unification for more sectors/services (one system instead of multiple systems) to easier, greater and more accurate reporting capabilities utilising one database while reducing error and increasing efficiency, credibility and accessibility for beneficiaries to their own records. The two projects also provided a good example of cooperation between the public and private sectors for better serving the public and reducing the government expenses which can be used in other sectors.
5. According to all interviewees, they believe that all big projects should start with a pilot project to prove the success of the initiative even if on a smaller scale, to discover problems, rectify them and create a win-win case with all stakeholders.
6. Social considerations of the project should be considered prior to technical aspects. Citizen considerations and requirements should be taken into account from the start before planning and implementation phases.
7. During the interviews discussions, several interviewees linked capacity building of different stakeholders is crucial to the success of the projects. Also they emphasised that considerable effort is required to change the citizen's culture to use new technologies for service delivery. The key performance indicators of the system should be clearly stated and followed up.

The literature and the findings of this research are in agreement on several issues. **The first issue** is that they refuse the common misconception about the transformation to e-government being easy and simply a technological change. The interviews with all stakeholders revealed their obvious opinion about the development of e-government being a complicated transformation with diverse challenges.

Although technology is a part of the these challenges, but the findings show that technology was the easiest one to overcome as it is relatively not expensive now and very efficient. In addition, the savings achieved from the projects justifies the cost of technology.

Secondly, the opinions emerged from the research findings indicated that the process of implementing electronic government projects in developing countries such as Egypt is more difficult (as supported by literature) than in developed ones. The reasons lie behind many reasons according to many interviewees including the difficult economic conditions, weak human assets in developing countries and the gap between developed and developing countries in Internet technological infrastructures, practices, and usage. One of the senior officials expresses that:

“Egypt tries to overcome kinds of difficulties as a developing country by signing agreements with multinational companies such as Microsoft and IBM to provide the latest technologies to the government. Though, Egypt cannot still take the full advantage of the digital information age.”

Despite the previous similarities between the research findings and the prior studies in literature, this research revealed more emphasis on cultural issues of e-government transformation in Egypt, more than any other issue emphasised by these studies. Findings show the Egyptian e-government transformation concerns focus more on cultural than administrative, political, and legislative barriers. Although these groups of barriers exist with different degrees, it is expected that due to the social and cultural problem roots, the e-government development and transformation in Egypt would be complicated and time consuming challenge and requires long-terms solutions.

Table (2): Summary of the Findings for the Two Cases

	Family card system project	MoJ project
Key benefits	<ul style="list-style-type: none"> • Delivery of the services to the underprivileged citizens through a computerized application, up-to-date database, and efficient incurring system. • Monitoring, control over the infiltration and loss in supports. • Creation of a civilised environment through which underprivileged citizens can acquire their services. • Transparency through the establishment of clear and neutral processes for acquiring and managing subsidies. 	<ul style="list-style-type: none"> • Development of all judicial procedures and reducing administrative burden. • Raising the efficiency and effectiveness of judicial systems at all levels • Creation of a national judicial cases database. • Offering quality services through multiple delivery channels to all stake holders. • Imposing complete transparency by simplifying the judicial procedure and its proper comprehension by all stake holders. • Strict enforcement of legislations by increasing the rulings execution capacity. • Linking the judicial cases database to rulings execution authorities.
Strategies	<ul style="list-style-type: none"> • A pilot to measure the feasibility before generalisation all over the country. • Outsourcing the implementation, operation, and maintenance of the system. • Employing only one card to support all support services. • Ensuring that the citizen should not bear any extra costs. • Centralising the design and decentralising the implementation. • Decentralising service provision by creating untraditional outlets to fulfil the citizen's needs. • Applying new methods of management that consider the aspect of efficiency and guarantee the ideal usage of the 	<ul style="list-style-type: none"> • Setting a clear vision, and aligning all relevant stakeholders to that vision. • BPR: processes are scrutinised by administrative burden reduction experts. • Securing top management’s support at all relevant bodies, ensuring timely implementation. • Capacity building of civil servants that are going to use the actual it applications. • Outsourcing and utilising the expertise of multinational and private-sector • Compilation and documentation of all judicial procedures; co-ordination between all entities participating in the judicial procedures development project; linking judicial procedures and rulings to the national id number.

	resources.	
Implementation Steps	<ul style="list-style-type: none"> Establishing an electronic database for underprivileged families and the transactions performed for each type of service Defining the overall system technical architecture. Preparing the top-level design of the system, and defining the system configuration. Developing applications to manage the service database to support provision of the service. Issuing multi-application smart cards for services delivery. Building the network infrastructure of the system that allows all stakeholders to communicate together. Building the service centres that manage the database updates. Building a call centre to receive the citizens' requests and complaints. The centre is equipped with a complaints management system that traces the received complaints until fulfilment. 	<ul style="list-style-type: none"> A senior project manager was appointed at MSAD to lead the project. Project scope was defined and set to include all types and levels of courts, prosecution offices, support agencies and other relevant bodies. Strategic technology partners were brought in to oversee local development partners, as well as finance the development activities. Institutional development experts went on to analyse business processes at all judicial organisations, ahead of requirements gathering for information systems. Scope was set for all courts to include a case management system, internal workflow automation system, integration with all relevant judicial/support bodies Setting up service provision outlets (one stop shop) within courts instead of in-office services. The Judicial Information Centre was identified as the future central hub for all judicial applications, including the Judicial Case Database, integrating with courts, prosecutions offices and support agencies.
Implementation Steps (cont'd)	<ul style="list-style-type: none"> Training the system users: theoretical and on-the-job training sessions. Hardware and Software installation and overall system launching. System testing, namely: Unit tests, programme tests, integration tests, performance tests, loading tests, installation tests, acceptance tests, and interoperability tests. 	<ul style="list-style-type: none"> Institutional development experts delivered in their reports, and their recommendations were implemented. In parallel, extensive training courses had started for civil servants at different judicial organisations. Next, the development partners came in, and developed their respective components of the project.
Obstacles	<ul style="list-style-type: none"> Employee's culture to work manually and the reluctance to use the automated system. Having no technical background Citizen's culture used to deal with paper card and may never have dealt with electronic equipment Difficulty to get acquainted with the new system. Conflict of priorities. Lack of in-government cooperation. 	<ul style="list-style-type: none"> The digital divide, and the computer illiteracy and resistance to change of civil servants. The lack of qualified and skilled human resources within judicial offices structures. Interoperability and multiple service delivery channels, as the information systems were to be integrated with numerous other agencies. The huge size of backlog that needs to be entered into the new information systems. Undependable electricity and internet connections at remote judicial offices and weak infrastructure at remote areas. Unsuitable work environment. The large number of stakeholders involved in the project.
Resources	<ul style="list-style-type: none"> Database Technical Unit (DTU): dedicated to electronic database activities management. 	<ul style="list-style-type: none"> The technology partners who brought in their local development partners through the strategic rebate agreement between them and the

	<ul style="list-style-type: none"> • Distributed Team (DT): dedicated to manage the implementation of the Initiative activities amongst different Egyptian governorates. • Family Project Task Force (FPTF): responsible for DTU supervision, DT follow-up, and ensuring that the overall system components are correct • Project Management Group (PMG): responsible for follow-up of all resources, as well as managing other project procedures, such as: financial, management, and technical issues. 	<p>Government of Egypt.</p> <ul style="list-style-type: none"> • Institutional development expert appointed to review and reengineer the internal processes and public services offered by judicial entities. • Total first phase cost was around US\$6.5M. This covered the costs for all hardware, software licenses, communication lines, training and development, workplace development, in addition to project management costs. • The second phase entails deployment/roll-out of case management and other information systems at all remaining judicial institutions, and putting the same system in play at those institutions. Its cost is estimated at US\$18 million.
<p>Sustainability and transferability factors</p>	<ul style="list-style-type: none"> • The running cost of the system: the contracting cost of the entire project for subsidised food is less than the savings, which means a net reduction in the food subsidy budget. • Technology, the use of multi-application smart cards to add more services over time, the installation of a backup/alternate site, System security against unauthorised access, expandability and interoperability • Awareness and media campaign • Phased implementation plan of the system 	<ul style="list-style-type: none"> • Some of the project revenue allocated for the constant upgrade and development. • ICT development programmes put in place so that information systems teams would be always up to date with the latest technologies. • Specialised training units set up within the Judicial Information Centre for training new systems users, as well as further the use of ICT within the judicial agencies. The Judicial Information Centre is also responsible for maintaining the central national judicial database, linking all judicial entities in Egypt together. • Setup of a geographically remote disaster recovery site, synchronising daily with the main site.

8. Conclusions

The programme of electronic government is one of the strategic projects for building information base in Egypt. It would also pave the way for an informatics-based Egyptian society that would be able to cope up with IT revolution and narrow the digital gap between Egypt and the advanced world. The programme’s impact cannot be neglected. The public in Egypt are now much more open to more e-Government services. The Family Card System Project and the Judicial Procedures Development Project are the result of the fruitful co-operation between numerous government organisations, as well as those from the private sector. This promotes cooperative and integrated work among them or groups of them in the future. In addition, utilising several different local development partners within the project contributes to the capacity building of the ICT industry as a development goal.

The need to synchronise all stakeholders to the big picture and the projects vision, and building a sense of ownership within relevant stakeholders are top priorities. A modular approach to roll out such huge projects is best versus going for a big bang approach. Also it can be concluded that responsibilities should be clearly defined and assigned; beneficiary convenience should always be the target when developing a service; centralisation of ICT applications can save many costs; decentralisation of service delivery is a must.

As can be easily concluded from the components of the projects, both projects are highly dependent on ICTs, be it archiving systems, human resources management systems, different databases’ integration, or even specially tailored applications for each process and procedure.

ICTs are the tool for the development of projects processes, as well as facilitator of information flow between organisations in Egypt and other government entities. And above all, the management systems provide monitoring and evaluation of the whole system's performance, which is of the utmost importance.

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