

Full Length Research Paper

E-government and e-governance concepts and constructs in the context of service delivery

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The Malaysian Vision 2020 of the Multimedia Super Corridor (MSC) has gone through a rapid change in information and communication technology (ICT). The government will eventually enhance the service delivery and quality of the development process which will allow the government to be more responsive to the needs of the citizens. The Malaysian government has developed e-government and e-governance that have come into prominence. Both terms have been used interchangeably. However, they are quite different as they have different audience to cater for, especially the different objectives from the Malaysian government. Therefore, the aim of this study is to investigate the concepts and constructs of the e-government and e-governance as well as gauge the relationship between with regard to service delivery.

Key words: E-government, e-governance, internet, service delivery.

INTRODUCTION

The global trends in Information Technology (IT) and the internet suggest that the internet and e-commerce have resulted in an e-government revolution and the reinvention in Malaysia, the information age with the materialisation of a knowledge based society (Hazman and Ala-aladin, 2000). The Malaysian government presently adopted the information and communication technology (ICT), especially the internet or web based network to provide services to the citizens (Zaharah, 2007). With the use of the internet, the communication and interaction among citizens and the government can be conducted on a single counter or at home on the computer 24 hours a day, 7 days a week without being physically present at the government's offices to get forms, legislation, news and other information from respective departments of the government. Nevertheless, this is only possible by the government's willingness to decentralize the responsibilities and processes by using

electronic means of the internet (Sundresa et al., 2006).

With the emerging global trends, the Malaysian Vision 2020 of the Multimedia Super Corridor (MSC) has gone through a period of rapid change towards the rich information of the digital age and has become a major investor in the ICT (Ambali, 2009). With the use of ICT, the government will eventually improve the service delivery to the citizens of Malaysia, making internal operations of the government departments more efficient and improving in the quality of development process which enables the government to be more responsive to the needs of the citizens (Mohsin, 2007).

Due to the rapid use of ICT, the Malaysian government has developed an e-government system for extensive reliance for use in IT. The e-government is one of the seven flagship applications introduced under the MSC in the year 1996. The objectives of these flagship applications is to accelerate the growth of MSC, enhance

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national competitiveness and reduce digital divisions in reinventing the government by transforming the way it operates towards modernizing and attracting high value in job opportunities (Mohsin, 2007).

Accordingly, Malaysia was ranked 25th out of 32 countries in terms of the e-government usage growth (Mohsin, 2007). The United Nation (UN) e-government report reveals that Malaysia has jumped from being ranked 42 in 2004 to 34 in 2008 (UNDESA, 2008). Likewise, the web measure index of the country has improved from 41 in 2005 to 17 in 2008 (UNDESA, 2008). However, this position is still below the expectation of the government to fully achieve 100% usage of the e-government. The aim to achieve 100% is the reinvention on how the government operates in improving the quality of its interactions with the citizens and businesses via improved connectivity, better access to information and services delivery of the e-government. Not only that the government needs to improve the delivery, but also they need a collaborative environment where the government, businesses and citizens can work together for the benefit of the nation as a whole (Karim and Khairuddin, 1999). In this study, the aim is to investigate the concepts and constructs of the e-government and e-governance, as well as to gauge the relationship between them with regard to service delivery to the citizens.

Therefore, we structured this research work as follows. An overview of the study and the concepts of e-government and e-governance are described. We elaborated on the interactions in e-governance. And further discuss the e-governance and e-government constructs in the next, and finally, the conclusion.

METHODOLOGY

This study engaged in hypotheses testing that enables to examine the conjectured relationship that has been substantiated as well as answer the research questions. The main aim of this study is to investigate the factors influencing the intention to use the e-government services of the individual citizen in Sarawak region. A study can be a casual study or correlational study. Thus, the type of investigations used in this study is correlational study which means develop theoretical framework, then collect data just once that is, cross sectional studies to obtain findings. The data would be collect within the period of 3 weeks.

The population of this research is Malaysia citizens who work in East Malaysia, that is, Sarawak region. The target respondents were the eligible taxpayers, public sector and private sector in Sarawak. In this study the non-probability convenience sampling was undertaken due to the constraint of time, cost and manpower in conducting the study.

This study employs quantitative method. Quantitative method is appropriate when there is a need to apply the sample data to the population in order to find patterns and current trends (Davidsson and Patel, 2003). Questionnaires were distributed for data analysis of this study. The questionnaires were distributed to the respondents in hard copy. The respondents were given one week to complete the questionnaires and revert back personally or by

mail which is more convenient to the respondents.

The questionnaire consists of questions to identify the possible factors that may affect the acceptance of e-government. In this research, there were 9 constructs and the total of 51 items to measure. E-participation has 3 dimensions and 12 items. Information quality value has one dimension and 5 items, User satisfaction has one dimension and 4 items, System quality with 11 items, facilitating condition with 5 items, performance expectancy with 4 items, effort expectancy with 5 items and behaviour intention to use is 5 items.

All instruments were adapted from various literatures and modified to suit the context and objectives of this study. The questionnaire consists of 10 sections. Section 1 consists of *respondents' profile*; section 2, *e-participation* derived from Reddick (2010); section 3, *information quality*; section 4, *user satisfaction* and section 5, *system quality*. Items in section 3 to section 5 were derived from Wangpipatwong (2005); section 6, *facilitating condition* derived from Ramayah (2010); section 7, *performance expectancy* (Weerakkody and Dhillon, 2008); section 8, *effort expectancy* derived from Carter and Weeakkody (2008) and Section 9, *behaviour intention to use* derived from Ramayah (2010).

Questionnaires were used for this research. The variables are measured by using 5 Likert scale participants rating from "strong agree" through "neutral" to "strongly disagree". Table 1A as shown in the Appendix illustrates the *measurement items of scales*.

CONCEPTS OF E-GOVERNMENT AND E-GOVERNANCE

In general, both the developed and developing countries adopted the e-government because it is cost saving, has greater accountability of the government, increases efficiency, shorter processing time, reduces corruption among the government employees, lowers the administrative burden and as well greater constituency participation (Howard, 2001; UNDESA, 2008). There is no universally accepted definition of the term e-government although it was important to define it at its inception (Yildiz, 2007). However, the e-government is not a mere technology innovation but also a process of governance. E-government denotes the application of IT to the process of government in order to facilitate the communication and interaction between the citizens and businesses (Lee et al., 2005). The term "interaction" refers to the government services, exchange of information, communication, transactions and system integration (Sundresan et al, 2006). Failure to do so will lead to the multi-dimensional initiatives for the e-government of a country (Ndou, 2007). Therefore, in order to prevent failure, the government should plan, identify and carefully implement all their missions and visions of the e-government for the citizens.

Some researchers and practitioners view the e-government merely as the use of ICT especially the worldwide web through the internet, smart phones and community centres to provide government information and services to the public as well as a tool to better serve the citizens (West, 2002). In other words, the e-government is a form of e-business on governance to

deliver electronic services to the citizens and collaborate with business partners within the organizational entity (Nagendra and Hermant, 2009). The ICT and internet technology tools are also tools to achieve better governance by the government (Nagendra and Hermant, 2009). However, this concept is quite general and the aspect of how a better government is actually achieved becomes unclear.

The concept of governance has a direct relationship to the national development since it deals with the way a country manages its resources for communication development (Howard, 2001) which can impact change for good governance and socio-economic performance. In the perspective of governance, the important objective of the Malaysian government is to implement e-governance for the public rather than the behaviour rules in achieving it. Finally, the bottom line for governance is the outcome such effects produced rather than the output of the government such as the effort implementation (Osborne and Gaebler, 2001). One of the reasons is that people are often confused with the actions of the government since report of great efforts and results produced (the outcomes) are often unacceptable by the citizens (Saxena, 2005). People who want to re-invent the government hope that those in the government sector will adopt a new focus on the outcomes to replace the outputs. The citizen outcomes are more important than the output of the government (Osborne and Gaebler, 2001).

The objective of the e-governance is to support in the governance of all parties such as the government, citizens and businesses (Sundresa et al., 2006). The term of support process of the three parties (government, citizen and business) is such that the government use of ICT stimulates good governance (Bedi et al., 2001). The main aim of the use of ICT in e-governance is to enhance the information and service delivery so as to encourage citizen's participation in the e-government initiatives (Holmes, 2001). In other words, the e-governance has a wider concept compared with the e-government which can eventually bring change in the citizen's perception towards the government. In order to change the citizen's perception, the government must have both the goal centric and citizen centric attributes. For the government to achieve the goal centric and citizen centric attributes, they should first acquaint themselves with the needs of the citizens and provides technology which is efficient with effective service delivery measure the service performance of the citizens. Thus, services measurement enables the government to be more responsive to the needs of the citizens (Holmes, 2001).

INTERACTIONS IN E-GOVERNANCE

There are three main target groups which are the government, citizens and businesses. In Malaysia, the

government portal acts as the one-stop source for the Malaysian government information and services for the citizens. Malaysia progresses slowly along the government to government (G2G) route as well as the government to citizen (G2C) and government to business (G2B) paths. The only way to achieve the route of the G2G, G2C and G2B is to launch the electronic services (e-services). E-service targets to provide services for the citizens to interact with the government. This is part of the government's process of governance. The e-services, within the gambit of e-governance allow direct, online transaction and interactions between the public, government and service providers via electronic means. These interactions may be described as follows.

Government to Citizens

The Government to Citizens (G2C) is an interface between the government and citizens. The main purpose of the G2C is to provide citizens with user friendly government websites of one-stop service and online access of information. In the G2C, citizens can ask questions from relevant agents and obtain feedbacks from the agents in the contact us column. In Malaysia, the G2C government agencies include the Road Transport Department (RTD), Tenaga Nasional Berhad (TNB), Telekom Malaysia Berhad (TM), Inland Revenue Board Malaysia (LHDN), Electronic Labour Exchange (ELX) and e-syariah.

Services provided by the Inland Revenue Board Malaysia (LHDN) include the online payment of the individual tax, company tax, employer tax and e-news from the Inland Revenue Board Malaysia (IRBM, 2011). Whereas for Tenaga Nasional Berhad (TNB), they provide services such as the e-application where citizens can apply for new electricity supply by filing in the e-form and appoint the electrical contractor online (TNB, 2011). Tenaga Nasional Berhad also provides e-services at the customer's own convenience such as for paying electricity online, viewing the information of their Tenaga Nasional Berhad account, viewing the latest and past billing information and tracking the monthly electricity consumption.

The Electronic Labour Exchange (ELX) provides one stop services such as the job registration and matching system, national employment return, place of work registration and employer's annual returns (ELX, 2011). Meanwhile, the e-Syariah provides services such as online compilations of the e-form, pre-registration of Malaysian cases online, Faraid calculation, checking case status, search for Syarie lawyers and application of Syarie lawyers (SJC, 2011).

Government to Business

The Government to Business (G2B) is an interface

between the government and businesses. There are two methods of communication in the G2B, namely from the government to business and business to the government. Business relations encompass business selling products and services to the government or vice versa (Shailendra and Sushil, 2007). The main objective of building the G2B is to minimize time, reduce paper work which will eventually reduce the cost, increase effectiveness and efficiency, and to create a more transparent business environment when dealing with the government (Tung and Rieck, 2005).

In Malaysia, G2B government agencies include the Ministry of International Trade and Industry (MITI), Malaysia External Trade Development Corporation (MATRADE), and Malaysia Tourism Promotion Board (MTPB). The Ministry of International Trade and Industry's (MITI) objective is to implement international trade to ensure that Malaysia achieves both the National Economic Policy and Vision 2020. The online services provided by MITI include the e-pco (Electronic Preferential Certificate of Origin) and e-permit, e-form, textile and Bumiputera Shares (MITI, 2011).

The MATRADE's objective is to promote export to enable local companies carve new frontiers in global markets (MATRADE, 2011). Services provided by MATRADE includes providing information and updates of news such as trade statistics, international trade events, new exporters' development, business information centre, programmes with entrepreneurs and exporters, and endorsement of trade events. In addition, the MATRADE also provides downloadable forms such as the Market Development Grant (MDG) application form for association and library membership forms. Meanwhile, the MTPB's objective is to promote tourism for tourists (MTPB, 2011). The MTPB provides information such as the e-brochure, tourism directory, maps of Malaysia, travel packages, events and festivals, images of Malaysia and destinations of places of interest in Malaysia.

Government to Government

The Government to Government (G2G) activities take place between different government organisations and agencies. The main aim of the G2G is to enhance the efficiency and effectiveness of the government operations. In Malaysia, the Government to Government (G2G) agencies include the Human Resource Management Information System (HRMIS), Generic Office Environment (GOE) and Project Monitoring System (PMS).

The HRMIS provides a better workplace, labour market statistics and reports, news on workforce recruitment, employee empowerment and consolidated human resources data for effective information planning (HRMIS, 2011). All these information can be obtained from the website of HRMIS while the GOE's objective is to have

efficient preparation, storage, retrieval of documents and productive collaboration and sharing of information (GOE, 2011). The Project Monitoring System is an online system that monitors the entire national programs from project application to the approval for implementation (PMS, 2011). The objective of the PMS is to demonstrate the best practice models in project implementation.

E-GOVERNANCE CONSTRUCTS

E-governance refers to the use of information and communication technologies (ICTs) to transform and support the processes and structures of a governance system (Vasant and Aditya, 2008). Therefore, the e-governance constructs are divided into electronic engagement, electronic consultation and electronic controllership.

Electronic engagement

Technological tools which may be used by the government to interact with citizens include Facebook, Twitter, Internet and similar social networking sites (Anttiroiko, 2010). These technologies are well known by the public and therefore the participation of citizens is better. In addition, these technologies are more focused on making online transactions available to the citizens. However, participation in signing for mail alerts or use of internet applications to interact with the government agency is still not very encouraging in Malaysia; even with the use of internet technology. Hence the government attempts to shift from the traditional paradigm of filling forms with pen or pencil (Ho, 2002). Therefore, it becomes a challenge for the government to engage citizens online to improve governance and facilitate e-democracy (Pratchett and Krimmer, 2005).

Electronic consultant

Electronic consultant is an interaction and contact between the public, citizens and interest groups (Vasant and Aditya, 2008). The main objective of the electronic consultant is to offer cost effective, easy to access services to citizens and improve processing of transactions from the government offices, private business and also the citizens.

Electronic controllership

Electronic controllership such as the hardware configuration and software customization should be standardized in order to accomplish controllership (Vasant and Aditya,

Table 1. The main electronic constructs for e-governance.

Information systems structure	
Information quality	Content, availability, accuracy, timeliness, Convenience, integration (Ahituv, 1980; Bailey and Person, 1983; DeLone and McLean, 1992)
System quality	Reliability, ease of use, accessibility, usefulness, flexibility, integration (Bailey and Pearson, 1983; DeLone and McLean, 1992; Bhimani, 1996)
Web presence quality	Usability, layout, navigation, consistency, content, number of services, stage (Accenture, 2005; Kossak et al., 2001; Turban et al., 2002; UNDESA, 2008; Wan, 2000; West, 2006)
Security measures	Data and software protection, data transfer over networks, safety of electronic payment (Ben et al., 2002; Boudriga, 2002; Conklin and White, 2006)
Hardware	Quality, integration (Victoria, 2002)
Technical support	Reliability, competence, responsiveness, timeliness, communications, commitment (Wilkin and Castleman, 2003)

2008). Such capacity of storage space and internet connections should have similar band rate to shape the mindset of the citizens to participate in social governance. The main electronic constructs for e-governance were illustrated in Table 1.

E-GOVERNMENT CONSTRUCTS

In order to ensure the accessibility of the government information, the Malaysian government has made the webs accessible to ensure that all citizens get latest information and downloadable databases from the web. This web is known as e-government. E-government is sometimes known as the “digital government” or “inter-networked government” (Tapscott, 1995). The term “e-government” also refers to the planned and coordinated use of ICT to strengthen the core functions of the government. In this respect, the e-government constructs are divided into the organizational coordination and infrastructural system.

Organizational coordination

The organizational coordination is referred to as the value delivery or usefulness of the organization when implementing services delivery or functions to the citizens (Deloitte, 2002). The value delivery can be in the form of query, information and transaction with the citizens over electronic networks since the government has progressively transferred their service delivery into electronic platforms of networking to evolve a collaborative

environment (Vasant and Aditya, 2008). However, inter-administrative cooperation including networking of workstations and definition of principles of the ensure data can be exchanged and further processed without any drawbacks is very important to achieve high service quality for the citizens (Karim and Khalid, 2003). In future, this will practically rule out any isolated decisions of the individual administrations in favour of the given information and communications systems. In this regard, the government agencies have to view themselves as service providers in integrated systems.

Infrastructural system

The components of the infrastructural system are divided into technology, application, process and people. Technology is presently classified as the m-government and u-government. The m-government is a subset of the e-government with the use of mobile or wireless ICT technologies such as the cellular or mobile phones, laptops and PDAs which are connected to WLANs (Lallana, 2008). The m-government helps to make public information and government services available anytime, anywhere to citizens. Meanwhile, the u-government is a new technology which allows interaction to take place anywhere and anytime with the pervasive availability of networks, application and services on various devices such as the Digital Multimedia Broadcasting (DMB) and Broadband Convergence Network (BCN) (Hae, 2006).

The application of e-government is the “Open source” software developed by the programmers to distribute source code modifications freely over the internet such as

Table 2. The procedures for evaluating the effectiveness of e-government initiatives of the service delivery system

Process of e-government evaluation	
Usage	Citizens and employees (Marchionini, 2003; Schedler and Scharf, 2002)
Citizens' feedback	Perceived usefulness, trust, satisfaction and perceived ease of use (Davis, 1989; Downing, 1999; Tassabehji, 2005)
Employees' feedback	Perceived usefulness, perceived ease of use and satisfaction (Davis, 1989; DeLone and McLean, 1992)
Impact on stakeholders	Development (DeLone and McLean, 1992)

the Linux operating system (Trimble, 2000). Open source application ensures the interoperability and access to all users, allowing smooth inter-departmental integration. Indeed, the proprietary software will support integration with outside products and support global standards if it wants to attract and retain customers.

The e-government should take such a process as evaluation of the effectiveness of service delivery. The motives of the change and focal areas of change should be taken into consideration by the e-government evaluation (Balutis, 2001; Scholl, 2005). The e-government evaluation performance is a systematic approach which compares plans with real situations (Heeks, 2003). Table 2 illustrates the procedures for evaluating the effectiveness of e-government initiatives in service delivery system.

The workforce in Malaysia can be classified as trained, skilled and well educated workforces who are important in enhancing the work and economic performance as well as sustaining competitiveness as Malaysia transforms into an ICT driven and knowledge based society (Zainol, 1999). People are one of the main factors in the success of the e-government (Ndou, 2007). Several constructs exist in this dimension such as the user satisfaction towards e-government on the part of the employee's use of IT (Wilkin and Castleman, 2003), proficiency in the use of IT such as adaptation to change to ICT or use of technology (ICMA, 2002), and the training and development of various skills and knowledge towards the e-government (Baum and Maio, 2000).

CONCLUSION

The aim of this study is to investigate the concepts and constructs of the e-governance and e-government in order to strengthen the understanding of the citizen's perceptions of the e-government and e-governance as the MSC has become a major investor in the ICT. As such, this study responded effectively to the needs of the citizens with regards to the quality of service delivery to

the people of Malaysia as these concepts and constructs among Malaysians are still in question. Likewise, Malaysia is among developing countries that embarked on the e-government initiatives to enhance the government infrastructure and facilities. The e-government initiatives can only be implemented with the support and development of ICT. With ICT, citizens can access the government's information and facilities via online services conveniently without wasting time. Hence, this will foster a good relationship between the government and citizens. However, this can only be achieved if the government looks beyond getting services online to portal design and functionality, correct issues to meet the citizen's expectations. If the government provision is below the expectations of the services, then the services provided by the government will be under utilized by the citizens.

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APPENDIX

Table 1A. Measurement items of scales.

Construct	Code	Statement
E-Participation	EPM 1	I would use Lembaga Hasil Dalam Negeri (LHDN) website to look for e-Filing and taxation online information.
	EPM 2	I would use the online Digital Certificate Registration.
	EPM 3	I would download e-Filing forms online.
	EPM 4	I would search for user guide before I submit e-Filing form.
	EPM 5	I would pay income tax on line (e-Payment).
	EPC 1	I would participate in the e-Survey from the LHDN website.
	EPC 2	I would sign up to receive text messages from LHDN.
	EPC 3	I would follow or become a fan of LHDN through a social networking site such as Facebook.
	EPC 4	I would read the LHDN blogs.
	EPC 5	I would watch a video online (YouTube) on a LHDN website.
	EPS 1	I would join an online group with objective to influence government policies.
	EPS 2	I would use the Internet to post comments, queries or information on LHDN blogs.
Information quality	IQ 1	I find that the information on LHDN websites is free from errors.
	IQ 2	I find that the information on LHDN is up-to-date.
	IQ 3	I find that the information on LHDN website is relevant to the site.
	IQ 4	I find that the information on LHDN website is sufficient for the task at hand.
	IQ 5	I find that the information on LHDN website is well organised.
User satisfaction	US 1	I find using e-Filing system will enable me to accomplish tasks more quickly.
	US 2	I find using e-Filing system will be useful with one click.
	US 3	I find that information on the e-Filing website enables me to access it 24/7.
	US 4	On the e-Filing website, I can find contact information (e.g email addresses, phone numbers, etc.)
System quality	SQ 1	I find LHDN website always works correctly.
	SQ 2	I find LHDN website provides necessary information and easy to download e-Filing forms
	SQ 3	I find LHDN website provides necessary transactions and assists me in completing e-Filing form online.
	SQ 4	I find LHDN website provides helpful instructions.
	SQ 5	I find LHDN website is available at all times.
	SQ 6	I find the information given through LHDN website is secured.
	SQ 7	I find LHDN website is easy to use.
	SQ 8	I find LHDN website can save citizen's time.
	SQ 9	I find LHDN website can save citizen's expense.
	SQ10	I find the e-Filing website has adequate search facilities
	SQ11	I find that e-Filing website has valid hyperlinks.
Facilitating condition	FC 1	I have the knowledge necessary to use the e-Filing system.
	FC 2	I have enough Internet experience to use online services.
	FC 3	I have the resources necessary to use the e-Filing system.
	FC 4	I would find it difficult to use online services due to lack of time.
	FC 5	Given the resources, opportunities and knowledge, it would be easy for me to use the system.
Performance expectancy	PE 1	Using e-Filing, I need not have to visit the LHDN office to hand in my tax form.
	PE 2	Using e-Filing, I can keep record of my tax payment.
	PE 3	I find using the e-Filing system will reduce my time compared to filing the form manually.
	PE 4	I find using e-Filing useful.

APPENDIX Contd.

Effort expectancy	EE 1	I find it easy to learn the e-Filing system.
	EE 2	I find interaction with the e-Filing system is clear and understandable.
	EE 3	I would find it easier to communicate face to face rather than to use online services.
	EE 4	I am skilful at using e-Filing.
	EE 5	I find it easy to get the e-Filing system to do what I want it to do.
Behaviour intention to use	BITU 1	I predict I will use the e-Filing system next year.
	BITU 2	I plan to use the e-Filing system next year.
	BITU 3	I want to use e-Filing service because of some activities, current trend and propaganda.
	BITU 4	Filing my tax via e-Filing system is something that I would do.
	BITU 5	I would use the internet to file my taxes.
