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# e-ALEXANDRIA 2005-2010: A MULTI-PERSPECTIVE ANALYSIS

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ABSTRACT
The Egyptian local e-government programme was established in 2002 to enhance both the quality and efficiency of government systems. The e-Alexandria project, initiated in 2003 represents a milestone in this programme. The project incorporated seven councils that underwent technical, business and work-environment restructuring. This involved architectural remodelling, renovations, furnishing, technological infrastructure setup and back office preparations, as well as personnel training and backlog data entry. Later extensions included content development and an online services portal.

This article presents a brief review of the process of constructing e-government systems experienced through the e-Alexandria project, which has continued to evolve over a full decade. The article provides a view of three services, namely elevator installation permits, street occupation permits and retail shop licences, as these are very important local government services for communities. The article uses the Lenk and Traunmuller (2000) multiple perspectives to document the public service reforms that occurred in the introduction of e-government. It comments on continuation of the local e-government programme post the January 25th revolution.

KEY WORDS:
multi-perspective e-government, e-Alexandria, public service reform, Egyptian local government development programme (ELGDP)

## ADMINISTRATION OF LOCAL GOVERNMENT IN EGYPT

Egypt is comprised of 27 administrative sections, or governorates, of various sizes, populations and resources. Governorates are further administratively divided into cities and districts, which are in turn divided into neighborhoods. The governorates have a certain degree of administrative freedom, but are financially and politically managed by central government. Central ministries have "antennas" at the governorates level, called directorates. Local government manages its operations based on rules, regulations and legal requirements created by the central government. However, it has autonomy in how it provides services to citizens and how these processes are managed. Generally, services are delegated to the cities and neighborhood councils. A limited number of services are sometimes concentrated in the governorate headquarters (HQ), particularly where they are of a strategic nature, such as financial investments.

The Egypt e-government programme focuses on service delivery at the level of cities and neighborhood councils. The major cities where the majority of the population resides are Aswan, Luxor, Sohag, Minya, Beni Suef, Medinat al-Fayoum and the capital city Cairo, all located along

the river Nile; Alexandria and Marsa Matruh located at the coast; and Suez and Sidi Abdel Rahman. The administrative functions within neighbourhood councils can be divided into four main categories:

1. Top management (Mayor or Council Head and Deputy Mayor/Head): Directs and monitors the progress of services and operations in the different departments as well as sets the targets and plans for the community.

2. Internal services departments: Provide services pertinent to the municipalities, covering, among others, housing, construction permits, commercial licences, and services that are directly managed by the mayor/district council director.

3. External services departments: Provide social and economic services such as education, health, social security, agricultural services; and report administratively to the Mayor, and technically to the relevant central government ministries.

4. Administrative departments: These are the supporting departments that perform the necessary administrative tasks required for the council, such as human resources, accounting and transportation, and do not provide services to the public.

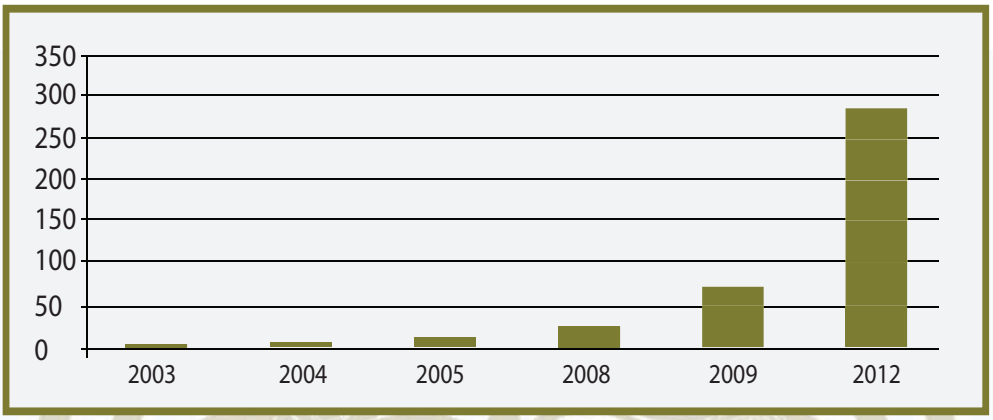
## EGYPT LOCAL E-GOVERNMENT PROGRAMME

Egypt local e-government initiatives were introduced in 2002 at the purely administrative level, with steps taken towards automating the work systems and reorganising management. This is part of the Egyptian Local Government Development Programme (ELGDP), which employs information and communication technologies (ICT) and state-of-the-art management systems to enhance both the quality and efficiency of government systems, to reduce time and to overcome corruption at the workplace, thus contributing to the overall development of Egypt. However, as Egypt is a developing country, local government is a source of employment and salaries are not high, hence ELGDP projects do not aim to fully automate the services, but rather to enhance the operations using ICT to reduce delivery time and to establish a monitoring and control system that provides better transparency and equity. As regards the service improvement process, work in ELGDP projects involves three main stakeholders: governorate management and employees; an outsourced contractor who is responsible for systems analysis, design, development and deployment; and the Ministry of State for Administrative Development (MSAD), which acts as a mediator between the governorate and the contractor and is responsible for project management and quality.

The Egyptian LGDP has three main projects: The first project is related to service enhancement in municipalities and includes automation of services provided to citizens and the establishment of the smart "Citizen Service Centers". The second project is concerned with the development

of web portals for the governorates. The third and most recent project is on Citizen Relationship Management (CRM), the government version of customer relationship management. CRM aims to provide citizens with a means to communicate their complaints and suggestions to the government entities. Figures 1 and 2 illustrate the general progress of implementation of the citizen service centres and portals/websites since the inception of the project in 2003 to 2009, according to the actual status of the implementation plan, and the proposed number of centres and websites for 2012. In 2009, more than 80 e-government citizen service centres were operational in 20 governorates, with more sites under development.

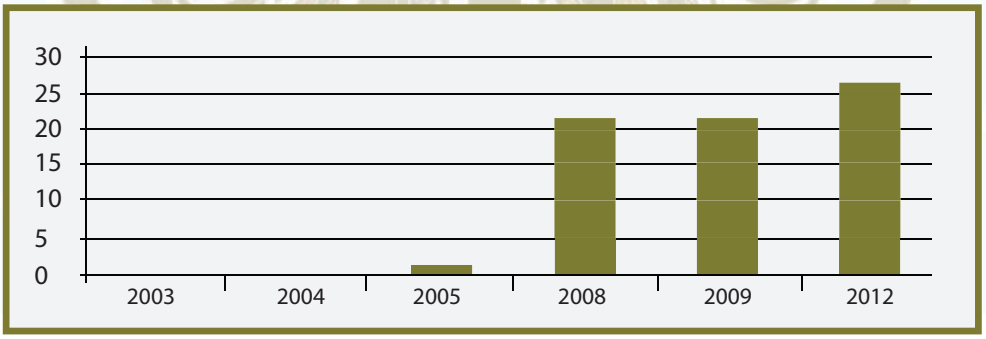
FIGURE 1: NUMBER OF SMART CITIZEN SERVICE CENTERS IN EGYPT




Source: MSAD, 2011

The 2012 target was to establish CSCs in approximately 290 cities and towns of Egypt, but this could require tripling the budget. The further objective was to have 27 portals/websites by 2012, one for each governorate.

FIGURE 2: GOVERNORATE PORTALS/WEBSITES




Source: MSAD, 2011

The programme team is designing a new model for Phase 2, using a more flexible workflow engine; running an applications service provider (ASP) model for the applications; and integrating the governorate portals, online services, complaints spaces (web and phone) together with the cities' and HQ backend workflow/tracking engine. Given this possible second project phase, it is important to look back at Phase 1 to understand key issues to inform future development of citizen services centres.

In 2002, a project was started for the automation of municipal services in the port city of Safaga on the Red Sea (population 30 000). It was followed by a larger project, the e-Alexandria initiative. The e-Alexandria initiative falls within the scope of the project on service automation and citizen service centres. Experiences gained from e-Alexandria have laid a platform to move towards multi-level e-government, that will include the national, governorate, city and neighbourhood levels. This article reviews the provision of three specific services through smart citizen service centers in the e-Alexandria implementation.

## PREVIOUS E-GOVERNMENT RESEARCH TO GUIDE ANALYSIS OF E-ALEXANDRIA

Government departments and procedures are commonly held to be inefficient, because they have little motivation to please the citizen, and the citizen does not have an alternative provider available to him/her for these services (Kraemer & Dedrick, 1997). By the end of the 20th century, the emerging vast networks of interacting public, private and voluntary organisations could no longer be served using the traditional setup of single administrations for single services and specific functions (Lenk & Traunmuller, 2000). In fact, the necessity for modernisation and the introduction of enhanced business models for services and administration was realised by governments worldwide (Ho, 2002; Moon, 2002; West, 2002a; West, 2002b). In order to cost effectively deliver the increasing number of services in demand, governments introduced technologies to serve citizens in a timely, effective and efficient way (Aicholzer & Schmutzer, 2000; Kraemer & Dedrick, 1997).

The key reasons for these major public sector reforms have been to increase the efficiency of government operations, strengthen democracy, enhance transparency, and provide better and more versatile services to citizens and businesses (Ho, 2002; Coe, Paquet & Roy, 2001; La Porte, Demchak & de Jong, 2002; Watson & Mundy, 2001). e-Government technologies can serve a variety of different ends: better delivery of government services to citizens (Choudrie, Weerakkody & Jones, 2005; Navarra & Cornford, 2003), improved interactions with business and industry (Davison, Wagner & Ma, 2005; Riemenschneider & Mykytyn, 2000), citizen empowerment through access to information (Marche & McNiven, 2003; Susman, 2001), or more efficient government management (Burn & Robins, 2001; Holiday & Yep, 2005). The resulting benefits can be less corruption (Wong & Welch, 2004), increased transparency (Davison et al, 2005; Wong & Welch, 2004), greater convenience (Ho, 2002; Carter & Belanger, 2005; Norris & Moon, 2005), and cost reductions (Carter & Belanger, 2005; Norris & Moon, 2005).

Aicholzer & Schmutzer (2000) identified three major organisational challenges faced by initiatives to implement e-government including: 1) guiding principles and problems of restructuring administrative functions and processes; 2) requirements of, and barriers to, coordination and cooperation within the public administration; and 3) the need to organise monitoring of performance in terms of e-government. The framework proposed by Lenk & Traunmuller (2000) sees e-government initiatives segmented into five perspectives: e-business, citizen, knowledge, (business, administrative, service) process, and tele-cooperation. This article takes an e-government view, in other words, building an understanding of the advances in government administration and services from a public service reform perspective, utilising the Lenk & Traunmuller (2000) framework and the specific issues of public sector reform discussed above.

## E-ALEXANDRIA PROJECT DESCRIPTION

Alexandria is one of the main governorates of Egypt, located in the north of the country, and is one of the most important harbours in the Mediterranean. The capital of the governorate is the city of Alexandria with a surface area of 2 900 km$^2$ and a population of around 4.9 million inhabitants, as compared with Cairo's much larger population of 20 million. The overall goal of e-Alexandria was to improve the quality of public services while cutting administrative costs. A unique objective of e-Alexandria is that it was meant to be "productisable", in other words, product and experience were planned to be easily replicated in various cities and regions of Egypt. The scope of work for the pilot e-Alexandria project in seven districts incorporated administrative restructuring, civil works, renovations, furnishings, infrastructure building and back office preparation, including deployment of local area networks (LANs) and ICT equipment, business applications, employee training and capacity building. The project started in January 2003 in one district, "Hay Sharq", which was automated by July 2004. Between March and July 2005 the remaining six districts of Alexandria were automated, announcing the e-Alexandria initiative.

The project activities in each neighborhood cover four components: the Citizen Service Center (CSC); the local government departments; the Information Center (IC); and top management. The CSC consists of a reception hall, located on the ground floor for easy access, with a varying number of tellers. The tellers' area and the citizen reception area do not connect, in order to limit the possibility of corruption and friction between staff and citizens. Representatives of the different departments might be present in the tellers' area to receive or review application files. Tellers are not specialised, so that they can provide a range of services with the help of a computerised workflow system. One queue is dedicated to receiving citizens' applications; the other is dedicated to delivering licences and permits.

The administrative departments perform their duties as usual, as well as registering the progress of every transaction on a shared computer, connected to the central workflow application through the LAN.

The Information Center is the custodian of the information resources, including hardware, software, databases and applications. The IC staff provide the first level support to the CSC and

departments. They are also the database and applications administrators. They provide top management with reports on the operational and business levels. Top management has access to a simplified dashboard of information, indicating the current state of progress of all citizens' requests by type and by department. Top management has the responsibility of monitoring work progress from time to time, and of taking the necessary corrective actions.

The challenges faced at initiation can be summarised as including low levels of automation in government; low computer and internet literacy/penetration; unhealthy work environments (limited space and resources); limited or no control of work processes leading to less efficiency; deficiency in connectivity between various government entities; highly cash oriented society; exaggerated security issues; rigid financial systems; and exclusive use of paper documents.

## E-BUSINESS SERVICES PERSPECTIVE ON E-ALEXANDRIA

An e-business perspective considers e-government in terms of commercial interactions and transactions within the government framework, the deployment of ICT to improve and enhance the performance of government (Schubert & Hausler, 2001) and to increase citizens' access to information (Csetenyi, 2000). Within this scope there are a range of possible web-enabled services opportunities, including government to citizen (G2C), government to business (G2B), government to government (G2G) and intra-government internal efficiency and effectiveness (IEE)(Evansal, David & Yenb, 2005). In G2C, the focus is on the ability of the government and citizen to communicate information to each other in an efficient and electronic manner. G2G strives to improve the efficiency of delivery when transacting information within a particular layer of government or between levels of government, eliminating redundancy and duplication.

The e-Alexandria project covers two services opportunities, namely G2C and G2G. Local government efforts focus on enhancing the living standard of the community, and simplifying government services provision to the public and business. Thus, single-stop-shop type centers and single window service centers were introduced. In addition to the administrative departments, three new entities were added: citizen service center, information center, and decision support unit, each complementing the other's contribution. The Citizen Service Center (CSC) receives citizens' applications, enquiries and complaints and keeps records of these. The CSC forwards documents to relevant departments for processing. The departments review application forms and required documents and complete and deliver the service. The Information Center provides technical support and facilitates service delivery. Finally, the Decision Support Unit follows-up services, and reports on implementation and performance rates and bottlenecks.

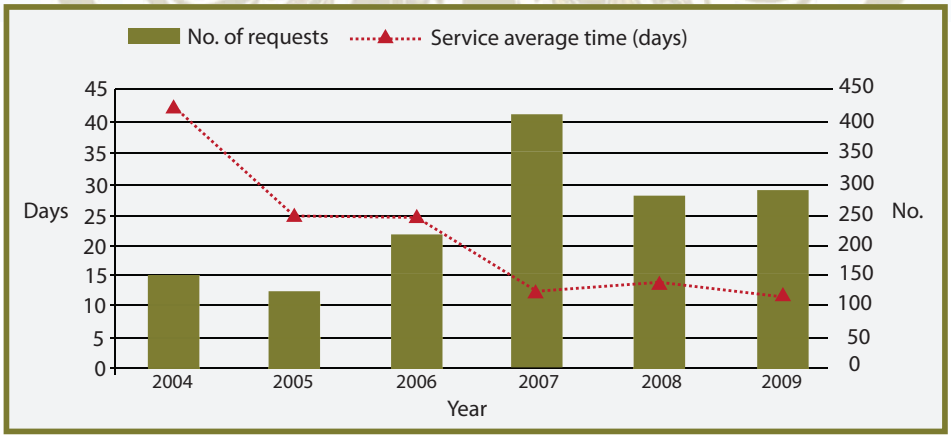
Before deploying the technical solutions, each site underwent massive transformation involving civil works, architectural designs, and building the physical and ICT infrastructure. Each site was equipped with LAN/WAN cabling and approximately 60 PCs and servers. The project addressed local capacity building and provided training on basic and soft skills training as well as on advanced technical training to 354 government employees.

In 2009, an analysis of the performance and impact of the e-Alexandria project on the performance of the councils was conducted, as the ELGDP had expanded to more than 70 sites and was planning to launch a second phase to cover all governorates. Improvements in three services were reported as representative of a business perspective of local e-government services, as these are important services for income generation in the small and micro business community: Elevator installation permit (hundreds of permits per year) (3); Street occupation permit (thousands of permits per year) (Figure 4); Retail shop licence (hundreds of permits per year) (Figure 5). Each graph presents the evolution of the number of transactions per year for each service (bar graph and right vertical scale) and the delivery time for the corresponding service in days (dotted line and left vertical scale).

Demand for these three services represents more than 50% of the total demand for all services provided by the city. While elevator installation permits affect the ordinary citizen and business, the street occupation permit and retail shop licence services concern the small and micro business community; however, these were a source for potential employees' corruption.

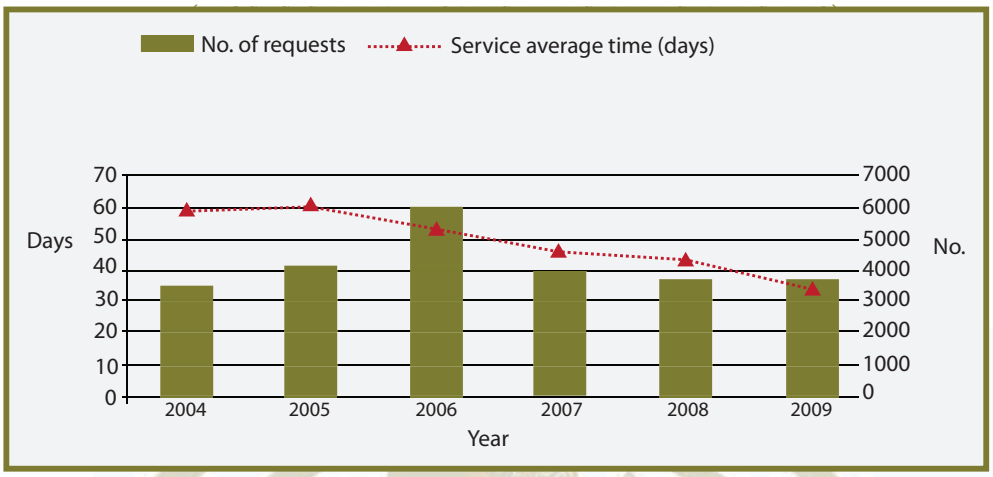
All three e-services show a growth in number of transactions per year during the first years of operation. In 2006, some governing regulations were altered, driving some services up. Between 2006 and 2008, the rate of transactions began to decrease, probably due to saturation of the market for such services: Alexandria is an old city, and few new businesses emerge. It is also to be noted that the service delivery time decreases each year, suggesting better adoption of the system. The final two years show stability of the service delivery time, which can be explained by the maximum limit of efficiency of the given process. For better performance, process improvement would need to take place. Generally, one direct benefit that can be noticed is the reduction of the average service time regardless of changes in service demand. Online monitoring of the progress of a service request (transaction) through the governorate portal/website has enhanced system governance by limiting the ability of employees to "blackmail" citizens to finish their transaction as, at any given time, the citizen or micro-business knows the status of his/her file.

FIGURE 3: ELEVATOR INSTALLATION PERMIT



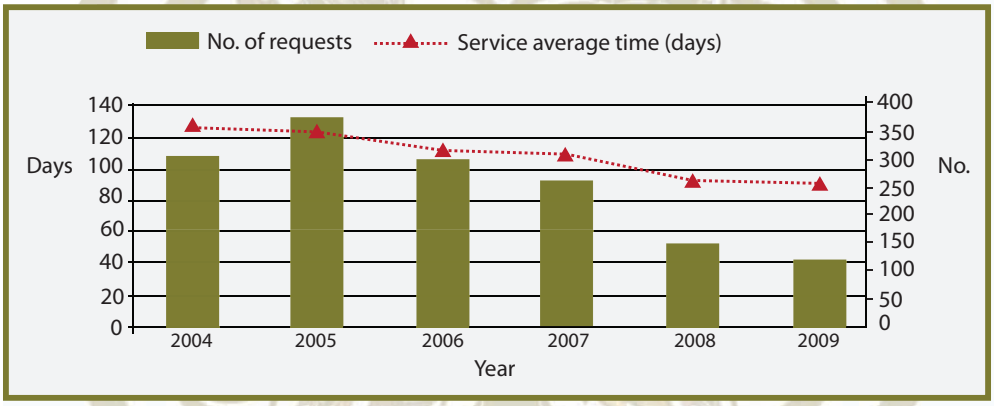

Source: MSAD, 2011

FIGURE 4: STREET OCCUPATION PERMIT




Source: MSAD, 2011

FIGURE 5: RETAIL SHOP LICENCE




Source: MSAD, 2011

## STAKEHOLDERS' INVOLVEMENT: CITIZEN AND KNOWLEDGE PERSPECTIVES

The main stakeholders in the e-government projects discussed are citizens, employees and managers. The views of all stakeholders must be incorporated and accounted for throughout the life cycle of the project. It can be argued that the stakeholder perspective determines the chances of success or failure of the project. Lenk & Traunmuller (2000) used the citizen perspective to refer to end user concerns and expectations. The perspective encompasses the delivery mode and concerns in using electronic services. The knowledge perspective recognises workers' knowledge and its impact when redesigning the transactions for the e-government environment, with due attention to the continuity of knowledge that has been accumulated over time.

A review of stakeholder involvement reveals that, in the planning phase, the requirements and expectations of citizens must be well understood, while executive support must set clear expectations. With respect to deployment, the way citizens see results is important for continuous improvement. During the period under review, training and capacity building gained close attention, since employees came from a traditional public service experience and lacked the simplest proficiency in processing citizens' needs through operating the latest IT applications. Technical transformation was paralleled with basic and advanced training for all users, starting from typing, basic office application, application administration, OS/DBMS/LAN administration and extending to new business functions and CRM applications. Under the umbrella of the Government Services Development Program, local government projects were able to train several hundred employees on both soft communicative skills and technical skills. MSAD is striving to empower employees with advanced technology, data management tools and leading edge business practices to meet or exceed citizens' expectations.

From this perspective, the following challenges were faced: poor services delivered to citizens; low public confidence in government services; poor employee productivity; limited or no control over staff members; limited technical and employee communication skills, and a high percentage of illiteracy.

## PROCESS PERSPECTIVE

The process perspective is about the utilisation of IT to enhance service delivery efficiency (Lenk & Traunmuller, 2000; Kraemer & Dedrick, 1997; Watson & Mundy, 2001). Within this perspective, the project covered three main streams: 1) process re-engineering, 2) automation, and 3) process monitoring. There are around 62-87 processes in operation at each site of the e-Alexandria project, depending on the nature of the site, which have undergone verification and documentation. MSAD re-engineered some of these processes to facilitate the work flow, to remove bottlenecks and to reduce the overall time of service delivery. Such transformation involved better documentation of processes, providing more accurate indicators for monitoring and evaluation. Furthermore, efforts are well-directed to follow certain steps and utilise best practice offered by leading countries. However, efforts in process re-engineering to solve congestion at the services provision outlets have been limited.

The automation of processes is the technical aspect of the project. In the practice of modernising services, needs assessments for transactional workflows and work processes were conducted for each service outlet, and the back office requirements for each location were identified to satisfy customers' needs and meet their expectations. This process monitoring provides an explicit, structured representation of what has been completed in the work flow and what approvals or decisions are still pending. This information can trigger a variety of activities to advise managers and staff of completed, pending or overdue processes.

The major challenges faced in the e-Alexandria project were: difficulty in measuring the impact of modernisation due to inconsistency in performance indicators, lack of business process documentation; and inaccuracy in data processing based on manual records.

## TELE-COOPERATION

The tele-cooperation perspective deals with the interaction of the various agencies and trading partners involved in a work process. In particular, in the initial stage of any e-government project having a tele-cooperation perspective would be useful, as it provides a holistic view, focusing on the support of computer-mediated cooperation in a comprehensive sense (Lenk & Traunmuller, 2000). The proposed model considers two main issues: 1) solution integration, and 2) links to business areas.

In the first phase of ELGDP, tele-cooperation was not addressed, due to the difficulty of coordination between different agencies while the project was still in its inception phases, and ICT readiness was weak in different agencies. However, the system design later took into consideration the preparation and inclusion of communications among these agencies. ELGDP did not engage in multi-agency types of transactions until the relevant government agencies linked to a particular permit or service had demonstrated better readiness.

## USE OF PILOT PROJECTS

The implementation of pilots prior to large-scale projects is an important but tricky task. In developmental projects, not all factors are known ahead of time, and a limited experiment is required to reveal the hidden parameters. The first pilot was implemented in the small, remote city of Safaga. The population is small and the requirements of citizens and local businesses are simple, hence a failure there would not tarnish the reputation of the project. The Safaga pilot revealed the importance of the architectural design of the service center and the business process re-engineering (BPR), as well as the type of personnel that should be selected to ensure project success.

The first Alexandria pilot in the Sharq district was important to acquire the information necessary to develop workflow software to cover all the business requirements and test it in a realistic environment with a large number of citizens served. Business processes there turned out to be different from those in Safaga. This alerted management that project empowerment from the governor was necessary to promote unification of the processes within the governorate. This was then the first step taken during the deployment phase: confirmation of the unified business processes. Also, the presence of a fully operational citizen service centre site that could be visited by the personnel from other targeted sites, and having equivalent personnel explaining the benefits of the system, helped reduce resistance to change. Finally, the exact timing required for the implementation of the different phases of the project was precisely determined, so that the parallel implementation of the project in six more sites could be implanted in around seven months.

## REFLECTIONS ON E-GOVERNMENT LEADERSHIP

The political support of the governor of Alexandria and the sponsorship of the Minister of ICT at the time of project implementation were of the utmost importance, making it possible to obtain contributions from the business association of Alexandria to fund the renovation of the sites; to make available the required human resources for the pilot phase and the full project

deployment; to encourage the governorate team responsible for the pilot phase;and to ensure the necessary political and administrative support for the replication of the project in six sites, thus enforcing the unification of the business processes through all the sites.

However, only a few business processes were modified, and no major changes were adopted at the early stages. This was intentional so as to avoid major resistance to administrative change, in order that the introduction of IT, the single-window service model and the business process changes did not yield failure. Further business process modifications were intended, following assimilation of the initial changes and requests for enhancements. Replication and enhancement required political support, as, for example, in the governorate of Ismailia where the project was introduced in parallel at all seven sites. Less successful implementations occurred in governorates where there was limited conviction and support, meaning that insufficient resources were made available.

## STATUS OF LOCAL E-GOVERNMENT PROJECTS AFTER THE JANUARY 25TH REVOLUTION

The spirit of the revolution of January 25th 2011 aimed at achieving the social equality and a healthy political environment for the better economic performance of Egypt. The ELGDP coincides with this objective through the elimination of corruption in public administration. So in principle the revolution should be supportive of the programme. Nevertheless, due to the psychological refusal of all that was brought by the previous regime, e-government projects are considered as a low priority, are branded as part of the previous regime and are emotionally refused. Also, the sudden changes in key positions in public administration and the departure of most of those who were appointed by the previous regime resulted in a rupture of the programme. Several sites were damaged during the actions that accompanied the revolution.

Most of the post-revolution government officials are not aware of the project introducing e-government, and those who are aware lack the required resources to take action. The management of the ELGDP is consistently working with the current public administration and decision makers to resume implementation of the project, but given the successive changes in positions, there is limited implementation on the ground. Only some of the previous commitments have been resumed, as have some repairs to the damaged sites. Advances are expected in the project following the introduction of a new technology solution yielding enhanced performance at the level of citizen service, as well as demonstrating the benefit for corruption fighting and strategic decision support. However, no major uptake can be expected before the establishment of an elected democratic government.

## CONCLUSIONS

Implementing e-government projects can be complicated and difficult because of the vast size and political-bureaucratic nature of government. Hence, some of the main challenges, as pointed out by Wimmer and Traunmuller (2000), are finding successful ways of re-engineering and distributing the administration's knowledge, and the democratic empowerment of citizens. When the term e-government is mentioned, one would typically think of online (web based) government services. The case presented in the article, however, tackled an e-government

application that did not replace physical face-to-face interaction between citizens and public servants by an online application, but rather deployed ICT to improve the way citizens' services are being administered. The objectives here were different. As citizens are still needed to submit hard copies of their documentation to the city, a full online solution was not advocated. Instead, technology was used to help empower citizens by minimising the interaction between citizens and employees. In the past, as the process was neither automated nor monitored effectively, citizens had to follow with their file from one employee to the other to assure service completion. During this follow-up, of course, citizens had to pay employees to prevent their file being halted at that point. With the e-government solution deployed, citizens interact only with the service center, not with the back office employees, cutting this line of abuse. Citizens now can follow the status of their file online, hindering potential corruption.

Egypt has achieved some progress in modernising local government and municipal services delivery. In its approach, it relied on locally designed solutions and local resources, using high end technology. This article presented the case of the e-Alexandria project through a multi-perspective model that captures many aspects of an e-government project innovation. The solutions adopted took into consideration local culture and were meant to be simple and easily accepted by governmental employees. Enhancement of the service delivery and work environment affected both citizens and staff, generating an atmosphere of acceptance. Uptake by citizens and feedback from employees has demonstrated the value of the solution. Further improvement is required, but while buy-in from beneficiaries exists, further changes and the transition to e-governance will need democratic change and future political support.

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