Conceptual Framework for Successful IT-Governance for E-Government Services

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Abstract: E-government services suffer from lack of legislations in managing e-government services and overload of information. This study investigates related literature to find out influential factors affecting successful IT-governance of e-government services. The findings of this study have identify that managing risks, resources, security privacy, monitoring and supporting services are factors of services that can improve effectiveness and efficiency of IT-governance for e-government services.

Keywords: IT-Governance, E-government services, managing.

1. Introduction

Information technology becomes an essential part of organizations and governments. IT provided services provide capabilities for them to meet their citizens or customers’ needs. IT Governance in government services is the efforts of government to provide citizens with the services and information they need, employing organize of information and communication technology (ICT), the employment of ICT to enhance the public sector organizations activities and operations of services.

The management of IT must be looked at from a newer perspective due to the shift of IT from technological centric organizations to service providers. The core of IT management is the services it provides and is usually describes as the processes that help maintain the quality of IT services in accordance to the requirements of the client [1]. Weill and Ross [2] described IT Governance as determining the rights to make decisions and designing a framework for accountability, hence promoting the most desired behavior. Furthermore, this also suggests that it is important for the executive management to shape behaviors in such way that is beneficial for the utilization and acquisition of the system.

In the study of Gartner [3] around 60 percent of the projects of e-government are categorized as partial successes or complete failures. Singh Kalsi and Kiran [4] have argued that the problems in management and training are the most important obstacle for successful e-government in developing countries. In the case of Iraq e-government, Al-Taie and Kadry [5] argues that factors such as deficient technology infrastructure, political situations, and absence of appropriate governance are the obstacles of developing successful e-government services. The question of how government of Iraq can manage its e-government services and overload of information motivate us to develop a successful model for IT-governance for the e-government services. Therefore, the aim of this study is to explore the factors that lead to successful IT-governance in e-government services. This research aims to identify factors affecting successful IT-governance of e-government services, how IT governance framework can be applied to improve successful e-government services, and the factors influencing on building more accessible government and its services.

2. Related Literature

Wescott [6] found that the governments of Asia-Pacific are just in the early stages of choosing information and communications technology to enhance reporting and information of financial management, smoothen the government services delivery, present as a catalyst for authorizing citizens to communication with the government and improve interaction with the citizenry. Recently, various kinds of e-government projects were executed over the developing world. For instance, the health information systems introduced to improve healthcare systems. Improving the old systems and moving to more IT-based applications is a challenging area, particularly after the Millennium Development Goals and in spite of huge investments in these plans, a disjuncture between micro-level execution and macro-level policy priorities of these projects are reported. In developing nations, e-government initiatives can be executed successfully if experiences obtained by developed nations are distributed proficiently [7].
While initiatives of the e-government in Malaysia generated, generally beneficial influences on the public services delivery, their total influences remained limited because of a plethora of restraints and slow pace of execution because of the poor e-readiness degrees and e-maturity of country [8]. The National Portal of India that prepares single window entrance to 601 e-government websites and portals in India are evaluated by [9]. E-Government in Australia in relative viewpoint from in the study of seven countries (Netherlands, UK, Japan, New Zealand, Canada, Australia, and the US) are presented by Dunleavy, Margetts, Bastow, and Tinkler [10] and they discovered that Australian governments (and internationally) raced rapidly toward main strategies of e-government.

The employment and quality of public e-services for citizens are discovered by Torres, Pina, and Acerete [11] in EU. Some scholars initiated a methodology and framework according to the goal-question-metric work for creating metrics and indicators to evaluate the performance and quality of one-stop e-Government service contribution. A comprehensive empirical study of the initiative of Greek e-government, the Citizen Service Centers (CSCs) establishment is conducted by Introna, Hayes, and Petrakaki [12]. CSCs exhibit an important sector of the strategies of Greece e-government that try to modernize public administration and build the supply of public services more responsive, accessible and efficient to citizens.

3. IT-Governance

The goal of e-government is to advocate and clarify governance for employees, citizens, government and businesses. Two main e-governance goals are the “service to the public sector” and “efficient government”. The first goal satisfies the requirements and expectations of public on the front-office side by clarifying interactions with different online services [13]. Second goal assists the operations of government for facilitating an accountable, transparent, effective, speedy and efficient process to conduct the activities of government administration. Remarkable cost savings in the operation of government (per transaction) may be the outcomes [14]. To reach these goals, governments should govern and manage their IT enabled services. In this order, different types of IT-governance frameworks can be applied. Van Grembergen and De Haes [15] have suggested a number of definitions for IT Governance in literature. The ITGI – IT Governance Institute, in 2001 proposed a definition which said that the board of directors and the top management must assume responsibility for the governance of IT; it is considered an important part of the governance of the organization that includes the structure and leadership aspects, in which the IT of the firm must be able to sustain the corporate strategy and goals. [15]. The management of IT must be looked at from a newer perspective due to the shift of IT from technological centric organizations to service providers. The core of IT management is the services it provides and is usually describes as the processes that help maintain the quality of IT services in accordance to the requirements of the client [16]. Small et al. [17] point out that although a handful of public sector companies had the option of purposefully de-listing their organizations instead of complying with the IT governance regulations, most corporations did not have this choice. Hence many firms started to find methods to help them follow the legislations.

Beside the execution of the governance laws academics also started to research and develop new ways to enhance the framework of IT governance. Weil and Ross [2] emphasized that successful IT governance was a reflection of successful corporate governance. The earlier IT governance frameworks had already been debated upon prior to the passing of the SOX Act, however it is evident that the initial models were quite ambiguous and vague. The pioneer studies on IT Governance by Van Grembergen [18], Patel [19], mostly concentrated on either the centralized, decentralized or the federal IT models of governance. In the past three or four years the research regarding IT governance started to dig into the level of effectiveness of particular mechanisms, processes and structures since the mechanisms of governance act as the foundation for the framework [20].

The concepts discussed in the literature review give a good base for the governance of IT. Nevertheless, frameworks of IT implementation like control objectives, value-driven IT (Val IT), COBIT, ISO 17799, Balanced Scorecard and IT Infrastructure Library (ITIL) better the structures through providing useful mechanisms and structures to implement monitor and receive feedback on the support and delivery. These types of frameworks aid the activities of the structures governed by IT by providing particular insights and continuity for the decisions regarding IT governance made by external governing bodies.

4. Successful IT-governance

The concepts discussed in the literature review give a good base for the governance of IT. Developing different frameworks of IT implementation like control objectives, value-driven IT (Val IT), COBIT, ISO 17799, Balanced Scorecard and IT Infrastructure Library (ITIL) leads to better structures through providing useful mechanisms, and provides structures to implement, monitor, and receive feedback on the support and delivery of
services. These types of frameworks aid the activities of the structures governed by IT through providing particular insights and continuity for the decisions regarding IT governance which made by external governing bodies. A number of frameworks that have grown over the last two decades have become significantly important to those organizations which aim to implement IT governance.

Popular scholars such as Weill and Ross, Van Grembergen; Zmud and Sambamurthy; and Peterson began developing the framework for IT governance by firstly attaching a definition to the term [1]. Although the different researchers used different words to describe it, the basic definition was that IT governance is to do with assigning the rights of decision making and accountability in order to promote the needed behaviors [2, p.8]. Scholars [2] also emphasized that successful IT governance was a reflection of successful corporate governance. Furthermore as the core, IT governance will enable the firm to make use of certain mechanisms and structures to help coordinate the organization strategies to the objectives. The chief IT-governance frameworks are ISO 17799, ITIL, COBIT, BSC and Val IT. These frameworks allow government to align their processes and services with their objectives (Office of Government Commerce [OGC], [22]. In this paper we focus on COBIT and ITIL, two main IT-governance frameworks, to explore potential factors affecting e-governance service efficiency and effectiveness.

4.1. COBIT

COBIT is the abbreviation of Control Objectives for Information and related Technology. It is a group of best processes, indicators, metrics and techniques on control and evaluation of ITs’ area. ITGI (IT Governance Institute) and ISACA (Information System Audit and Control Association) provided this standard. Its last edition was published by the name of COBIT5 in 2012 [28], by ISACA stands for Information System Audit and Control Association which created in 1967 in America. Also ISACA is recorded as EDP auditor association in 1969. ISACF is created as research arm of ISACA in 1998 and its name changed to ITGI in 2003.

COBIT is helpful with delivering high quality objectives such as managing risks and resources, monitoring and measuring performance of the IT services and also delivering the optimal value for IT [22]. Due to its various uses in evaluating and monitoring, the COBIT is a framework that a number of public US corporations make use of since the auditing for proper use of IT governance is mandatory.

Furthermore, experts believe that the COBIT is also a useful IT tool for strategy. COBIT helps the government to create a map of its existing processes, make a comparison with the best practices and also guide them as to what the e-government should aim for next [23], [28], [24]. Through valuable addition to literature it has proven itself to meet many of the requirements of management by bringing aspects such as control needs, value creation risks and technical issues closer. COBIT has been proved to provide a successful framework for IT governance in a controlled environment [25]. There are four major domains under which there are 34 top level control objectives and are listed below:

1. Organize and Plan
2. Acquire and Implement,
3. Support and Deliver

4.2. IT Infrastructure Library

Information Technology Infrastructure Library (ITIL) is yet another framework that originated from IT process frameworks but later developed into an IT governance framework. It was established in 1989 and aimed to bring and recommend the best practices to help managing IT [26]. Because of major economic downturn in the late 1980s, the Central Computer and Telecommunications Agency (CCTA) of the UK improved the framework of Information Technology Infrastructure Library (ITIL) to better manage IT service delivery and decrease the costs [27].

The center of ITIL is to prepare an inclusive set of practices and templates for main IT operational processes. The framework contains three main segments. Service delivery and service support are the two segments that describe the main processes which IT organizations should have to prepare quality IT services for users. Third segment includes the processes of ITIL like application management and security management. The segment of service support offers daily maintenance and support processes related to the IT services provision. Within service support refers to the service desk function that is planned to be the major contact point between the IT organization and user. The segment of service delivery shields the procedures needed for the delivery and planning of quality IT services and views at long run processes related to enhancing IT services quality delivered [28]. The framework of ITIL is operated by UK Office of Government Commerce and its process of best practices is advocated by the British Standards Institute’s BS 15000 Standard for IT Service Management [29].
As mentioned above managing security is one of the main aspects of IT-governance frameworks. Palanisamy [30] discovered that privacy, management of ICT, trust and security are the main issues in the development of electronic government. Findings discovered that the social challenges including shortage of consciousness and access to the language, internet and trust associated obstacles impede citizens from employing electronic government services as well as the challenge of learning process and technologies in different organizations to deliver successful e-services [31]. Shortage of security, technological obstacles, shortage of trust, shortage of privacy, shortage of awareness, weak infrastructure and management, shortage of resources, legal obstacles, digital divide, and shortage of IT infrastructure, resilience and shortage of IT skills are some general obstacles and challenges in literatures.

The more crucial aspects in the studies of e-government in such nations like security, risk, digital divide and trust are inadequately represented and hold an important role to enhance the awareness of e-government among stakeholders [32]. The citizen management and service development orientations of e-government are replaced briefly by center on security. Large sectors of local and state plans for continued improvement of e-government were kept on hold though resources were redirected to cyber security with the passage of the USA PATRIOT Act (2001) and associated local and state public safety priorities. Scholars found that ITIL contain strong following in Europe particularly in the government sector and in North America and Australia adoption is growing. According to the Computer Economics [33] EXIN International which is the main international certification organization for ITIL training has operated around 170,000 training certificates to individuals. The framework of ITIL is operated by UK Office of Government Commerce and its process of best practices is advocated by the British Standards Institute’s BS 15000 Standard for IT Service Management [29]. In the area of IT service management, this model is a popular framework. The first edition of this framework was published in 1989 and second edition was published in 2000 with small changes of first edition and adding some processes. In 2007, third edition of this framework was published with primary changes compare to second edition. It is an operational framework and also ITIL contain set of good experiences with IT service providers with a compound structure in organizations [28]. The framework implementation explain the managements of IT system lead to easy decision making for managers. Thais framework evaluates and measure data changes in needed service for companies; that will be win-win for both sides [28].

Policy makers gradually paid attention to electronic services again though maintained a priority on first-response technologies, homeland security and online threats to individuals and organizations [34]. ITA has initiated a protected national payment gateway to be employed by private sector and government units to ease electronic payment. Besides, it has operated with concerned government bodies in order to initiate e-transactions law to secure individuals privacy included in electronic transaction and emphasizes essential issues like electronic signatures, identification for admissibility and evidential value of electronic payments validity and data messages [35].

5. Discussions

The literature review revealed that one of the biggest challenges of the governments in delivery of their IT enabled services is lack of legislation. As discussed above, government attempt to use IT-governance frameworks to improve their e-governance to get successful e-government. There are various variables affecting successful IT-governance of e-government services. Through reviewing previous studies, we identified some most fundamental successful factors of IT-governance of e-government services.

Managing risk is one of the main successful IT-governance variables. The aim of risk management is to reduce the vulnerability to harmful environment fluctuations to reach the permanent goals and objectives with maximum efficiency [36]. COBIT as a helpful IT-governance provides ability for government to manage risks [22], “IT governance is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization’s IT sustains and extends the organization’s strategy and objectives” [23].

Based on these discussions we hypothesize that:

H1: Managing risks has positive and significant relationship with successful IT-governance of e-government services.

The resources that are available with the government are another element that enables or disable the government’s flexibility in terms of adapting e-government. That is, only if needed resources are available in optimum levels, the governments will tend to take the risk of innovation. Therefore, another important element in IT-governance is managing resources. Managing resources enables government to provide high quality services to their citizens, as well as, enables government to effectively offer various kinds of
services. Managing and improving IT assets is the key step in IT-governance [27]. Updating and monitoring hardware and software resources enables governments to provide on-demand services. Therefore, it can be argued that:

**H2: Managing resources positively and significantly related to successful IT-governance of e-government services.**

Measurable benefits are providing necessary information, helping the user to perceive the available service based on user custom needs, and responding to the user’s queries regarding public service. Moreover, these items looked at the utilizing the site including advocating of stuck users, helping them to find what they need, easy to use, reliable, and providing high quality of service through well designed service scheme. Therefore, supporting services is another factor that IT-governance frameworks highlighted in previous literatures. Supporting services can improve e-government services quality and its efficiency and effectiveness. Service support refers to the service desk function that is planned to be the major contact point between the IT organization and user [3]. Based on these discussions, it can be inferred that:

**H3: Supporting services has positive and significant relationship with successful IT-governance of e-government services.**

E-government, in connection with service quality, is argued from the wide viewpoint of democratic considerations regarding the provision of accessible, equitable and transparent public services. In the conventional companies, quality of service is associated with some independent programs. The quality of service becomes highly important in online shopping, due to lack of face to face communication. In addition, service quality is a crucial factor in success of e-commerce. COBIT framework helps governments to monitoring and measuring performance of the IT services and also delivering the optimal value for IT [22] The use of performance metrics and project champions can aid significantly in controlling IT development processes and monitoring IT operations quality [37] According to these discussions we can argue that:

**H4: Monitoring services has significant and positive relationship with successful IT-governance of e-government services.**

The last but not least factor that can help successful IT-governance of e-government services is security and privacy management. Electronic government has certain issues regarding privacy, trust, security, and management of ICT. Research findings show that people tend to skip using electronic government websites due to shortage of consciousness, language issues, trust issues, as well as the challenge of learning the processes and technologies of delivery of electronic services in different organizations. Privacy, management of ICT, trust and security are the main issues in the development of electronic government [30] These arguments lead us to hypothesize that:

**H5: Security and privacy management has significant and positive relationship with successful IT-governance of e-government services.**

### 6. Conclusion

The study aimed to explore how government can overcome with lack of legislations in managing its e-government services and overload of information. Findings through reviewing related literatures indicate that IT-governance frameworks can be used to improve the effectiveness and efficiency of e-government services. Through the findings of previous research we proposed that particular aspects of IT-governance frameworks aspects such as managing risks, resources, security and privacy, and monitoring and supporting services can lead to successful IT-governance for e-government services. Therefore, the propositions are developed that managing risks, security and privacy management, and monitoring and supporting services have positive effects on successful e-government services. Based in these findings, the study provides a conceptual framework to governments which enables them to improve their IT-governance efficiency and effectiveness.

### 7. Limitation and Future Work

This study reviewed some related literature to explore fundamental factors influencing on successful IT-governance for e-government services. The main focus of the study was based on some developed IT-governance frameworks. Some important factors have been identified; however, an exploratory study is required to identify more potential factors and an empirical study required to evaluate the significance of the identified variables. In this order, our next goal is to empirically evaluate the framework suggested in this study.

### 8. References


