Understanding Factors Influencing E-Government Implementation in Saudi Arabia from an Organizational Perspective

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Abstract—The purpose of this paper is to explore the organizational factors influencing the implementation of the e-government project within the public sector in Saudi Arabia. This project (also known as the Yesser programme) was established in Saudi Arabia in 2005 to control the e-government transformation process. The aims of the project are to provide a collaborative environment for government organizations to implement e-government and increase effectiveness and efficiency within the public sector. This paper sheds light on the organizational factors that have delayed implementation and achievement of the government's vision and plans for Yesser. A qualitative approach was employed to understand those factors, by conducting a series of interviews with government officials for the data collection required. The analysis of the data uncovered seven organizational factors that are needed to advance implementation of the e-government project in Saudi Arabia and other similar states.

Keywords—E-government, e-transformation, ICT, Saudi Arabia, Yesser.

I. INTRODUCTION

THE revolution in technology and communication, along with the World Wide Web (www), has provided new communication opportunities for individuals and governments around the world. This revolution has prompted both the public and private sectors to enhance their services and performance by investing in technology. Throughout the world, many countries (both developed and developing) have started to employ e-government in order to facilitate the delivery of high-quality services to different stakeholders, reduce costs, and increase transparency and accountability, in an attempt to speed up processes.

In terms of e-government development in Saudi Arabia, the Saudi government began these efforts by establishing the Yesser programme in 2005 [25], [33]. Since its inception, Yesser has sought to complete two action plans, between 2006 and 2016 [24], [25]. The first of these action plans was reported in 2011, and highlighted the fact that e-government initiatives had faced a number of issues such as lack of cooperation from government organizations, ownership of data, and weaknesses in the ICT infrastructure [23]. The

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second action plan started in 2012, and was expected to be complete in 2016 [24], [25]. However, no report from Yesser on the 2nd action plan has been published to date. It is stated that "despite the different prioritization of the projects, at the end of the first five-year plan, only 24% of the services were fully implemented." [21].

Given the situation outlined above, this paper aims to understand and explore the organizational factors that influence e-government implementation in Saudi Arabia, along with making recommendations for government agencies and e-government leaders on how to overcome the challenges that are being faced. Intensive interviews were conducted with different government administrative organizations in Saudi Arabia, in an attempt to understand and identify those factors which may be impeding e-government progress.

The paper starts by reviewing the literature around e-government, focusing in particular on the context of Saudi Arabia. The next section presents the methodology that was used in the study in order to achieve the aims of the paper. This is followed by the findings of the study, with the final section providing a conclusion which presents recommendations and outlines some areas to consider for future study.

II. LITERATURE REVIEW

A large and growing body of literature has investigated e-government issues and challenges from different perspectives [30]. However, in recent times, the spotlight has firmly shifted towards the provision of organizational factors; an area with a potentially higher impact on the implementation process of the project [1], [22]. A number of authors have stressed the key role played by organizational issues in implementing e-government initiatives [6], [30]. Others have recognized e-government as being a transformation project that has a huge impact on the organization and people [31]. To this end, Layne and Lee suggest that "the full benefit of e-government will be realized only when organizational changes accompany technological changes" [28]. E-government can bring about multiple changes to organizations, such as; leadership style, structure, process, communication, and employee attitude [16], [18], [20], [29], [32]. Various research has stressed the importance of organizational issues such as; awareness, communication, commitment, employee satisfaction, change management and organization culture [9], [13], [17], [21], [26], [27], [29].

It can be clearly seen that there is an influence which stems

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from organizational factors and affects the implementation of the e-government project not just nationally, but on a global scale. However, the dearth of studies in this area, and particularly in the Saudi context, has made it difficult to investigate these organizational aspects thoroughly. There are relatively few historical studies in this area [3], although one study was conducted in the past to evaluate the website used by Saudi ministries [2]. This study highlighted that 8 out of 21 ministries had not implemented their website properly. It also concluded that 6 of the ministries involved in the study had no online services at all. Other studies have focused on ICT infrastructure, security and privacy as being important factors in implementing the e-government project successfully [4], [7], [8], [19]. The impact of organizational factors within government offices, which in turn impacts implementation and sustainability, has seldom been studied [4], [5], [8], [19]. Based on this, it is clear that more studies and insights are needed to understand and explain these organizational factors, thereby providing a model for the Saudi context, which with its conservative culture and society might represent a model that could also be used by other countries possessing similar characteristics. In the next section, the paper discusses the methodology chosen to conduct this study.

III. METHODOLOGY

The aim of this study clearly calls for a qualitative approach. The rationale behind this methodology was to enable the researchers to explore the perceptions and experience of the different project stakeholders within various government organizations [14]. A grounded theory was employed in this project to facilitate the collection of data and its analysis. This represents the most widely used qualitative method, and the researchers closely focused on this [10]-[12]. Historically speaking, the emergence of the grounded theory method occurred in the 1960s, created by Glaser and Strauss [14]. It has since gained recognition as a method for creating systematic knowledge from qualitative data [15].

We interviewed eight government officials who run the e-government project in five different government organizations. Open-ended and semi-structured interviews were used for data collection [14]. 15 questions were prepared for the interviews, which were divided into three broad areas; previous issues, the current situation and future challenges. The literature review helped the researchers to formulate and specify the interview questions used in the study. All the interviews were recorded and transcribed with permission. The criteria used to determine participants for interview selection were based on their direct involvement with project implementation in organizational, administrative and technical terms [14].

IV. DATA ANALYSIS

In this study, data were analyzed using the grounded theory coding process. The first stage involved the open coding process [14]. Open coding involves coding data into abstracted fragments, and those codes can be grouped to form concepts

and categories on a more abstracted level [12] [14]. The coding process and notes that were taken in the interviews helped to conceptually understand the meaning of the data, actions and perceptions of the interviewees [14]. In this study, the open coding process resulted in 426 codes. We also used the constant comparative method which was employed to conduct the comparison stage between similar codes in different interviews [14]. Similar codes were grouped into concepts. The analysis resulted in 36 concepts, which were grouped into 7 categories. The categories constructed in this paper represent the organizational factors that influence the implementation of the project in government organizations.

V. ORGANIZATIONAL FACTORS INFLUENCING THE IMPLEMENTATION OF THE E-GOVERNMENT PROJECT

This section provides the findings of this study based on the categories reveled from the data, which are summarized in Fig. 1. The data analysis process revealed seven main factors that impacted on the early stages of implementation for the e-government project in Saudi Arabia. Each of these factors will be discussed in detail in the sections that follow.

Fig. 1 Organizational factors influencing e-government implementation in Saudi Arabia

A. Category 1: Misunderstanding the New Policy and Regulations

The first and foremost issue identified in the data analysis is the different interpretations of the new policy and regulations related to the e-government project. Yesser introduced a policy and regulations when it started the First Action Plan. The aim was to provide a base for all government organizations to start project implementation. However, it was observed through the data analysis that government organizations had different levels of understanding as

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pertained to those rules. It was precisely the misunderstanding of policy and regulations which resulted in different procedures and strategies being adopted by the different organizations to try and implement the e-government project, which in turn resulted in many different issues and challenges. The end result saw delays in the implementation process and changes in strategy, seeking to try and recover lost ground. To this end, one of the interviewees indicated that "government regulations are interpreted differently, and based on that, government organizations at the same level have totally different service procedures". A possible explanation for this point could be the limited privileges and possibilities allowed to government organizations. Three out of eight interviewees indicated that because of this, many government organizations try to customize the regulations based on their financial position. However, providing more privileges might also result in the misuse of resources. Yesser needs to have an *understanding stage* which is based or built upon an appreciation of the situation of the government organization. Using this approach, it would be possible to provide segmentation for government organizations based on their budget, infrastructure, and the availability of qualified personnel. Also, it would be possible to allow certain privileges for improved government organizations as well as allowing more time for others that are still preparing for implementation.

B. Category 2: Lack of Visioning and Planning

This factor was demonstrated as a major obstacle to the transformation project within the public sector, in two ways. Firstly, the researchers noticed that most of the government organizations that participated in this study had no clear vision and plan for the e-government project. Secondly, it was seen that the transformation plan could be easily interrupted and changed when new management came to lead the organization. One of the interviewees stated that "we developed a plan and started the technical implementation, but a new manager came last year and dumped all our efforts and started to implement new technology". Also, we noticed that the existing visions and planning in some government organizations did not accurately reflect the overall vision that was created and intended by Yesser. In this scenario, a role for Yesser is needed which can help create a shared vision, which in turn can form a base on which government organizations can create their plans. One of the possible implications of frequent changes in plans is the waste of resources that occurs from the changes themselves. Another issue encountered in the data during the study was an overly optimistic vision, as was shared by some organizations. These organizations were found to have a very wide or impractical vision, which in reality, for a whole host of reasons, could not be achieved in the short or long term.

C. Category 3: Top Management Commitment

The research findings highlighted the role of top management commitment as one of the key determining factors in the implementation of e-government. Top management commitment is regarded as vital: especially in the public sector, where centralization and bureaucracy are part of the predominant culture, and the approach to change is very much top-down. A lack of top management commitment has a negative sequence of effects in terms of commitment at all organization levels. Middle management and operational levels are influenced by top management perspectives towards the project. One of the interviewees stated that "different managers have different views; some see e-government as a tool to improve the organization, while others find it to be an issue". We noticed that a lack of top management commitment was also interlinked with multiple factors, for instance; unclear vision, lack of awareness, poor communication, conflict interest and a traditional leadership style.

D. Category 4: Low Level of Cooperation with Yesser

One broad category which emerged from the data in the study was the level of cooperation shown for the Yesser project. Government organizations seem not to cooperate with the project legislator for many different reasons, and the way in which the project was introduced through Yesser probably influenced some government organizations. As it is principally a transformation project, it was important to engage government organizations in strategic planning for the two action plans. By doing so, Yesser would have enabled government organizations to feel more a part of the transformation process, as they would have felt that their voices were being heard. In addition, one of the other issues that may have led to the low level of cooperation seen was a lack of awareness surrounding the expected outcomes from the project. It was noticed that government organizations were not totally cognizant of the significance of the project and how it could reflect on their daily efforts. Furthermore, some government organizations saw the project as being an obstacle towards them achieving their objectives. This point also relates to cultural characteristics, which was discussed in category 6.

Another issue which may have led to a low level of cooperation was the fact that all communication and interaction with government organizations went through the organizations' IT departments. The reason for this (perceived) privileged IT position inside government organizations was due in part to the technical transformation aspect of the project. However, it should be noted that business people also play a significant role in this transformation project and therefore needed the same level of access and privileges to engage directly with Yesser. One could infer that without their cooperation, the IT function would certainly not be able to achieve the project's objectives and plans.

E. Category 5: Updating the Infrastructure

One of the main issues that became apparent from the interviews was the weakness of the infrastructure within the public sector. E-government project implementation requires a reliable technical infrastructure for it to be successfully implemented. The infrastructure for the public sector does not seem to be equipped at this point in time to support the vision

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of Yesser. The other issue which was relevant to Category 1, and was covered earlier, is that of creating the appropriate infrastructure. This was an issue that appeared from the different projects in implementing and upgrading the infrastructure within government organizations. There are no common, shared criteria for implementing a suitable infrastructure based on budget, resources and an organization's size.

Many government organizations underestimate or overestimate the size of the technical resources required for the infrastructure. This observation is consistent with the Yesser report published in 2011, which indicated infrastructure as one of the main issues that faced the First Action Plan [23]. These findings were also mirrored in other research undertaken in this area, which indicates that infrastructure can be considered as a pre-condition for the success of the e-government project [5].

F. Category 6: Resistance to Change

The research findings reveal that resistance to change among government employees is one of the most important challenges in trying to implement e-government initiatives. One of the main reasons behind this resistance was attributed to fear from the employees. There are, however, other sources of resistance, based on the employee's position and the potential impact of the change. In addition, we noticed that employees may not be resistant to change because they reject the change itself, but rather that this may be due to the way in which the change is planned and implemented. In analyzing the data about resistance to change, the study divided resistance into categories linked to transforming e-government based on the individual's role inside the organization; top management, middle management, and at the operational level.

This study has examined the commitment of top managers, and one of the findings is that some of them have shown a poor level of commitment. The current research also identified that one of the major challenges involved in implementing e-government for top management was the diffusion of transparency and increased accountability. Perhaps this may be due to transparency being seen as a means of reducing power, while accountability, on the other hand, may limit their influence. One of the interviewees stated that: "the majority of decision-makers fear adopting e-government because of fear of losing power or authority". These results provide an insight into some of the reasons for or factors in the low level of cooperation with Yesser, as well as providing some strong evidence that points towards the awareness needed from Yesser to reduce resistance for its vision and other implications.

Employees who are on the front line and deal with clients undoubtedly play a key role in understanding the requirements of those clients and in addressing the real challenges that need to be resolved. The data analysis has suggested that employees resist change for a multitude of reasons, such as; gaps in skills, lack of motivation, extra work, previous bad experiences, comfort zone and the fear of losing their job, peers or environment.

The researchers noticed that managers on middle levels hold both strategic and executive responsibilities, which due to their position in the organization, exposes them to both ends of the organizational spectrum. Therefore, resistance from middle management combines sources of resistance from both the top and front-line levels. In order to minimize the impact of this resistance in implementation of the e-government project, special focus needs to be directed towards middle management, as their position means they are able to communicate with both top and operational levels of the organization.

G. Category 7: Lack of Continuous Training

The data analysis demonstrated strong evidence of the impact on the e-government project posed by a shortage or lack of qualified personnel. We captured this issue in different ways. Firstly, government organizations suffer from the low availability of technical professionals to maintain the project. As a result, many government organizations are almost exclusively reliant on outsourcing this function to foreign manpower or the private sector. Both of these options are potentially beset with issues. Foreign qualified professionals may potentially leave at any time if they receive a better job offer, whether that in Saudi Arabia or in another country. This can put the organization in a precarious position, as those jobs are vulnerable. Also, the researchers noticed that most elements of the IT project within public organizations are maintained by private sector companies. This is not an issue in and of itself, but it can become so when the contract comes to an end, and there is a lack of available funds to renew the contract. In addition, the researchers observed the need for administrative project managers to lead the project and provide strategic planning. This issue links directly to the insights provided in Categories 1 and 2 covered earlier. The e-government project requires both technical and administrative efforts to succeed. Since there is a shortage of manpower, government organizations may consider providing continuous training for employees and reduce their dependency on third parties. This will certainly ensure a more sustainable project against future challenges that may be encountered.

VI. CONCLUSION

This paper has explored the organizational factors that influence the e-government implementation process in the context of Saudi Arabia. It has provided evidence for the issues within the public sector which can delay the implementation process. A key strength of the present study was that it successfully managed to capture the government administrative perceptions and experiences related to the e-government project. It is believed that the findings presented in this study could be used to help e-government project decision makers and Yesser in particular, through providing an understanding of what is happing inside government offices. The present study provides additional evidence with respect to the impact of the organizational environment on achieving the overall vision for the e-government project in Saudi Arabia

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and other similar countries.

This study has identified seven major factors which may cause issues and challenges for Yesser in the process of delivering the project to the public sector. The first of these factors related to misunderstanding of the new policy and regulations related to the project. The results of this study indicate that different government organizations have a different interpretation of the regulations, which in turn can lead to them having different positions and different procedures. Another major finding was the lack of vision and plans. The study has demonstrated that an unclear vision and plans within government organizations may affect the implementation process of the project.

Earlier findings confirmed by this study include those on government departments' poor cooperation with Yesser. In addition, new evidence from the present study indicates the advisability of involving government organizations, and especially their management at the highest level, in planning the project's strategy. This could produce more commitment from government leaders towards the project and make them feel part of the team; a factor which is significant if the e-government process is going to succeed. It would also be helpful to avoid resistance to the change which is posed by e-government, as has been identified in this study. The study also supports previous research affirming the importance of infrastructure development, providing some further insights into this issue.

There remains, without doubt, the need for continued study, in particular to determine the point at which the implementation process can be considered complete, and to fortify the project in the face of potential obstacles from within or without. A further study could also assess change management practices to help fight some of the elements of resistance that have been highlighted in this study.

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