Information Sharing Model among State Agencies in Malaysia: A Case Study of Waqf System

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Abstract: A good practice of information sharing is very critical in supporting public agencies on their daily operations and decision makings. The expected benefits include giving better services, making operational savings and increased program effectiveness. In Malaysia however, little information is shared on the practices applied in public agencies in terms of information sharing especially in relation to government online services. The study explores the various dimension and stages of government information sharing in the context of Malaysia e-Government by using a framework of Government Information Sharing Framework (GISF) adopted from the literature. The framework presents 3 stages of information sharing maturity stages; experience sharing, infrastructure support and information strategy. A case study was adopted to focus on one of the government services which is the Waqf system. The discussion of the various dimensions provides a thorough lens to understand the complexity of information sharing and integration in the management of Waqf. The application of GISF on the case study showed that Waqf system is in Stage 1: experience sharing with some items from Stage 2. The results obtained can be used to propose some solutions to improve information sharing among state agencies in the future.

Key words: Information sharing, e-Government service, government information sharing framework, perak, Malaysia, Waqf

INTRODUCTION

Electronic Government (e-Government) refers to the use of Information and Communication Technology (ICT), particularly the internet as a means to achieve better government (Estevez *et al.*, 2012). e-Government services promise improving efficiency, cost reduction and improving public services. The implementation of e-Government in Malaysia began with the introduction of Malaysia Super Corridor (MSC) where the electronic government was one of the seven flagships introduced by the government in 1996 (Ramli, 2012). In any e-Government environment, the need for information sharing and exchange is very important because a government is trying to provide better services using limited resources. There are needs to share information and integrate not only in the different layers of government agencies but also among government institutions with different purposes. Information sharing is the fundamental objective of the information system and has long been considered as an important approach for increasing organizational efficiency and performance. It is about an exchanging information within and across department agencies or otherwise giving them access to information (Bigdeli *et al.*, 2011, 2013a, b).

In order to provide a better delivery of e-Government services, guides should be given to support agencies in sharing information within an agency, between agencies or among agencies. Good practices in information sharing among the state government's agencies should be adopted. In Malaysia, currently, there is insufficient information about the current practices, states or level maturity, requirements, models adopted in relation to information sharing for the e-Service's implementation among the government agencies. It is, therefore, to fill in the gap of existing literature on this phenomenon. In enhancing knowledge on information sharing, a study was carried out to explore the scenario of information sharing among Malaysia state's agencies in delivering e-Government services to customers. In this respect, this study addresses the following question: what are the practices and stages of information sharing among the state agencies in delivering e-Government services? In answering this question, a case study was conducted on one local Waqf department in Malaysia.

Research problem: Recently, information sharing between government agencies has become increasingly important in public sector (Landsbergen and Wolken Jr., 2001). A review of the literature indicates that research on

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Table 1: GISF (abstract view) (Mendes *et al.*, 2014)

	Maturity stages		
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Concepts	Stage 1: experience sharing	Stage 2: infrastructure support	Stage 3: information strategy
Dimensions			
Environmental	Benefit, risks	Laws regulations	Strategy engagement
Inter-organizational	Scope	Partnerships trust	Governance community
Organizational	Roles	Processes people	Capacity-building function
Technological	Unit data components	Standards attributes	Repositories on to logies

information sharing among government agencies is very limited (Bigdeli *et al.*, 2011). Currently, in Malaysia, little information is shared and exposed among Malaysian government agencies in relation to information sharing, including the aspects of ownership, requirements, stages, confidentiality, security and integrity. Fear of revealing sources and losing autonomy could be assumed as among the conflicts occurred which could result in costly and redundant efforts that lower productivity, achieve limited data-reuse and integration. To improvise e-Government services, Klischewski and Scholl (2006) suggested the need for a further understanding of information quality towards integration and interoperability in electronic government (Klischewski and Scholl, 2006). In Malaysia, under the prime minister department, there exists a unit known as the Chief Government Security Office (CGSO) that is responsible for providing security protection on all government assets including information sharing within the agency between agencies and with the public. Furthermore, there is limited information on GIS framework adopted or established in guiding information sharing in e-Government services in Malaysia like those in UK, USA, New Zealand and Australia.

Bigdeli *et al.* (2013a, b) claims that the field of information sharing does not have a comprehensive framework to identify and examine the barriers and enablers that influence electronic information sharing between government agencies at the local level. Furthermore, Bhoopalam *et al.* (2007) stated that a major problem to information sharing is the lack of framework and an infrastructure that allows government organizations to share information selectively with different user groups. Lack of such a framework creates unwillingness among government organizations to share their digital contents.

Several studies have been conducted in relation to e-Government services and information sharing in Malaysia. One of the major challenges in e-Government implementation in Malaysia is the lack of information integration and ownership which could be drilled down to the issue of the quality, confidentiality and security of the information shared among the state agencies involved in delivering and maintaining the services. An e-Government

application, even though is normally viewed as about one particular service does involve the sharing of different information that owned by different government agencies. The requirements for e-Government services what and how much information can be shared are still a lot to be explored and learned. Currently, little information is available to public in terms of how States in Malaysia practice information sharing in delivering e-Government services. There is also insufficient implementation or standard procedures to guide information sharing that could provide a high level of efficiencies in delivering e-Government services. In supporting the state's initiatives in delivering good e-Services, a study was conducted to understand more on the issues, practices and the states of information sharing among the local public agencies.

Theoretical framework: The framework of this study was adopted from Government Information Sharing Framework (GISF) presented by Estevez *et al.* (2012). The GISF was likewise selected because of its ability to address the objectives of this study. The model comprises of two views: GISF abstract view and GISF detailed view. The abstract view presents 4 rows representing dimensions and 3 columns representing maturity stages as depicted in Table 1. Dimension layouts 4 aspects; technological, organizational, inter-organizational and environmental while 3 stages of maturity in GIS are sharing experience, infrastructure support and information strategy.

Stage 1; experience sharing: The first stage refers to the concepts that should be considered in the early stages of government information sharing, serving to lay the foundations for government information sharing. Under environmental dimension, the component includes a benefit and risk while scope belongs to inter-organizational dimension, roles under technological and unit and data components are under technological dimension.

Stage 2; infrastructure support: Stage 2 talks about the concepts referring to the shared components accessible to the whole public administration like laws and regulations under environmental dimension, partnership

trust under inter-organizational dimension, process people under organizational dimension and standards attributes including infrastructure components under technological dimension.

Stage 3; information strategy: Refers to the concepts defining the information sharing environment of strategy engagement, governance community, capacity building function and about repositories under technological dimension.

MATERIALS AND METHODS

Research design and method: This study adopted a case study approach, since it intended to explore a new phenomenon in government agencies. Data were collected through semi-structured interviews with the key actors from local government who participated in the related initiatives. The interview included the questions on practices, dimension and maturity stages adopted in information sharing between and among agencies. The areas reveal the type or dimension focused by the state agencies; either at technological, organizational, inter-organizational or environmental. In achieving this objective, the GIS Framework introduced by Estevez *et al.* (2012) was applied. The instruments used for the interviews were based on their previous works which focus on 4 dimensions and 3 stages of information sharing.

The case study selected is the Waqf department of an Islamic Religious Council in one state in Malaysia. In-depth and semi-structured interviews were used to collect data for analysis. The objectives are to explore the current practices of organization information sharing in the department and to identify the information system requirements for Waqf management. About 5 respondents were interviewed based on the job function in the Waqf department which include applications and land acquisition unit, Waqf unit, records and tax unit and technical unit and rent. The data collected from the pilot study have been analyzed by using Atlas.ti Qualitative Analysis Software and analyzed by applying content analysis techniques.

RESULTS AND DISCUSSION

This study focuses the findings of Stage 1 experience sharing (Table 1). Stage 1 is the concept that should be considered in the early stage of Government Information Sharing (GIS) and serving as the foundation for GIS. The following describes the findings from the case study according to Stage 1 and 4 dimensions of GISF. It highlights information about the foundation of

Table 2: Stage 1; experience sharing

Dimensions	Maturity stages (Stage 1; experience sharing)
Environmental	Stewardship, benefit, barrier, usefulness
Inter-organizational	Vertical, horizontal scope, benefit
Organizational	Human resource and finance barrier
Technological	Technical barrier, lifecycle, unit, data component

Table 3: Barriers

Types	Barriers
Technical	Using the manual system to manage all the Waqf functions. Could cause issues in updating and sharing information within the department or outside the department
Organizational	Human resource aspect; insufficient employees in the Waqf department to handle the increasing of Waqf information. Financial aspect; the Waqf department has limited budget handle projects related to Waqf management including a new system development. In addition, the financial resources are depending only one the budget allocated or money generated from Waqf
Inter-organizational	Handling communication with external agencies. Need a proper standard of procedure

GIS including the stewardship, benefits, barrier and risk involved in the information sharing practices.

Environmental dimension: Under the environmental dimension, factors that influence the information sharing practices are a barrier, benefits, stewardship and usefulness. There are 4 types of a barrier such as technical, organizational, inter-organizational and environment. Barriers can be defined as obstacles that can appear during the implementation of Gov-IS initiatives such as resilience to change by government staff, different criteria on service level agreements used by government agencies, etc. (Mendes *et al.*, 2014).

The technical barrier refers to the hardware and software incompatibility to support information sharing. The organizational barrier refers to the lack of human and institutional capacity for Government information sharing. Meanwhile, inter-organizational barrier refers to any barrier that requires the involve of several organizations to provide a solution (Estevez *et al.*, 2012). Furthermore, Environmental barrier refers to the government system for support government information sharing implementation. initiatives such as resilience to change by government staff, different criteria.

Table 3 lists the barriers and Table 4 shows another item that is Principles such as stewardship and usefulness. Other than barriers are found in the case study. Table 4 shares the details of both items.

Inter-organizational dimension: One of the items under organization dimension is scope. It determines the functional areas and the organizations involved in and affected by a GIS. There is 4 type of initiatives such

Table 4: Stewardship and usefulness

| Stewardships	Usefulness
Stewardship (refers to the principles to ensure accuracy and integrity of information)	A revision in terms of accuracy and validity of the information will of be made officially by specific department/agency
Usefulness (refers to an expansive principle that focuses on the value as a public asset)	Gazette land information and Waqf information assets after the of information completion of processing. Land information gazetted using the government gazette and the gazette should be purchased and reserved
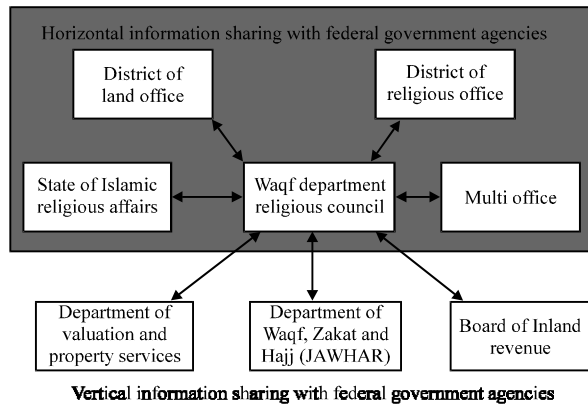
Fig. 1: The level of information sharing in Waqf department of religious council

Fig. 2: Waqf departmrnt of the state Islamic religious council

intra-organizational, inter-organizational, cross-sectoral and trans-national. In the case study, there is one initiative involved in namely inter-organizational.

Inter-organization refers to an initiative involving different agencies at the same (horizontal) or different (vertical) government levels (Estevez *et al*., 2012). In the case study, there are 2 levels of government agencies involving information sharing and integration as shown in Fig. 1.

In the horizontal information sharing, the district of land office was found to be primary agency in this relationship. Most of the Waqf management process are handled by this agency. The information can be shared between Waqf department and land office include land premium payment claims, the notice to attend the trial, G-form, K-form, 14 A form, land plan, the land title, a request for acquisition of land and payment checks. Furthermore, information that can be shared with Department of Islamic Religious Affairs Mosque includes mosque application information and results of the mosque application.

Information can be shared between District Religion Office and Waqf Department such as a letter of Waqf application, land plan, the plot of land, general land report, Waqf pronouncement letter and 14A/12B form. Waqf application can be made through district of religious office or the related agency. Meanwhile, information can be shared between Waqf department and mufti departments such as istibdal land acquisition paperwork and the fatwa.
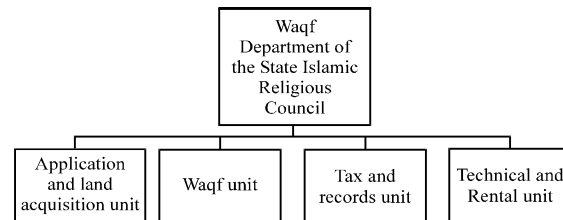
The agency also has vertical information sharing with the federal government such as Board of Inland Revenue, Department of Valuation and Property Services and Department of Waqf, Zakat and Hajj (JAWHAR). Information that can be shared such as Waqf information and land information for instance, land valuation.

The inter-organizational relationship influenced by problem characteristics such as problem situation or different opinion between organization about nature of the problem to be solved (Pardo and Tayi, 2007). Sharing information among organizations depends on the creation and maintenance of inter-organizational relationships.

Organizational dimension: Under organizational dimension, there are roles, top management support and IT capability. Estevez *et al*. (2012) list 5 roles which are Regulator to ensure compliance with GIS-related laws, regulations and established rules; collector is responsible for gathering information from other entities; user responsible for making use of information; producer responsible for producing information and provider responsible for supplying information. In the Waqf department, there are four unit, application and land acquisition unit, Waqf unit, tax and records unit and technical and rental unit (Fig. 3) whose acting as a regulator, collector of information, the user as well as producer of different kinds of information.

Top management support refers to the commitment of top management to support electronic information sharing (Akbulut *et al*., 2009). In this study, top management in the Waqf department tended to be highly supportive of IT adoption in general. They are willing to use a new system for sharing information with other agencies. Zheng *et al*. (2009) claims that developing a new information sharing and integration system sometimes requires process re-engineering inside of the department.

Table 5: Activity stages

Activity stage	Description
Create	Create a new Waqf file
Collect	Gathering Waqf information
Hold	Keeping Waqf file in the database
Use	Making use of Waqf information for a given purpose, for example, deliver Waqf information to JAWHAR
Archive	Storing Waqf information for future use in the database
Access	Allowing the staff of Waqf unit to obtain information from Waqf database for a given purpose
Provide	Making Waqf information available. For example according to administration of islamic law (Kedah Darul Aman) Enactment 2008, 58 Sect, all Waqf land must broadcast to the public

In the aspect of IT capability, currently, there is a lack of the equipment required to engage in the information sharing as well as limited IT skills.

Technological dimension: This dimension involves ICT related in concepts supporting or affecting information sharing (Estevez *et al.*, 2012). The components involved are a unit and data components. The unit refers to an organization involved in the GIS initiative, the lowest organizational structure involved in the initiative. In this study, Waqf department needs to share information about land's Waqf with other local agency such as district of land department. Related to unit is different activities and responsibilities on information required for GIS purposes (Estevez *et al.*, 2012) which is called as life-cycle. Each activity is viewed as a stage defined into several stages-create, collect hold, use, archive, dispose, access and provide. Table 5 shows the activity stages in the case study.

Technological dimension also refers to data component that represents a physical or abstract concepts from the real world (Estevez *et al.*, 2012). In this study, data component involved in Waqf systems include Waqf applicant/land owner, land grant, Waqf, land information, land administrator, ownership transfer application, ownership transfer receiver, land application, complaint and complainer.

CONCLUSION

In summary, a government agency commonly has to deal with different government agencies to have information sharing to run its operations or to make its operations more efficient in innovative ways. Currently, in Malaysia, little information is shared and exposed among Malaysian government agencies in relation to information sharing, including the aspects of ownership, requirements, stages, confidentiality, security and integrity. Furthermore, there is limited information on GIS framework adopted or established in guiding information sharing in e-Government services in Malaysia. A study was proposed with an objective to explore the practices and stages of information sharing among the state agencies in delivering e-Government services. A case

study methodology was adopted in this research. The qualitative data are collected through semi-structured interviews with the case study from the Waqf Department of State Islamic Religious Council. The interview questions are about the practices adopted in information sharing between and among agencies. By adopting, Estevez *et al.* framework of government information sharing, the discussion of the various stages in this study can provide a more thorough lens to understand the preliminary complexity of government information sharing and integration.

In the study, a practice of information sharing and the stage of GIS is identified. It is shown that Waqf system is in Stage 1 that is experience sharing. For the future studies, it will be interesting to further apply the framework of government information sharing to the context of online e-Service to explore the dimension and different stages.

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REFERENCES

Akbulut, A.Y., P. Kelle, S.D. Pawlowski, H. Schneider and C.A. Looney, 2009. To share or not to share? Examining the factors influencing local agency electronic information sharing. Int. J. Bus. Inform. Syst., 4: 143-172.

Bhoopalam, K., K. Maly, R. Mukkamala and M. Zubair, 2007. Framework for information sharing across multiple government agencies under dynamic access policies. Proceedings of the 2nd International Conference on Availability Reliability and Security (ARES'07), April 10-13, 2007, IEEE, Vienna, Austria, ISBN:0-7695-2775-2, pp: 934-940.

Bigdeli, A.Z., M. Kamal and S. de Cesare, 2013a. Information sharing through inter-organisational systems in local government. Transform. Govt.: People Process Policy, 7: 148-176.

Bigdeli, A.Z., M.M. Kamal and S. de Cesare, 2013b. Electronic information sharing in local government authorities: Factors influencing the decision-making process. Int. J. Inform. Manage., 33: 816-830.

Bigdeli, A.Z., M.M. Kamal and S.D. Cesare, 2011. Inter-organisational electronic information sharing in local g2g settings: A socio-technical issue. Proceedings of the European Conference on Information Systems (ECIS'11), October 7-8, 2011, AIS Electronic Library, Atlanta, Georgia, pp: 1-12.

Estevez, E., P. Fillottrani, T. Janowski and A. Ojo, 2012. Government Information Sharing: A Framework for Policy Formulation. In: Electronic Governance and Cross-Boundary Collaboration: Innovations and Advancing Tools, Yu-Che, C. (Eds.). IGI Global, Hershey, Pennsylvania, pp: 23-55.

Klischewski, R. and H.J. Scholl, 2006. Information quality as a common ground for key players in e-government integration and interoperability. Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS'06), January 4-7, 2006, IEEE, Cairo, Egypt, ISBN: 0-7695-2507-5, pp: 72-72.

Landsbergen, Jr. D. and G. Wolken Jr., 2001. Realizing the promise: Government information systems and the fourth generation of information technology. Public Admin. Rev., 61: 206-220.

Mendes, C.K., K. Cenci, P. Fillottrani and E. Estevez, 2014. Government information sharing: A model for classifying benefits, barriers and risks. Proceedings of the 8th International Conference on Theory and Practice of Electronic Governance, October 27-30, 2014, ACM, Guimaraes, Portugal, ISBN: 978-1-605 58-611-3, pp: 204-212.

Pardo, T.A. and G.K. Tayi, 2007. Interorganizational information integration: A key enabler for digital government. Govt. Inform. Quart., 24: 691-715.

Ramli, R.M., 2012. Malaysian e-government: Issues and challenges in public administration. Intl. Proc. Econ. Dev. Res., 48: 19-23.

Zheng, L., S. Dawes and T.A. Pardo, 2009. Leadership behaviors in cross-boundary information sharing and integration: Comparing the US and China. Proceedings of the 3rd International Conference on Theory and Practice of Electronic Governance, November 10-13, 2009, ACM, Bogota, Colombia, ISBN:978-1-60558-663-2, pp: 43-50.