The relationship between e-government system acceptance and organizational agility.

Abstract
Purpose- This study examined the relationship between electronic government or e-government system acceptance and organisational agility. This research conducted a survey of governmental agencies managers to find out their opinions on the impact of e-government system acceptance on their organisational agility. The results expected to indicate that e-government system acceptance has a positive impact on responsiveness, competency, quickness, and flexibility.

Design/methodology/approach- A cross-sectional survey questionnaire method of data collection was adopted. A convenient sample was targeted by this study (governmental agencies’ managers who have adopted e-government system).

Expected Findings- The results of data analysis will show that the e-government system acceptance has a positive impact on responsiveness, competency, quickness, and flexibility. It will show how governmental managers perceive e-government system acceptance impact on overall organisational agility.

Research limitations/implications- The research has not taken into consideration all the contextual factors that might affect organisational agility (e.g. knowledge sharing, human resource management, communication channels, etc). It concentrates rather on e-government system acceptance which is line with of information systems/information technology literature. It also does not take into account if there is any intervening or moderating factors that strengthen the relationship between e-government system acceptance and organisation agility.

Practical implications- Focusing on e-government system acceptance and links it with organisational agility would either improve governmental organisations agility or facilitate e-government services delivery. It also, assists in preparing excellent e-government strategy that avoid any pitfalls either related to e-government acceptance or e-government service implementation and delivery.

Originality/value- This paper would assist governmental agencies to improve their performance and agility by utilising e-government system. It also, helps policy makers and decision makers to prepare effective e-government strategy that ensure high level of agility. It is not only being the first study that carried out in e-government system acceptance and agility in Jordan but also on the whole region of the Middle East.

Keywords- E-government, E-government acceptance, and organisation agility.

Paper type- Research paper

1. Introduction

Electronic government has been viewed as the adoption of information and communication technology (ICT) by government organizations to achieve better public services. E-government implementation efforts around the globe began in the late 1990s. The
implementation of ICT in governmental organization aims to offered better, faster and transparent channels for citizens and business organizations to interact with government. At the same time, e-government also has constructed a stand for more collaboration and information sharing between various government organizations. Implementation efforts in most regions and countries have now progressed from basic information offering to more integrated service offerings that include reengineering traditional processes and transformation conventional information systems to allow more citizen-centric e-government services. Because the public sector transformation process is more complex and has distributed decision-making, it requires clear understanding of the political context, business processes, web-technology, and methods that enable to overcome the traditional boundaries that exist between government organization units.

Nowadays, governmental organisations face highly uncertain; unpredictable; hostile; and dynamic environment and citizens require quick response for getting services. The question is how governmental organizations can keep abreast with citizens changing demands. Thus, governmental Employees should develop new skills, competencies, capabilities, and knowledge to respond to changes in environment. Creating these skills, competencies, capabilities, and knowledge practices should be faster than ever before. Several agile methodologies, frameworks, and techniques are suggested to cope with uncertainty (Sharifi and Zhang, 1999; Sherehiy et al. 2007; Jain et al.2007). One of these agile capabilities seems to be technology or information systems (Zain et al. (2005). If this is true, our research can extend this argument to suggest that adopting or acceptance of e-government system may improve organisation agility. Therefore, it is logical and worthwhile to investigate the relationship between e-government system acceptance and organisation agility. For agility, different concepts and terms were used in the literature interchangeably referring to organization agility, for example, “flexibility”, “responsiveness”, “adaptability”, etc. However, some scholars clearly distinguish between these terms and concepts (Conboy and Fitzgerald, 2004), while others use them synonymously (Sharifi and Zhang, 1999; Yusuf et al. 1999, 2004). The fact is that all related concepts and terms to organizations agility concentrate on an organization’s abilities to adapt its processes, strategies, production lines, resources, and so on to respond to the new circumstances created by change. This conveyed the clear notion that there is no widely accepted definition for organization agility. The reason for a lack of an accepted definition might be attributed to irrelevant, imprecise, vague, surrogate, fuzzy logic, linguistic expression, and operational measures(Giachetti et al., 2003; Arteta and Giachetti, 2004; Lin et al., 2006a; Jain et al., 2007). Information technology/ information system enables organisation to realize agility by sensing and responding to changes in citizens needs (Weill et al. 2002). More than that, how organisation designs and manages information technology determine also organisation agility.

2. Motivation for this study

The motivation for this study emerges from the recommendations appeared in the literature of information technology / information systems and agility. Gallagher and Worrell (2008)
demonstrate that achieving agility requires organisations to innovate, organize and integrate information technology and business objectives in often times complex settings (p87). Zain et al. (2005) argued that the acceptance of information technology becomes a main component of organisation agility. Jain and Vitharana (2008) suggested that numerous research issues related to application agility definitions, business value of agility, agility measurement, agile application development approaches, design models, project team organisation, communication within and across project teams, and governance need to be addressed. also, Zain et al. (2005) also launched a strong call for researchers to investigate empirically the relationships between external variables, information technology acceptance, and organisation agility. Although the adoption of e-government system is compulsory for governmental organisations in Jordan, but there is a dearth of research studies that investigate the impact of e-government system acceptance on organisation agility. In addition, this research has the originality in the following aspects: 1- Originality in testing its model, which predicts the hypothesized relationships between e-government adoption and organisation agility. 2- Originality in investigating empirically governmental managers’ perceptions of governmental organisations’ responsiveness, competency, flexibility/ adaptability, quickness/ speed and e-government adoption. To the best of my knowledge, this work has never been done before in Jordan context or in the Middle East region. 3- Originality in testing some of the theoretical ideas that could be induced from the e-government literature that overemphasized the benefits of e-government adoption without empirical support. Much of the prior research has theoretically emphasized the impact of e-government on forms of cost, effectiveness, efficiency, transparency, etc. But this study has empirically, investigated what was understood from the e-government literature.

3. Research Objectives

The major objectives of this research are concerned with answering the following question: To what extent does e-government system acceptance impact organisation agility? The following questions can be derived from the above question:
1-To what extent does e-government system acceptance impact organisation responsiveness?
2-To what extent does e-government system acceptance impact organisation competency?
3-To what extent does e-government system acceptance organisation impact flexibility/ adaptability?
4-To what extent does e-government system acceptance impact organisation quickness/ speed?

4. Literature review

4.1 Literature of e-government acceptance or adoption

E-government literature emphasizes that applying e-government can provide several benefits when it is compared with traditional government system. Numerous e-government initiatives were set forth to increase the efficiency and effectiveness of government procedures and activities to improve public services delivery (Lee & Kim, 2007). However, Al-adawi et al. (2005) argues that e-government is far from reaching its maximum potential until the gap between what is offered and what is used is bridge, governments can not justify large investments in e-government and will not get all of the possible value out of these
investments…. P(1). Even though the majority of e-government literature focuses on the supply side of e-government, Riddick (2005) explored the citizens’ interaction with the e-government from the demand side. According to his view, the E-government evolved through two phases: First, information dissemination in which governments cataloguing information on a formal website for public use. Second, transaction in which citizens can execute transactions and at the same time receive service delivery electronically. Riddick concluded that the informational phase is more dominant than transactional phase in reality.

There is a general agreement within the literature that e-government development follow the evolutionary approach through multi-phases (Dijk et al. 2007, Lau et al. 2007, Reddick, 2005; 2004). Layne & Lee (2001) provide four stage-growth model: (1) cataloguing information on a formal website; (2) conducting transaction on the website; (3) vertical integration; (4) horizontal integration. Reddick (2004) examined a two-stage model in the context of U.S cities: stage 1 cataloguing information on a website and stage 2 conducting transaction on a web site. These two stages were adopted from Layne and Lee. Four relationships were connected with these stages: government to citizen (G-2-C), government to business (G-2-B), and government to government (G-2-G). Reddick concluded that most of the U.S cities were located in stage 1. The advancement toward stage 2 moves gradually and slowly. However, there are some transactions can be completed over the web site. Experience from less developed countries, Lau et al (2007) proposed a conceptual model of e-government development. The model includes four stages: information dissemination in which information is published and disseminated; interaction in which forms are circulated and filled; transaction in which citizens can execute end to end transaction, and seamless service. Table 1 listed prior studies of e-government adoption.

Not only the presences of evolutionary approach is dominated the literature but also the linearity is dominant. However, Ebbers and Dijk (2007) proposed multi-disciplinary and non-linear innovation model. The model proposes in details the processes of adoption and implementation of e-government services. Several indicators of resistance and support of e-government adoption were derived from the model. Certainly, the importance of aforementioned literature cannot be denied but it did not show the acceptance and use of e-government services by citizens. On one hand, Gupta et al. (2008) used Unified Theory of Acceptance and Use to investigate the factors that influence adoption of ICT by employees in a government organisation in India. The results revealed that performance and effort expectancy, social influence and facilitating conditions positively impact the use of the ICT. Gupta et al. (2008) study failed to find any significant moderating effect of gender on the aforementioned relationships. On the other hand, Dijk et al. (2007) used technology acceptance model to explain government internet services use. The results revealed that the availability of internet service; the knowledge of this availability; the preference to use digital channels, and the ability and experience to do this are the fundamental conditions for internet usage. They argued that the acceptance and use should be analyzed as a dynamic process. Unexpectedly, the results showed that social-demographic and psychological factors did not influence e-government acceptance and usage.

Although, the fashion of e-government development disseminated quickly around the glob, the average usage of the e-government website fall below expectation even in more developed countries (Kumar et al., 2007). Therefore, the adoption of e-government services by citizens
considered a significant factor that determined e-government success. Carter and Belanger (2003) presented a high level research model proposes that relative advantage, image, compatibility, ease of use would influence e-government intension to use. The results revealed that perceived relative advantage, perceived image, and perceived compatibility are significant component of e-government adoption. Subsequently, Carter and Belanger (2005) have investigated the influence of perceived characteristics of innovating on e-government adoption. The study found that higher levels of relative advantage, image, and computability are associated with increased intention to adopt state e-government initiative. Whereas, higher levels of perceived ease of use are not significantly associated with increased intention to use. Tung and Rieck (2005) examined factors influencing adoption of electronic government services among business organisations in Singapore. A theoretical framework was developed and proposed that perceived benefits, management readiness, sensitivity to cost, external pressure, and social influences were positively influence adoption decision. The results revealed that a significant positive relationship between perceived benefits, external pressure, and social influence and the firms decision to adopt e-government services.

Tung and Rieck (2005) argued that despite of the bulk of research articles that investigate e-government adoption, there is a lack of studies that explain why and under what circumstances individuals and organisations will intend to use e-government services and will continue to use it. Further, according to their research “the outcomes of e-government adoption depend mainly on e-government maturity level where should the investigation take place”. In addition, Tung and Rieck (2005) argued that “the portrayal of an up-to-date, effective and secure online public administration may also encourage more companies to make queries, download forms, file returns and even tender for government projects online, leading to significant cost savings and efficiency gains for both the government and participating companies” p437. Kumar et al. (2007) developed a model of e-government adoption and citizens’ satisfaction emphasises that user characteristics (perceived risk, perceived control, internet), website design (perceived usefulness, perceived ease of use) influence directly e-government adoption whereas service quality improves citizens’ satisfaction. The model hypothesized that if the citizen satisfies with the e-government service quality, he/ she will adopt and use e-government service frequently. If this argument apparently looks reasonable, logical, and to some extent is true, it lacks of empirical basis.

Hung et al. (2006) explored Taiwanese acceptance and use of online tax filing and payment systems by using a survey instrument. The results indicates that the most determinants of e-government services were perceived usefulness, ease of use, perceived risk, trust, compatibility, external influences, interpersonal influence, self-efficacy, and facilitating condition. Hung et al. (2006) argued that the vast majority of e-government literature aimed to improve government service responsiveness, convenience, and quality. They classified the literature into five categories: (1) the concept, history, structure, initiatives, policies, key principles, challenges, development success factors of e-government; (2) the technological applications, tools, or approach to facilitating e-government services development, implementation, and evaluation; (3) the assessment, measurements, or investment model of e-government services to clarify economic, social, or public benefits of implementing e-government services; (4) management support or implementation strategies, including knowledge management, process-oriented
management, service lifecycle management, customer relationship management, and reputation recovery management, to facilitating e-government services management; and (5) key factors affecting acceptance, expectation, and usage intention of e-government services. Until recently, the e-government intention to use did not realise the importance of continuance intention to use. This encourage, Wangpipatwong et al. (2008) to suggest empirically that perceived usefulness, perceived ease of use and computer self-efficacy directly enhanced citizens’ continuance intention to use e-government. In addition, they found that perceived ease of use indirectly enhanced continuance intention through perceived usefulness.

In the Jordan context, the e-government initiative has been established by a royal decree in 2000. The Jordanian e-government initiative aims to transforming Jordan to knowledge based society by improving governmental performance, enhancing national competitiveness, increasing transparency and accountability, reducing cost, and improve technical and non-technical competencies. This initiative face various challenges (Al-Omari, 2006; Abu-Samaha & Abdel Samad, 2007) such as: low level of internet penetration, infrastructure constraints, digital divide, limited information technology IT skills, limited public sector reform efforts, lack of an enabling legal framework, and lack of awareness, education, awareness, preparedness, public sector reform, organisational and technical change management. Jordan varies in it’s readiness to undertake e-government services to businesses, citizens and within government institutions themselves (Al-Omari, 2006). Before launching the e-government initiative the readiness of the following aspects have to be assessed: Society, government institutional frameworks, human resources, existing budgetary resources, inter-department relationship, national infrastructure, economic health, education, information policies, private sector development and other related issues. Although there are various studies that look at technical issues of e-government in Jordan (Architecture, Readiness, and Challenges), there is a dearth of study that investigate the implications of e-government acceptance in public and private organisation. This study try to fill this void and stimulate much more research to demonstrate the implication of e-government system acceptance on organisational issues.

Table 2: e-government acceptance literature

<table>
<thead>
<tr>
<th>Contextual factors impact e-government acceptance</th>
<th>Supported literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived benefits, management readiness, and sensitivity to cost, external pressure, and social influence.</td>
<td>Tung and Rieck (2005)</td>
</tr>
<tr>
<td>Perceived usefulness, ease of use, perceived risk, trust, compatibility, external influences, impersonal influence, self-efficacy, facilitating condition.</td>
<td>Hung et al.(2006)</td>
</tr>
<tr>
<td>Social–demographic factors, psychological factors, availability of internet services, knowledge of availability of</td>
<td>Van Dijk et al (2007)</td>
</tr>
</tbody>
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internet services, preference to digital channels, ability and experience to use digital channels.

| Perceived usefulness, personal experiences, risk perception, and trust. | Horst et al.(2007) |
| User characteristics (perceived risk, perceived control, internet), website (perceived usefulness and perceived ease of use). | Kumar et al.(2007) |
| Relative advantage, image, compatibility, and ease of use. | Cater and Belanger(2005) |
| Perceived usefulness, perceived ease of use, trust, and perceived risk. | Al-adawi et al. (2005) |

**Evolutionary models of e-government**

| (1) Initiation processes (gestation, perception of an urgency, and plan) (2) Implementation processes (involvement of top management, adapting the innovation, adapting the organisational structure, adapting policies, clarification, deploying financial resources, and applying information systems). | Ebbers and Van Dijk(2007) |
| (1) Information dissemination (2) Interaction (3) Transaction (4) Seamless service. | Lau et al. (2007) |
| (1) Cataloguing (2) Transactions (3) Vertical integration (4) Horizontal integration | Lyne and Lee (2001) |

**4.2 literature of Agility**

In today’s business environment, change is the only certain circumstance. New competitors, new potential customers, and harsh global competitions alter or nearly modify most industries in
unexpected ways. To prosper, organisations should use the turbulent environment as an opportunity rather than a threat, organizations need to adapt quickly to new conditions. Turbulent environment should be a motivator to establish organizational agile capabilities. These capabilities is considered strategic weapon in coping with an unpredicted, hostile, and ever-changing business environment. It is useful, if not critical to review the main literature in organizational agility and related concepts/ terms. Several frameworks and methodologies appeared in the related literature. The prominent scholar Sharifi and Zhang (1999); Zhang and Sharifi (2000) developed a methodology for achieving agile capabilities in manufacturing companies. They divide the agile capabilities into four major categories namely: responsiveness; competency; flexibility; and speed.

Recently, Lin et al. (2006a) comply with the categorization of Sharifi and Zhang, (1999); Zhang and Sharifi (2000) in which they consider the same capabilities are very important for dealing or coping with uncertainty and changes in business environment. These capabilities are described below:

1. Responsiveness, which is the ability to identify changes and respond to them quickly, reactively or proactively, and also to recover from them;
2. Competency, which is the ability to efficiently and effectively realize enterprise objectives. In other words, competency is an extensive list of abilities that provide a company with productivity, efficiency, and effectiveness in achieving its aims and goals. Examples of these abilities include: strategic vision, sufficient technological capability, and cost-effectiveness;
3. Flexibility/adaptability, which is the ability to implement different processes and apply different facilities to achieve the same goals. It consists of items such as: product volume flexibility, people flexibility, etc; and
4. Quickness/speed, which is the ability to complete an activity as quickly as possible. Items include: quickness in new products time-to-market, quickness and timeliness in product and service delivery.

According to Goldman et al. (1995) there are four strategic dimensions of agile capabilities: (1) enriching the customers; (2) cooperating to enhance competitiveness; (3) organizing to master changes; (4) leveraging the impact of people and information. Enriching customers refers to delivering value and solutions to the customers rather than products. Cooperating to enhance competitiveness relates to internal and external cooperation which is necessary to allocate resources effectively and efficiently. Therefore, products will be delivered to market in a cost effective and efficient manner. Organizing to master change means how flexible is an organization structure to permit relocation all organization resources. Leveraging the impact of people and information means how flexible and configurative are your human and information resources. For Jackson and Johansson (2003) agile capabilities is not a specific goal organizations have to attempt to achieve rather is a necessity to maintain competitiveness in an unpredictable, dynamic, and continuous changing business environment. Agile capabilities are established based on various elements related to three main enterprise dimensions: manufacturing, product, and market dimensions. Also, Jackson and Johansson (2003) divide
agile capabilities into four main dimensions: (1) product-related change capabilities, (2) change competency within operations, (3) internal and external co-operation, and (4) people, knowledge, and creativity.

However, manufacturing companies’ often faced competitive pressures to be agile, this inspire Yusuf et al. (1999) to identify competitive foundations of agile capabilities as follows: speed, flexibility, innovation, proactivity, quality, and profitability. They proposed that competitive foundations are primary features of agile manufacturing that must be accomplished at the same time. In their framework, they differentiate three types of agile capabilities that could be related to specific levels of organization. Elementary agile capabilities pertain to individual resources (people, machinery, and management); micro-agile capabilities refer to the enterprise as a unit, and macro-agile capabilities represent the inter-enterprise level. Sharifi and Zhang (1999); Zhang and Sharifi (2000) have identified four important characteristics of manufacturing agility: (1) drivers, (2) strategic abilities, (3) providers, and (4) capabilities.

Lin et al. (2006b) have summarized the agile capabilities drivers in five factors: (1) market volatility (2) intense competition (3) changes in customer requirements (4) accelerating technological change, and (5) changes in social factors. More recently, Sherehiy et al. (2007) extend the prior literature in agile manufacturing and agile work force by showing the global characteristics that could be applied to all aspects of organization: flexibility, responsiveness, speed, culture of change, integration and low complexity, high quality, customized products, and mobilization of core competencies. Sherehiy et al. (2007) strongly call for further research in agile manufacturing capabilities and agile work force to validate the suggested attributes and indices of suggested agile capabilities.

4.3 The links between e-government system and organisation agility

Information system enables organisations to sense and respond environment changes (Gallagher and Worrell, 2008). The acceptance technology model show how attitude toward new technology system impact organisational agility through actual use of information technology (Zain et al. 2005). The attitude toward the new information technology systems is a function of perceived usefulness and perceived ease of use of information technology. The perceived usefulness and perceived ease of use influencing organisation agility through actual use and attitude toward technology. Gallagher and Worrell(2008) present a longitudinal case study of an insurance company show how agility in multi-unit can be realised through managing system design at the organisational and business unit levels. At the same time, Tallon(2008) posit that managerial information capabilities based on business partnerships, strategic planning, and ex-post information technology projects analysis lead to the development of technical information technology capabilities associated with flexible information technology infrastructure which in turn drives agility. The results show that managerial and technical IT capabilities have a positive impact on agility. Concurrently, Setia et al (2008) developed a framework for organisational value creation from agile IT applications. Organisational fit, process assimilation, and network
adoption were identified as pre-requisites for realising the value of agile supply chain applications. The information sharing and clockspeed were considered the moderating factors of the framework. Although Zain et al (2005) shed a light on a new research area that is expected to attract attentions more researchers, their study was exploratory in nature, it lacks the validity to be applied to governmental organisations. In addition, Zain et al (2005) investigated IT acceptance impacts on organisation agility in broader terms while this paper look at the e-government information system and links it with organisation agility.

5. Research model

Considering the argument presented in section 4, the research model is depicted in Figure 1, the model suggests that the organization agility is a function of e-government system acceptance. The independent variable is e-government system acceptance which includes: perceived usefulness and perceived ease of use. While, the dependent variable is organisation agility which includes responsiveness, competency, quickness, and flexibility. However, it has been argued that determining the required level of agility is done by matching agility driver assessment with agility capabilities. In this context, Lin et al. (2006) argue that different types of changes need to be predicted to assess the agility drivers. These changes include: changes in marketplace, change in competition, change in customer desire, change in technology, and change in social factors. As a result, the challenge that faces government today is how to cope with uncertainty caused by changes in citizens’ expectations and new communication technologies, etc. (Becker and Knudsen, 2005). Thus, it is expected that e-government system can play a major role in reducing uncertainty results from changing in technologies and citizens expectations. This notion means that e-government has a job to do; its function is to enable an organisation to respond effectively to changing circumstances in both internal and external environment. In other words, it will enables organisation agility.

*Figure 1: The Research Model*
7. Methodology

7.1 Data collection methods and measurement of the research constructs

The decision was made to adopt a positivistic methodology, because of the need for quantitative data to satisfy the objectives of the research and the need for a large sample to carry out the data analysis. In addition, the researcher needed to examine the anticipated relationships included in the research model depicted in Figure 1. The delivery and collection of questionnaire method was used in distributing and collecting the questionnaires to ensure a high response rate and to take the advantages of personal contact since this method enhances respondents participation. In order to ensure that the criteria of questionnaire construction and pre-testing were met, time and effort were devoted towards design, layout, and wording of the questionnaire used in this research. As a result, the survey instrument was pre-tested with employees and academic experts who were asked to review the questionnaire for readability, ambiguity, completeness, and to evaluate whether individuals items appeared to be appropriate measures of their respective constructs (Dillman, 1978; DeVellis, 1991). The Operationalisation of constructs and their aspects were developed in accordance with the accepted guidelines of reliability and validity for multiple-item measure (Churchill, 1979). The reliability test will be carried out using Cronbach’s alpha, which measures the internal consistency of a construct. The recommended minimum acceptable limit of reliability “alpha” for this type of study is 0.70 (Hair et al., 2003). Thus, all \( \alpha \) – values have to exceed the recommended minimum value of Cronbach’s alpha.
Intensive literature review was conducted for the research constructs, and item-based measurements were developed. All of the measurement scales used in this research were based on related literature. In order to ensure the validity and reliability measures, relevant literature was used to validate the measurement scales and operationalising the research constructs. For measuring e-government system acceptance, the perceived usefulness and perceived ease of use were indicators of e-government acceptance. The measurement scales and indexes were adapted from the previous work includes: The items for measuring perceived usefulness and perceived ease of use were adapted from Hung et al. (2006); Tung and Rieck (2005); Wangpipatwong et al. (2008). To measure perceived usefulness and perceived ease of use five items, eight items were used respectively.

Various definitions of agility have been suggested. Kidd (1994) defines as a rapid and proactive adaptation of enterprise elements to unexpected and unpredicted changes. Dove (2001) defines agility as the ability to manage and apply knowledge effectively, so that organizations would be prosper even under continuous changes in business environment. Arteta and Giachetti (2004) use complexity as a proxy measure of agility. Zain et al. (2005) see agility as a response to the challenges imposed by changes in business environment. Ismail et al. (2006) defines manufacturing agility as an ability to respond to, and create new windows of opportunity in a turbulent market environment driven by individualized (bespoke) customer requirements cost effectively and rapidly. Measures tested in prior studies were adopted with changes in wording to suit a manufacturing context. Several approaches to measure agility can be found in organisation agility and agile manufacturing system literature. For example, agility index is used by several authors (Tsourveloudis and Valavanis, 2002; Yusuf and Adeleye, 2002). The agility index refers to a set of capabilities intensity levels. Another method for measuring agility (Ren et al., 2000) is based on analytical hierarchical process (AHP) methodology. Other researchers (Giachetti et al., 2003; Arteta and Giachetti, 2004; Jain et al., 2007; Lin et al., 2006a, 2006b) acknowledged that agility as a concept is imprecise, vague, and complex. Therefore, linguistic expression and fuzzy logic are the suitable measure of agility.

For the purpose of this study, Agility was defined to include four dimensions: Responsiveness, Competency, Quickness, and Flexibility. These capabilities enable organizations to respond proactively and innovatively to changes in business environment on a timely basis. The measurement scales and items were adapted from items suggested or used in prior literature: Becker and Knudsen (2005); Sharifi and Zhang (1999); Zhang and Sharifi (2000) for measuring responsiveness, competency, and quickness; Gupta and Somers (1996); Zhang et al. (2002) for measuring flexibility. Nine items were used to measure responsiveness; six items were used to measure competency; and four items were used to measure quickness. Because flexibility is a multidimensional concept, it was divided into five dimensions namely: volume flexibility, mix flexibility, labour flexibility, expansion flexibility, and delivery flexibility. These dimensions according to (Pagell and Krause, 2004) are dominant in the manufacturing strategy literature to address the flexibility. Sixteen items were adapted from the aforementioned study to measure flexibility.

The questionnaire was originally designed in English and then translated back into Arabic version. Afterwards, the Arabic version was checked by experts in e-government domain to ensure there was no loss of meaning during the translation process. There was no difference in the meaning between the Arabic and English version. High level of validity was ensured through
extensive revision by experts and consultation of prior tested instruments. Based on the feedback that researcher get from the reviewers if there is any misunderstanding or cues questions, any item caused confusion or misunderstanding was dropped or replace by new understandable item. This process has led to several minor changes, which were made prior to generating the final version of questionnaire. The reliability (Cronbach’s alpha) test will be used to ensure high level of internal consistency of multi-item scales.

Respondents were asked to identify their level of agreement with each item on a five-point Likert scale described as: (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree. For example, one of the questionnaire items asked the respondents agreement with the following statement, “Our organisation makes quick decisions on reaction to price change” the possible answer and meaning ranged from (1 strongly Disagree = not existed, to 3 neither agree nor disagree= moderate level of existence, to 5 strongly agree= high level of existence). A score of one meant that the respondents perceive the activity is not existed or practiced in their organisation, while a score of 5 meant that the respondents perceive the activity is existed or practiced in their organisation.

Table 2 shows the null and alternative hypothesis that can be derived the research model.

**Table: 2 The null and alternative hypothesis of research constructs**

<table>
<thead>
<tr>
<th>Null and Alternative Hypothesis</th>
<th>Construct</th>
</tr>
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<tbody>
<tr>
<td><strong>H0:</strong> There is no relationship between e-government system acceptance and organisation responsiveness.</td>
<td>Responsiveness</td>
</tr>
<tr>
<td><strong>H1:</strong> There is a relationship between e-government acceptance and organisation responsiveness.</td>
<td></td>
</tr>
<tr>
<td><strong>H0:</strong> There is no relationship between e-government system acceptance and organisation competency.</td>
<td>Competency</td>
</tr>
<tr>
<td><strong>H1:</strong> There is a relationship between e-government acceptance and organisation competency.</td>
<td></td>
</tr>
<tr>
<td><strong>H0:</strong> There is no relationship between e-government system acceptance and organisation quickness.</td>
<td>Quickness</td>
</tr>
<tr>
<td><strong>H1:</strong> There is a relationship between e-government system acceptance and organisation quickness.</td>
<td></td>
</tr>
<tr>
<td><strong>H0:</strong> There is no relationship between e-government system acceptance and organisation flexibility.</td>
<td>Flexibility</td>
</tr>
<tr>
<td><strong>H1:</strong> There is a relationship between e-government system acceptance and organisation flexibility.</td>
<td></td>
</tr>
<tr>
<td><strong>H0:</strong> There is no relationship between e-government system acceptance and organisation agility.</td>
<td>e-government system acceptance and organisation agility</td>
</tr>
<tr>
<td><strong>H1:</strong> There is a relationship between e-government system acceptance and organisation agility.</td>
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</tbody>
</table>
There is a relationship between e-government system acceptance and organisation agility.

8. Contributions of Research to Knowledge

This study has contributed to knowledge on both the academic and practical levels. Academically, the study extends prior empirical research investigating the impact of IT acceptance on organisation agility by testing empirically the impacts of e-government system acceptance on organisational agility. Practically, the study has several managerial implications. More specifically, the major contribution of the findings lies in increasing the ability of governmental organisations managers to improve their skills and capabilities for responding effectively to uncertainty related to IT and citizens expectation changes.

The findings of this research suggest governmental organisations managers should use e-government to sense and respond to changes in IT and citizens expectations. In addition, managers are encouraged to use different agile capabilities in order to cope with changes associated with IT changes and citizens expectations. However, definitions of capabilities such as flexibility, competency, quickness, and responsiveness are linked to certain types of change. In other words, enumerating the changes result from IT and citizens expectations provide a basis for identifying the needed level of organisation agility. The findings of this research can help policy makers sense of managers perceptions of the impact of e-government system on organisation agility. Fast and dramatic changes in citizens’ needs, expectations, requirements, and new technology developments are creating an increasingly needs for policy makers to understand how governmental organisations managers perceive the role of e-government system enables organisation agility.

9. Limitations and further directions for future research

This research has several limitations, which should be noted. It is worth mentioning that the measures used in this research are based on managers’ perception, which might be to some extent subjective. The research also has not taken into consideration the effect of the moderating and intervening variables (such as organisation size, nature of service, organisation culture, political issues, etc.) on the relationship between the e-government system acceptance and organisation agility. In addition, the sample will be limited to the Jordanian mangers who have already adopted or accepted e-government system. Thus, it is not representative of the whole governmental organisations managers and therefore the findings should be taken in caution, since different groups of managers experience different sets of problems with e-government system. In addition, the study has considered the impact of e-government system acceptance on organisation agility while the organisation agility might be affected by other factors. (e.g. culture, innovation, new technologies, business strategy, etc.).

Despite the above limitations, this study is the first attempt in Jordan to examine empirically the relations between e-government system acceptance and organisation agility. Therefore, the mentioned limitations should be viewed as opportunities for future research. The study propose
conducting more empirical studies about the impact of perceived usefulness and perceived ease of use on organisation agility; the role of the moderating and intervening variables (e.g. organisation size, business strategy, social values, human resource management, etc.) on organisation agility.

References


