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Antecedents of IT Alignment in Public Sector: Case of E-Syariah Implementation in Malaysia

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Abstract

IT alignment has been receiving a considerable attention amongst IS scholars and researchers. Despite the growth of IT alignment literature, further review indicates that most of the studies are carried out in either commercial or private organizations. Drawing on the previous literature on the differences between public and private sectors, the effects of four antecedents of IT alignment namely; shared domain knowledge, stakeholder relationships, centralization and formalization are examined. It is further argued that high level of IT alignment in government sectors contributes towards the improvement of government's performance. Using case study on the implementation of E-Syariah in Malaysia, researcher finds out that all antecedents except centralization and formalization have direct impacts towards IT alignment practice in public sector, which in turn improve the delivery of government services to the public.

Keywords: Antecedent, IT Alignment, E-Government, E-Syariah, Public Sector, Malaysia

1. Introduction

IT alignment receives a considerable attention amongst IS scholars and researchers (Byrd, Lewis, & Bryan, 2006; Campbell, Kay, & Avison, 2005; Y. E. Chan, Sabherwal, & Thatcher, 2006; Luftman, 2000; Reich & Benbasat, 2000; Rondinelli, Rosen, & Drori, 2001; Sledgianowski & Luftman, 2005; Tallon, 2007). Henderson and Venkatraman (1993) define alignment as a degree of fit and integration among four domains of strategic options which are business strategy, IT strategy, business infrastructure and IT infrastructure. Whereas, Reich and Benbasat (1996) describe alignment as the degree to which the mission, objectives and plans contained in the business strategy are shared and supported by the IT strategy. Moreover, IT alignment is argued to be in existence when organizational goals and activities are "harmoniously" supported by the IS (McKeen & Smith, 2003).

Many studies have been conducted on the relative importance of antecedents of IT alignment. Researchers have conceptually and empirically agreed upon a number of antecedents (Bergeron, Raymond, & Rivard, 2004; Y. E. Chan, et al., 2006; Kearns & Sabherwal, 2006; Luftman, Papp, & Brier, 1999; Reich & Benbasat, 1996, 2000; Tallon, 2007; T. S. H. Teo & Ang, 1999; Thompson S. H. Teo & King, 1997; Wang & Tai, 2003). However, further review on the IT alignment literature indicates that most of the studies are carried out in private organizations (Y. E. Chan & Reich, 2007). Chan and Reich (2007) argue that the nature of IS adoption and its' strategic use in private organization is different from those found in larger bureaucracies such as government agencies. Correspondingly, in accordance with the need for more IT alignment-related research to be focussed on a greater range and variety of organizational settings (Y. E. Chan & Reich, 2007; Y. E. Chan, et al., 2006), there is a strong call for IT alignment studies to be carried out within the context of public sector. This call is supported by Crittenden et al. (2004) who claim that government agencies will continue to struggle in order to generate appropriate actions and desired outcomes until they can align between management decisions and technology opportunities.

Focusing on the issue of IT alignment in public sector is an important consideration as models developed for the private organizations cannot be directly applied to public organizations due to sectoral differences (Bozeman & Bretschneider, 1986; Bozeman & Gordon, 1998; Ring & Perry, 1985). This is augmented by support from the literature that application of models derived from private sector are not feasible in the public sector given the significant differences in few aspects such as organizational structures and processes, approaches to decision making and IT planning (D Dufner, Holley, & Reed, 2002; Holley, Dufner, & Reed, 2004; Nutt, 2000; B Rocheleau & Wu, 2002). As nationwide e-government initiatives crossing organizational and jurisdictional boundaries are on the rise, there is a dire need to explore the issue of IT alignment within the setting of public sector's environment. This study attempts to investigate whether the identified antecedents are also seen to be applicable in public organizations.

2. Private – Public Distinction: Antecedents for IT Alignment in Public Sector

There have been a lot of arguments on the differences between public and private sectors in literature. The arguments are derived from a number of academic references in public administration that contain claims concerning the distinctiveness of public organizations (Boyne, 2002; Bozeman & Gordon, 1998; D Dufner, et al., 2002; Eskildsen, Kristensen, & Juhl, 2004; Holley, et al., 2004; Nutt, 2000; Rainey, 1999; Bruce Rocheleau, 2000; B Rocheleau & Wu, 2002; Vilvovsky, 2008; M. Ward, 2006; M. A. Ward & Mitchell, 2004). These studies argue that differences between the two sectors influence the way on how IS is planned and managed in organizations.

One of the most distinct sectoral differences is the dissimilarity of organizational structures between public and private organizations (Boyne, 2002; Bozeman & Bretschneider, 1986; Bozeman & Gordon, 1998; B Rocheleau & Wu, 2002). This dissimilarity is argued to influence the way on how information and knowledge is shared amongst members of an organization (Barzilai-Nahon & Scholl, 2007; Grover & Davenport, 2001; Willem & Buelens, 2007). In their studies to understand the effects of shared domain knowledge between business and IT managers across different types of organizations, Chan et al. (2006) found shared domain knowledge significantly shapes IT alignment across business firms and academic institutions. Other studies have also consistently regarded shared domain knowledge as an important antecedent of IT alignment (Y. E. Chan, et al., 2006; Reich & Benbasat, 2000; F. B. Tan & Gallupe, 2006; T. S. H. Teo & Ang, 1999). Even within an organization, successful IS adoption requires integration of skill and expertise from management and technical staff across departments. Therefore, the case of inter-agencies e-government initiatives may provide a greater set of risks and challenges as sharing of knowledge involves managers from different agencies and departments. It is argued that departmentalization can create gaps and unavoidable barrier to knowledge sharing between expertises which eventually preventing one department from benefiting the experience of another (Argote, Ingram, Levine, & Moreland, 2000; Wenger & Snyder, 2000). In inter-departmental e-government initiatives, the lack of knowledge about technology for management staff and the lack of knowledge about public service programmes for technical staff create difficulties for effective communication and knowledge exchange which can negatively affect potential success of IS adoption (Brown & Duguid, 2001; J Zhang, Dawes, & Sarkis, 2005; J. Zhang, Faerman, & Cresswell, 2006). Thus, it is important to examine the stance of shared domain knowledge as an antecedent for IT alignment in public organizations.

Public administration literature characterizes public sector as particularly complex, involving diverse group of stakeholders with dissimilar and often conflicting goals (Boyne, 2002; Donna Dufner, Holley, & Reed, 2005; Flak & Nordheim, 2006; Holley, et al., 2004). Stakeholders in the private sector are normally located internal to the organization and share a common goal, which is a long-term profitability of the enterprise. Even the few external stakeholders, such as vendors, are interested in the long term profitability of the organization (Donna Dufner, Holley, & Reed, 2003). In contrast, organizations in public sector are characterized by a diverse group of internal and external stakeholders. Internal stakeholders include executive and legislative officials, governmental employees and employee unions. External stakeholders include technology vendors, other external constituencies, special interest

groups and the individual citizens (D Dufner, et al., 2002). Although Dyson and Foster (1982) claim that planning processes characterized by a high degree of participation are supposed to produce higher quality planning information and infuse a commitment to the resultant plan, such planning processes can become very difficult to manage given the heightened conflict of interests and goals of these diverse group of stakeholders (D Dufner, et al., 2002; Flak & Nordheim, 2006; Holley, et al., 2004; Reed, 2001). Number of authors share an understanding of competing stakeholder interests that pose important challenges for successful implementation of e-government systems (De, 2005; Flak & Nordheim, 2006; Flak & Rose, 2005; C. Tan, Pan, & Lim, 2005). In order to co-ordinate the different group of stakeholders, public organizations need to capture the degree of centralization of IT decision making and formalization of IT planning. Both of these antecedents are found to significantly affect IS success and strategic IS application in organizations (Ein-Dor & Segev, 1978; Louadi, 1998).

Furthermore, we argue that IT alignment in inter-departmental e-government initiatives need to be supported by well-managed relationships between the diversified groups of stakeholders. Relationship management as an antecedent of IT alignment has long been identified as one of the antecedents for achieving IT alignment (Y. Chan, 2002; Feeny, Edwards, & Simpson, 1992; Hu & Huang, 2006; Huang & Hu, 2007; Li & Richard Ye, 1999). A longitudinal study by Luftman and Brier (1999a) reveals a significant role of relationship management in achieving IT alignment as they found that while having a close relationship between IT and non-IT functions was the fourth among the fifteen identified alignment enablers, the lack of a close relationship ranked top of the fourteen alignment inhibitors. Realizing the significance to coordinate the relationships between these stakeholders in public environment, few authors have started to focus their research on managing the stakeholder relationships in e-government setting (Flak & Nordheim, 2006; Flak & Rose, 2005; Scholl, 2004, 2005). This antecedent is argued to have more prevailing effects on IT alignment considering the complicated scenario of e-government initiatives as described earlier.

3. Theoretical Model

The effects of four antecedents of IT alignment namely; *shared domain knowledge*, *centralization, formalization* and *stakeholder relationship management* are examined.

Shared domain knowledge highlights the importance of IT knowledge of business managers and business knowledge of IS managers. The lack of shared domain knowledge is found to be a recurring theme in the literature that inhibits strategic IT alignment (Y. Chan, 2002; Feeny, et al., 1992; Reich & Benbasat, 1996, 2000; F. B. Tan & Gallupe, 2006). Kearns and Sabherwal (2006) also argue that when top managers possess knowledge of IT, the opportunities are created for business and IT managers to participate in each other's planning process. Due to the nature of nationwide e-government initiatives that involve many departments, mutual understanding between managers of the participating departments is considered as an important antecedent of IT alignment in public organizations.

The complex nature of nationwide e-government initiatives needs a more centralized IT decision making and formalized IT planning. *Centralization* and *formalization* are fundamental elements in organizations that can affect IS success and strategic IS applications in organizations (Ein-Dor & Segev, 1978; Louadi, 1998), hence, they need to be included in this study. In centralized governance modes, Sambamurthy and Zmud (1999) argue that IT planning is coordinated at the corporate level and therefore, organizations may require less effort for alignment (Y. E. Chan, et al., 2006). When organizations aim to leverage their IT for a more strategic role or when they are dissatisfied with the level of alignment, Rothfeder (2005) claim that executives will need to centralize the IT decision making. *Centralization of IT decision making* is more significant in public organizations due to the participation of the diverse set of stakeholders as discussed earlier.

Formalization is described as the extent to which an organization uses rules and procedures to prescribe behaviour (Fredrickson, 1986). It enables the clarification of business objectives, thus increases the effectiveness of IS planning process in terms of reaching to a consensus

on the role of IT (Earl, 1993; Pyburn, 1991). Formalized IS planning also ensures that overall IS goals are consistent with business goals of the organization (Lederer & Mendelow, 1986; Wang & Tai, 2003). Luftman and Brier (1999b) found that clearly defined business goals and visions can smooth the progress of IT alignment. Due to the involvement of many departments in the nationwide e-government initiatives, the role of *formalized IT planning* increases the quality of IS planning by reducing the conflicting goals, which consequently facilitates IT alignment.

Relationship management has long been identified as one of the key antecedents for achieving IT alignment. A close relationship between business (CEO) and IS managers (CEO) enables them to work together to understand business and technological requirements which is crucial for the alignment and the quality of strategic IS planning (Bai & Lee, 2003; Feeny, et al., 1992; Luftman, 2000; Reich & Benbasat, 2000). Ongoing personal relationships facilitate both parties to engage in knowledge creation, their availability for knowledge exchange (Hatzakis, Lycett, Macredie, & Martin, 2005), and the creation of new intra-organizational linkages (W. Tsai, 2000). In public organizations, relationship management is argued to be more prevailing factor for a better organizational performance due to diversified participation of stakeholders. Therefore, managing *stakeholder relationships* is considered as an important antecedent of strategic IT alignment in public sector.

The theoretical model includes the effects of IT alignment on organizational performance, which has been widely discussed by several authors in the literature (Burn & Szeto, 2000; Byrd, et al., 2006; Y. E. Chan, et al., 2006; Hussin, King, & Cragg, 2002; Kearns & Lederer, 2003; Reich & Benbasat, 2000; Rondinelli, et al., 2001; Sabherwal & Chan, 2001). The literature indicates that IT alignment can significantly lead to more focused and strategic use of IS, which consequently improve organizational performance. It is assumed that high level of IT alignment in public organizations contributes towards the improvement of government's performance, which is represented by *improved public service delivery*. Although it is commonly believed that IT alignment improves organizational performance, it is included in this study so that the researcher may examine the support for this statement in the context of public sector. Figure 1 presents the theoretical model:

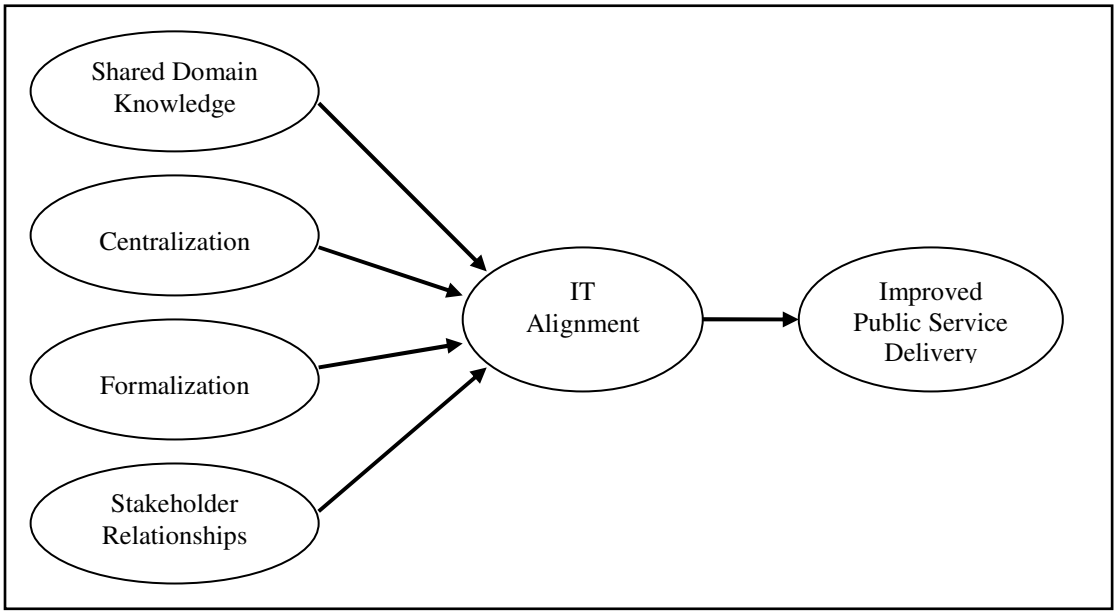

Figure 1: Proposed Theoretical Model for IT Alignment in Public Sector

Although the theoretical model seems to be consistent with previous studies, it is significant to note two significant differences. First, it extends current IT alignment literature by examining the extent to which factors identified in the model are valid in the context of public organizations. Second, it also extends the e-government literature by supplementing the theoretical understanding of IT alignment for e-government as it offers theoretical model on the antecedents shaping IT alignment in the context of public organizations.

4. Research Methodology

Since the main objective of this research is to examine the antecedent of IT alignment in public organizations, case study approach is thought to be the most appropriate approach for this research. The major strength of the case study is the ability to investigate a contemporary phenomenon within its real life context particularly when the researcher has little control over the events (Walsham, 1995; Yin, 2003). The investigation of IT alignment in the context of public sector's environment satisfies the criteria. The case data was gathered mainly through interviews with top management, administrative authorities, IT officers and end-users. In addition, documentation which includes government reports and its' strategic plans were reviewed in order to identify key issues related to subject of study.

5. Case Analysis and Results

Based on the empirical evidence presented below, the researcher argues that the identified IT alignment antecedents shape the IT alignment process in public sector, which resulted in the improvement of organizational performance.

5.1. Shared Domain Knowledge

The National IT Council encourages co-operation at national level such as the establishment of central steering committee and the need for adequate ICT trainings for all groups of users. The central steering committee consists of top management from all participating departments and agencies which enables them to share and discuss issues related to *E-Syariah*. Moreover, major training programmes are organized at the national level in order to facilitate collaboration between different groups of users. Furthermore, broad selection of suitable training programmes and courses are organized from time to time for different professional groups which includes judges, court registrars, administrators and lawyers. In the case study, top management and IT managers in all participating agencies are well aware of the significance of understanding each other's domain of knowledge in order to ensure the strategic use of *E-Syariah*. The IS Officer answered: *"Meetings with top management are held to understand every potential of adopting IT in Islamic judicial system. Being able to sit down together is a great opportunity for us to understand each others' requirements which contribute to the successful use of E-Syariah"*

5.2. Centralization of IT Decision Making

Centralization of IT decision making helps managers to leverage the strategic roles of IT in organizations (Rothfeder, 2005), however, it is argued from the case that centralization of IT decision making facilitate the process of sharing knowledge between managers in public organizations. The case shows the involvement of managers from participating agencies at the national level not only give them opportunity to share knowledge, it also provides a platform to establish good relationships amongst them. They replied*"…. involvement in central steering committee enables us to share and exchange ideas and knowledge. At the same time, it gives us chance to establish good rapport with top officers from other agencies"*

5.3. Formalization of IT Planning

Public organization is a highly formalized organization that has clearly defined job descriptions and standardized policies and procedures, and they make use of task forces and committee more often. These characteristics benefit public managers as it is considerably easier for them to integrate IT strategy with organizational strategy. However, the case study indicates the negative effect of formalization on IT alignment. Instead, formalized IT planning is found to positively contribute towards the mutual understanding of domain knowledge between top management and IS managers. The Head of IT Unit responded "…..*what is more concern to us [IT team], is to have a good chance understand the perception and knowledge of administrative team which can consequently help us to develop an effective IT plan"*

5.4. Stakeholder Relationships

Managing relationships is argued to be an important issue in realizing IT alignment. The answer from a respondent "……*we meet several times throughout the year to discuss all issues pertaining to E-Syariah. If we don't have this kind of practice and relationships, we will not be able to strategically use E-Syariah to improve the quality of services delivered by courts office"* shows their awareness on the importance of managing relationships among them. In another situation, IT manager informed that it is difficult for agencies to cooperate because all of them have different needs, missions and working methods. For this reason, these agencies need centralized initiatives as they know that they cannot do that by themselves. Furthermore, relationship with external stakeholders (i.e. public) is the key factor in the implementation of *E-Syariah*. There is no doubt that a good relationship with the lawyers and public will indirectly ensure the success of *E-Syariah*. The web-based *E-Syariah* system enable everyone to access information and work with the system easily. It is in the public interest that *E-Syariah* be expanded, improved and adapted to the needs of the public. In this way, the success of *E-Syariah* contributes to a high satisfactory rate among the public managers and the public.

5.4.1. Improved of Public Service Delivery: Evidence

Improved organizational performance can be defined by various indicators. In this case, the perception of respondent that public service delivery has been improved can be used as an indication for the improvement of organizational performance. However, there may also be external indicators such as the recognition of the system's capability and performance. These indicators can be either subjective or objective. Subjective evidence may include statements made by interviewees about their perception towards the systems, whereas objective evidence presents in the form of reports and rewards associated to the recognition of the system's capability and performance. The perception of interviewees with regard to the betterment of public service delivery, representing improved organizational performance is shown through satisfaction of public managers on the performance of *E-Syariah*: *"…now, we have been able to reduce the number of backlogged cases….as well as expedite time taken to complete a trial"*.

In addition, objective evidence in the form of recognition, reputation and award is also found in the case study, which represents the capability of the systems to improve public service delivery. *E-Syariah* received recognition from United Nation where was selected to represent Malaysia in the World Summit Information Society and ICT for Development Platform in Geneva in 2003. It has also won few awards at the national level such as Best Application of Electronic Government.

6. Discussion

This study examines shared domain knowledge which is one of the widely studied antecedents of IT alignment. The result clearly supports the effect of shared domain knowledge on IT alignment in public sector, which in return contributes towards the improvement of public service delivery.

Result from this study unexpectedly shows no direct effect of centralization of IT decision making on IT alignment. Instead, centralized IT decision making is found to influence shared domain knowledge among managers in government sector. Hence, putting people together can literally force them to share and exchange knowledge. Major body of literature indicate that centralization of IT decision making has no direct effect on knowledge sharing between members in organizations (Chen & Huang, 2007; W. P. Tsai, 2002), however, it does not seem to be the case in this study. Although the finding of this study conforms to some results found in the literature (Y. E. Chan, et al., 2006), more research is required in order to fully understand the reasons of this insignificant effects.

Similar to the centralization of IT decision making, finding also indicates no direct relationship between formalization of IT planning and IT alignment. Formalization is found to contribute towards the mutual understanding of knowledge between top management and IS officers in

public sector. This result is consistent with other studies in the literature that suggest formalization of strategic planning facilitates shared domain knowledge as it provides a platform for business executives to learn about IT and vice versa (Y. E. Chan, et al., 2006; Lederer & Mendelow, 1988)

The implementation of nationwide *E-Syariah* system which involves participation from various stakeholders demands us to look into the issue of relationship management from a wider perspective. Finding of this study shows the significant effect of managing the relationship of all external and internal stakeholders as antecedent for IT alignment in public organization. It is logical because having a chance to manage communication and interaction with these stakeholders reduces the conflicting interests among them, which eventually contributes towards the strategic use of IS in public organizations.

Based on these findings, a revised model that depicted centralization and formalization affecting shared domain knowledge and stakeholder relationship is presented in Figure 2.

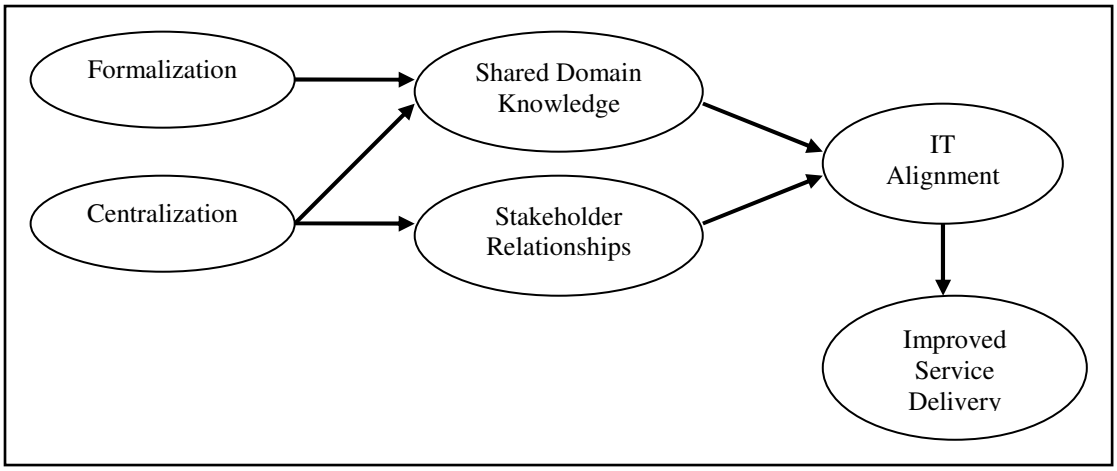

Figure 2: Revised Model

7. Conclusion

Since e-government systems affect most aspects of government's operations, achieving successful IT alignment in the adoption of these systems is crucial to the public sector's performance. This paper explores the influence of identified antecedents for IT alignment towards organizational performance in the context of public sector. This on-going research develops a model for IT alignment in public sector, which includes four factors affecting IT alignment as well as the effects of IT alignment on the public sector's performance. Given the effects of centralization and formalization on shared domain knowledge, public managers and IS officers should seek opportunities to increase their knowledge on each other's domains through different strategies including participation in more frequently organized IT decision making and planning activities at the central level. One notable limitation of this study that deserves attention is that data were collected from a single case study. Future study should consider data from multiple cases which can improve the generalisability of the findings (Yin, 2003).

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