The Jordanian eGovernment Initiatives within the Context of the Socio-technical Model

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***Abstract* - In this paper we consider the "Socio-Technical Model"of e-government that was proposed by Maddalena Sorrentino and Francesco Virili [5]. This model takes account of socio-technical phenomenon, and it contains within it a number of possible "business models" for the development of e-government – strategies for e-government focused around key business processes and information. The main goal of this research is to better understand the Jordanian e-government model and examine its within the framework of this Socio-Technical model. This research is a work in progress and in order to achieve our aims, we will conduct an empirical case study of Jordan socio-technical model. Questionnaire and interviews will be the research method of our study. We hope to collect data for this study from decision makers, system users, system designers and technical persons involved in the project.**

***Index Terms* — E-Government, Socio-Technical Model, Business Model.**

I. INTRODUCTION

Business processes and relationships are being fundamentally transformed as a result of the rapid growth in using Information and Communication Technologies (ICTs). Various governments worldwide realized the potential of using ICTs in accelerating the development processes in the developing countries. Such governments have undertaken a major review of the way they operate and how the public sector can harness ICTs. The term 'electronic government' or 'e-government' focuses on the use of ICTs by governments as applied to support the full range of their functioning to better serve their citizens in the new knowledge-based economy. ICTs are means for communicating, collecting, storing, processing, and disseminating information. ICTs are potentially inscribed with characteristics of speed, accuracy and reliability related to information handling [1]. According to the World Bank website [2], e-government is defined as: "E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government". It is important to emphasize the fact that e-Government is not an objective per se but an advanced instrument of the organization of public governance in order to better serve individual citizens, communities, commercial and non-profit organizations as well as public authorities themselves [3]. Although ICTs plays a major rule in e-government as it can creates more efficient and transparent possibilities for more participation, as well as a higher level for the control of public affairs, as e-government denotes a sociocultural and socio-technical domain, where new roles and opportunities of human consultation and of citizen/customer - administration relations emerge, therefore, it has to be developed in close correlation with the development of non-technical change requests. The priority is for ICTs to serve people for their comfort and convenience.

E-government is a complicated process that requires significant resources, the challenges of e-government do not arise from ICTs issues, but from the nature of existing social and administrative regimes which cannot be easily re-engineered to accommodate the evolving networked digital environment of the state model wished by e-Government optimists [4]. The development of the systems, networks and infrastructure necessary to make e-government work, requires the re-alignment not only of the government, but also of the

social and cultural frameworks of the country. In order to achieve better e-Government transformation, governments should adopt a realistic transformation strategy reflecting acceptable levels of change attuned to the country's resources, and executed in stages within an acceptable level of time frames that would respond to both social and cultural changes brought by e-Government. In this paper we consider the "Socio-Technical Model" of e-government that proposed by Maddalena Sorrentino and Francesco Virili [5]. This model takes account the socio-technical phenomenon, and it contains within it a number of possible "business models" for the development of e-government – strategies for e-government focused around key business processes and information. The main goal of this research is to better understand the Jordanian e-government model and examine it within the framework of this Socio-Technical model. We hope that this study will help us build a conceptual model that guide us to classify the key factors that might restrict successfulness of e-government project implementation and overcome e-government implementation challenges. In the following section we will present Socio-Technical Model, the following section we present the Jordanian model, then we discuss our research methodology to analyze this model with respect to Socio-Technical Model. We conclude our work and present future work in the final section.

II. THE SOCIO-TECHNICAL MODEL

As observed by Kling and Lamb [6], most Information System (IS) projects are typically described in terms of what they refer to as the 'Standard Model'. In terms of this model ICTs are often discussed as tools or simple appliances, even when they take the form of complex arrangements of varied equipment and rules/roles/resources [7]. The Standard Model assumes that information systems are objective and rational, and thus, capable of being evaluated through the use of objective tools and techniques, moreover, this model presupposes a one-shot implementation and assumes that an IT application has the same meaning and consequences for all users, as well as ICTs are expected to have direct and unambiguous effects [5]. As opposed to the Standard Model, Sorrentino and Virili proposed the adoption of the "Socio-Technical Model", in which IS projects outcomes are the result of a more complex interaction between technical and social factors. It is argued in [5] that the Standard Model is simplistic and insufficient for adequately understanding the characteristics of organizational change involving ICTs. Kling and Lamb [6] have the opinion that ICT-related innovation should be seen as an on-going social process that unfolds in the context of complex and negotiated relationships. The Socio-Technical Model takes into consideration important factors such as the social and organizational context of the technologies and the people who use them. Table 1 depicts some of the key characteristics of the two models.

Table I.
Key differences between Standard (Tool) Model and Socio-technical Model ([5])

Standard (Tool) Models	Socio-Technical Models
IT is a tool	IT is a socio-technical system
Business model is sufficient	Ecological view is needed
One shot implementation	Implementation are an ongoing social process
Technological effects are direct and immediate	Technological effects are indirect and involving different time scales
Politics are bad or irrelevant	Politics are central and even enabling
Incentives to change are unproblematic	Incentives may require restructuring (and may be in conflict with other organizational actions)
Relationships are easily reformed	Relationships are complex, negotiated, multivalent
Social effects of IT are big but isolated and benign	Potentially enormous social repercussions from IT (not just QWL, it's overall quality of life)
Context are simple (described by a few key terms or demographics)	Contexts are complex (matrices of businesses, services, people, technology history, location, etc.)
Knowledge and Expertise are easily made explicitly	Knowledge and Expertise are inherently tacit/implicit
IT Infrastructure are fully supportive	Articulation needed to make IT work

This model takes account of socio-technical phenomenon, and it contains within it a number of possible "business models" for the development of e-government – strategies for e-government focused around key business processes and information

III. THE JORDANIAN E-GOVERNMENT MODEL

In 2000, Jordan launched a national e-government initiative, aiming to streamline government procedures and make information and services available to citizens on the Internet. This initiative hoped to achieve social and economic development. The long-term vision for E-Government is to

create a society where electronic government is a contributor to the electronic and social development of Jordan [8]. According to [8] the following hierarchy of services and sub-services are included within the proposed architecture for Jordan e-government portal. It is also claimed that these had been determined after a complete study of all Jordan governmental sites on the web aided by a general knowledge of the governmental hierarchy in Jordan:

1- *Communication Services*: This includes services such as mail & postal parcel services, postal money order & postal saving bank services, express mail services, and other related communication services.

2- *Economic Services*: This includes services such as trade mark registration, trade name registration, patent registration, export registration, importer registration, taxation, and other related economic services.

3- *Education and Training Services*: This includes services such as getting education certification, private studying registration, attending kindergarten, attending primary school, attending secondary school, scholarship applications, and other related educational and training services.

4- *Health Services*: This includes services such as birth date certification, death certification, new medical construction permissions, immunization, and other related health services.

5- *Industry Services*: This includes services such as industrial register entry, Permission to construct new project, permission to change the project pivot, and other related industrial services.

6- *Labor Services*: This includes services such as graduation application, getting different certification and other related labor services.

7- *Natural Resources and Environment*: This includes services such as evaluation of environmental effects of constructions, environmental library, Procedures of finance from environmental protection box and other natural resources and environmental services.

8- *Population and Human Settlements Services*: This includes services such as booking a housing or professional unit, booking an industrial project land, booking a land for population/services projects, and other related services.

9- *Tourism and Antiquities Services*: This includes services such as getting tourist constructions forms, get and renewal of a tourist guide license, and other related services to tourisms.

10- *Transportation Services*: This includes services such as in the port of Aqaba, air transportation, Jordan travel directory, and other related transportation services.

The actual process of any service above is considered to be of two or three tiers where the first tier connects the specific system with the authorized centers databases that are responsible for that particular section. The middle tier represents the business logic layer [8]. It should be noted that secure government network is critical to the success of Jordan's e-government initiative.

IV. Research Approach

This paper is a research in progress to identify and understand factors impeding Jordanian e-government project implementation with respect to the socio-technical model presented in this paper. It is our aim in this research to review the Jordanian e-government initiative using a holistic framework for the e-government project implementation. We will adapt the framework proposed in [4]. This framework is shown in table 2.

Table II.
Conceptual Model Framework [4]

Factors	Comments
Awareness	e-government awareness among leaders, end users, and e-project team
Trust	Lack of trust between end users and government, and from agency to another
Political desire	Lack of political desire can lead to slow or failure of e-project
Cooperation/Collaboration	Stakeholders and government agencies positive contribution is important to a successful e-project implementation
Training	Training on stakeholders lead to successful implementation
Scope	Start to end Workflow and process on web-portal and e-services is crucial
Resistance to change	Employee resisting change can lead to e-project failure
Fund/cost	No budget no project
Privacy/Security	Data and information protection must be safe from the unauthorized
Technical skills	Right technical skills is important to develop/use e-project
Management skills	Leaders management skills is important to have a successful e-project
Vision/Strategy	Top management vision and strategy is important
Willingness/ ability to use	Stakeholders willingness and ability to use e-project is important and lead to successfulness

V. Conclusion and Future Work

The socio-technical model discussed in this paper is a set of principles that provide an effective conceptual and theoretical framework that can explain the effect of lack of consideration of the possible effects of an IT initiative on the social system of an organization that might lead to sub-optimal IT investment evaluations. In order to reduce the probability of the failures of e-government projects, due to different factors such as resistance to change from within the organizations, technical barriers, lack of ICT training for employees, and other factors, we propose to study the Jordanian e-government initiative within the framework of the socio-technical model. We hope that within such approach we can develop a model for the development of e-government that can help reduce the high ratio of projects failure. This research is a work in progress and in order to achieve our aims, we will conduct an empirical case study of the Jordanian e-Government initiative based on the socio-technical model. Questionnaire and interviews will be the research method of our study. We hope to collect data for this study from decision makers, system users, system designers and technical persons involved in the initiative.

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