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Measuring Organizational Readiness in Information Systems Adoption

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ABSTRACT

Organizational change is vital for an organization to survive and stay competitive. A collective organizational member's cooperation and commitment are needed in the successful implementation to provide a better service delivery to customers. Measuring organizational readiness for change at an organizational-level is more advantageous because the collective organizational members will more capable of learning new methods and tools and confident the change will success. There are five classes of antecedents that have direct effects on organizational readiness in IS adoption: attributes of change, leadership support, internal context, attributes of change target and IT support. By understanding readiness, organizational leaders may improve their ability to implement planned changes and with that the proximal outcome of organizational readiness will improve efficiencies and productivities.

Keywords

Organizational readiness, IS, Adoption, Measure

1. INTRODUCTION

Organizational change in information system (IS) adoption requires organizational members' cooperation and commitment in order to enable the organization to survive and stay competitive. At the current pace of IT, the organization is continually implementing changes in IS, strategy, structure, process, and culture. All changes are made in order to meet the best customers' need by delivering accurate, fast and efficient services. Many factors contribute to the effectiveness organizational change implementation, including organizational readiness. How can we know whether an organization is ready to face the challenges and an opportunity in adopting IS? The importance of assessing an organizational readiness cannot be underestimated. Change expert and health care practitioners contend that organizational readiness for change is a critical precursor to successful change implementation (Kotter 1995; Susanto 2008; Weiner et al. 2008). Organizational readiness is one of the contributing factors to the systems improvement (Yusof et al. 2008) and may reflect the extent of the organizational members' commitment to the organization (Ingersoll 2000). For example, it was proven to be the key factor of the initial support of a clinical information systems (CIS) initiatives (Pare et al. 2011). History has shown that approximately 50 to 80 percent of the development of ICT project fails to achieve its objective due to various factors including organizational issues (Warkentin et al. 2009). Prominent change experts argue that half of all change efforts fail because organizational leaders do not sufficiently assess organizational readiness for change (Kotter 1995; Weiner et al. 2008). According to Weiner et al. (2008), when organizational leaders overestimate the level of readiness organization and its members to change, a lack number of undesirable outcomes would occur: (a) the change effort failed at the beginning of the project (could or could not be recovered), (b) the change effort stalls as resistance grows, or (c) the overall change effort fails. If organizational readiness is accurately assessed, it could be used to predict the successful change or to perform formative evaluation (Helfrich et al. 2011). Therefore, we argue that organizational readiness is one of the critical success factors of IS implementation as it could indicate organizational readiness prior the implementation. Although many research have been conducted in measuring organizational readiness (Snyder-Halpern (2001); (2002), Lehman et al. (2002), Holt et al. (2007), Susanto (2008), Jalaldden et al. (2009), Teoh et al. (2010) and Pare et al. (2011)), its evidence from information

system adoption is lacking. In this context, the purpose of this paper is to discuss organizational readiness's measurement and its contributing factors pertinent to information system adoption.

Organizational readiness for change has been defined in a variety of ways. Organizational readiness is the ability and willingness of an organization to move from the current state to a desired future state to improve organizational effectiveness (Weiner et al. 2008). It is a shared psychological change in which organizational members feel committed to implement organizational change and confidence in their collective abilities to do so (Weiner 2009). Conceptually, organizational readiness for change is a two-dimensional construct that refers to organizational members' *motivation* and *capability* to implement intentional organizational change (Weiner et al. 2008). On the other hand, organizational readiness definition by Holt et al. (2008); Weiner (2009) and Wise et al. (2011) refers to organizational members' shared efforts and willingness to implement a change (*change commitment*) and shared belief (confident) in their collective capability to do so (*change efficacy*). Different interpretation of the above two major components of organizational readiness (e.g., motivation/change commitment and capability/change efficacy) can be combined for a wider readiness measure. The study of two major components of organizational readiness which is motivation and capability was assessed by Wise et al. (2011). The respondents from the higher and lower patient-centered medical home (PCMH) scoring practiced commented on similar aspects of readiness but offered very different views of them. Therefore, it is important to understand change commitment and change efficacy prior to change.

2. ORGANIZATIONAL READINESS

Many studies have been done in organizational readiness for change including evaluation (Lehman et al. 2002; Pare et al. 2011), innovation (Snyder-Halpern 2001; Snyder-Halpern 2002), individual's attitude (Holt et al. 2007), individual readiness for change (Susanto 2008), Knowledge Management (KM) adoption (Jalaldin et al. 2009) and IS implementation (Teoh et al. 2010). Lewin (1951) proposed the famous three-stage model of planned organizational change: (a) unfreezing, (b) change and (c) refreezing. Change management experts contend that change advocates must first "unfreeze" organization by changing the existing mind-set and creating the motivation to change. The actions to create the readiness for change (unfreezing) include providing mechanism for changing circumstances, stimulating dissatisfaction against the status quo and creating an appealing vision of the future state (Armenakis et al. 1993; Kotter 1995). Kotter (1995) expanded Lewin's model to create a detailed approach in applying the changes. The first four (4) steps of Kotter's comprise of detail actions of the unfreezing phase. Therefore, organizational members must constantly involve in the change implementation by forming a powerful change team (that will organize and manage the change process), establishing a sense of urgency, creating a vision and communicating the vision.

Change experts assert that greater readiness leads to more successful change implementation. Social cognitive and motivation theory supports these hypotheses. Drawing social cognitive theory, the organizational members are willing to change, expand greater effort in supporting change and exhibit greater persistence in the face of obstacles or setbacks (Kotter 1995). From the motivational theory, organizational members will exhibit more pro-social, change-related behaviours which will support the change effort that exceed job requirements or role expectations (Weiner 2009).

2.1 Measuring Organizational Readiness

In Table 1, we summarize the chronology of key measures of organizational readiness in IS adoption.

No	References	Theme	Measures	Level of analysis
1.	Snyder-Halpern (2001); Snyder-Halpern(2002)	Innovation	<ul style="list-style-type: none"> • Knowledge • Staffing & skills technology • Technology • Administrative support • Management structures • Processes • Resources • Values and goals 	Organizational
2.	Lehman et al. (2002)	Evaluation	<ul style="list-style-type: none"> • Motivational readiness • Institutional resources • Personality attributes of staff • Organizational climate 	Organizational
3.	Holt et al. (2007)	Individual's attitudes	<ul style="list-style-type: none"> • Perceived appropriateness • Perceived management support • Perceived personal capability • Perceived personal benefits 	Individual

4.	Susanto (2008)	Individual Readiness for change	<ul style="list-style-type: none"> • Perception towards change efforts • Vision for change • Mutual trust and respect • Change initiative • Management support • Acceptance • Managing change 	Individual
5.	Jalalden et al. (2009)	KM adoption	<ul style="list-style-type: none"> • Readiness to adopt KM processes • Performance expectancy • Effort expectancy • Organizational culture • Organizational structure • IT infrastructure 	Organizational and Individual
6.	Teoh et al. (2010)	IS implementation	<ul style="list-style-type: none"> • User needs • User resistance to change and involve • Implementation planning • Executive sponsorship, political and management support • System development, data management and training 	Individual
7.	Pare et al. (2011)	Evaluation	<ul style="list-style-type: none"> • Change attributes • Leadership support • Internal context • Attributes of the change targets 	Organizational

Table 1. Measure of Organizational Readiness in IS Adoption

Previous research on organizational readiness measurement in IS adoption is still limited. Seven previous research related to these measures focused on different themes (see Table 1). Two previous research by Lehman et al. (2002) and Pare et al. (2011) focused on evaluation of organizational readiness for change (ORC). Lehman et al. (2002) describes the rationale and structure of ORC and shows that it has acceptable psychometric properties such as measurement of knowledge, abilities, attitudes, personality traits and educational measurement. The measures of ORC are not supposedly limited to technology transfer only; it should be able to cover a variety of organizational changes including IS adoption and change attributes. Furthermore, Pare et al. (2011) focused entirely on the perception of the ability user to succeed at technological change as it is perceived by the users in the pre-implementation phase. Four classes of antecedents have a direct effect on organizational readiness: the organizational context, the attributes of desired change, the attributes of the change targets, and leadership support. Other research by Snyder-Halpern (2001) and Snyder-Halpern (2002) focus on the innovation phenomenon which applies to all phases of a CIS project life cycle. Organizational readiness very broadly described as the level of fit between IT innovation and organization. Some research has focused on individual readiness. Holt et al. (2007) entirely focuses on individual's attitudes whereas Susanto (2008) focuses on organizational members based on seven aspects of change readiness. We argue that individual readiness are not sufficient to measure for organizational readiness as organizational change requires collective and coordinated behavioural change by organizational members. This is demonstrated by a research on integrated KM process adoption model proposed by Jalalden et al. (2009) assessed both organizational and individual factors which determine the overall readiness of an organization for KM process adoption. The organizational readiness to adopt a KM process can be explained as, the availability of physical and logical infrastructures in the organization (organizational factors) and the willingness of the organizational members (individual factors) to adopt KM processes. According to Teoh et al. (2010), these organizational determinants are subject to where and how an IS has been implemented, which can vary according to the characteristics of the organization. They also indicated that global IS implementation success is geared towards the organizational issues rather than its technical aspects of implementation. In comparison with the other organizational readiness measures, those organizational measures proposed by Pare et al. (2011) is probably the most highly relevant to the organizational readiness concept where they highlight change commitment and change efficacy in the collective self-efficacy perspective. In addition, the identified four factors, namely 1)organizational

context; 2) change attributes ; 3) who will be affected by the changes (attributes of change targets); and 4) leadership support (managing and directing the change). However, this framework is lack of IS adoption measures.

Apart from measures, the approach of organizational readiness studies can be distinguished from the levels of analysis. Readiness of individual level is more related to individual's beliefs. These include whether or not, individuals (1) feel a change is appropriate (i.e., appropriateness), (2) believe management support the change (i.e., principal support), (3) feels confident/capable of making the change successful (i.e., change efficacy), and (4) believe the change is personally beneficial (i.e., valence) (Armenakis et al. 1993; Holt et al. 2007). Readiness at individual level is described by Holt et al. (2007) as the extent of individuals cognitive and emotion that refused/inclined to accept, embrace and adopt a particular plan to purposely alter the status quo. The characteristics of individual are more related to individual's knowledge, skills and ability to perform when the change is implemented (Holt et al. 2008). Likewise, Eby et al. (2000) noted that although organizational members experienced a common context, individuals' perception of organizational readiness could vary depending on his unique interpretation of that context. Individuals also differ in their overall comfort level during times of changes (De Meuse and McDaris 1994). Every individual experiences change in a unique way. For some, it implies a source of joy, benefits or advantages, whereas for others it is a source of suffering, stress and disadvantages. This variety of perception and reactions of different people is difficult to measure and it is reflected in the work of scholars using a variety ways of conceptualizing people's reactions to change.

In contrast with the individual level approach, the organizational readiness of organizational level approach refers to the collective focus encompasses not only interventions aimed at team level but also system wide interventions aimed at the organization as a whole (Bouckennooghe 2010). The characteristics of organization are related to human and material resources, communication channels and formal policy (Holt et al. 2008). Bandura (2000) suggests that the choice between these approaches should be guided by the level of task independence too. Measurement based on individuals' assessment of personal capabilities is suitable for individual performances whereas assessments of collective capabilities (organizational members in group) are preferable when collective outcomes depend on adept teamwork. We argue that measuring organizational readiness for change at an organizational-level are more advantageous because the individuals who perceived change targets as a group, will be more capable of learning new work methods and tools and look favourably on the organizational readiness for change (Pare et al. 2011; Weiner et al. 2008). This approach is more holistic as it encompasses the interactive and coordinate aspects of group operations and larger activities (Weiner et al. 2008).

Furthermore, organizational readiness components are identified by Jin Xu et al. (2011) from general organizational perspectives (including basic organizational characteristics, maturity, structure, culture/climate, resources, and internal technology), departmental perspective, project perspective, workflow perspective, individual perspective, and external environments. Organizational context is significant to IS; it is one of the key variables in Management Information Systems (Mason et al. 1973) and without it, an IS model cannot be implemented (Benbasat et al. 2003; Ives et al. 1980). In fact, significant research has been conducted concerning the importance of gaining a better understanding of organizational contexts that influence IS (Benbasat et al. 2003; Urquhart 2001). Organizational factors that influence IT usage are organizational structure and size, managerial IT knowledge, top management support, financial resources, goal alignment and budgeting method (Ang et al. 2001). Therefore, organizational level may be investigated further to identify their influences on organizational readiness. We also identified that there is a difference between organizational and individual readiness measures.

2.2 Proposed Organizational Readiness Model

The primary intent of this paper is to investigate the contributing factors related to organizational readiness in IS adoption. Based on Pare et al. (2011) research model, five dimensions of measurement were identified as possibly related to a staff's (secretariat's) interpretation of organizational readiness during an initial state of staff exchange online system implementation: attributes of change that is being introduced, the extent of leadership support for the proposed change, the organizational context where the change took place, the characteristics of the change targets and IT support by IT department (see Figure 1). Each of these variables is discussed in the following subsections.

2.2.1 Attributes of change

The attributes of change refer to the what aspect (Holt et al. 2007). Change management theorists posit that one of the key sentiments to creating change readiness is the sense that change is needed (Armenakis et al. 2007). The change is not only associated with the new system, but also with local processes, organization structure, roles and responsibilities and compensation scheme (Lapointe et al. 2005). Pare et al. (2011) identified the following three attributes of change:

- a) Vision Clarity will provide justification of the change. Organizational members' understanding and comprehension towards organizational vision and its change is vital. Kotter (1995) suggested the importance of creating a vision of what the change is all about, inform people why the change is needed and how it will be achieved (Smith 2005).
- b) Change appropriateness. Individuals may feel that some form of change is needed but may disagree with the specific change being proposed (Pare et al. 2011).
- c) Change efficacy is the organizational member confident to use the system and believes that the change will be successful. In this sense, we believe that information from the environment may have a significant impact on individual perceptions of organizational readiness (Pare et al. 2011).

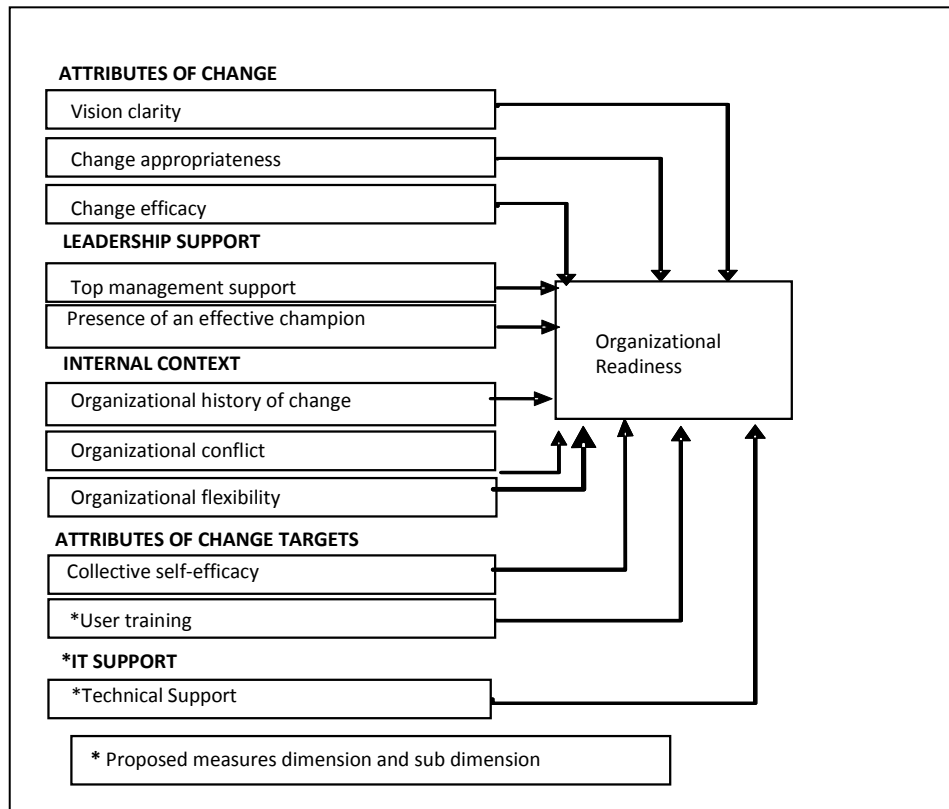


Figure 1 Proposed Organizational Readiness Model

2.2.2 Leadership support

Principal support describes the support from upper management as well as local change agents (Armenakis et al. 2007). Pare et al. (2011) identified the following two leadership support:

- a) Presence of an effective champion. Both practitioners and academics recognized that it is difficult to undergo complex change without a project champion (Pare et al. 1997). Champions are individuals who actively promote the use of IT, push the project for approval and resolve implementation hurdles (Beath 1991).
- b) Top Management Support is defined as devoting time to the IS program in proportion to its cost and potential, reviewing plans, following up on results and facilitating the management process of the business (Young et al. 2008). When upper management is highly supportive of an IT project, greater resources are likely to be allocated to develop and support the new system (Yap 1989), enhancing facilitating conditions (Sabherwal et al. 2006) and ultimately, increasing perceptions of organizational readiness (Pare et al. 2011).

2.2.3 Internal context

Change management experts and scholars have discussed contextual conditions that affect organizational readiness for change (Weiner 2009). Organizations are dynamically evolving systems, have a history of commitment, successes and failures

while implementing computer based systems (Kling et al. 1989). Pare et al. (2011) identified the following three internal contexts:

- a) Organizational history of change might affect the way a change is framed and hence have a great influence on the extent of IT implementation success (Pare et al. 2011). Positive past experience with change can foster organizational readiness (Armenakis et al. 1993).
- b) Organizational conflicts might lead to perceptions among the organizational members that the organization is not ready for change (Pare et al. 2011). Flexible organizational policies and procedures and positive organizational climate (e.g., good working relationships) is important in promoting organizational readiness (Eby et al. 2000).
- c) Organizational flexibility will improve organizational performance since flexible organizations are more capable of adapting to rapidly changing environment. When organizational members are confident towards the organizational flexibility to achieve change, it will make them actively and genuinely participate in the change process, thus successful change can be achieved (Smith 2005).

2.2.4 Attributes of change target

The attributes of the change target refer to the organizational members that require for a change (Holt et al. 2007). The variables are the attributes representing conditions internal to individuals that influence their beliefs, attitudes, and intentions when confronted with change. Pare et al. (2011) identified collective self-efficacy measure while we identified another measure, namely user training.

- a) Collective self-efficacy
When organizational members share a common, favourable assessment of task demands, resource availability and situational factor, they share a sense of confidence that enables them to collectively implement a complex organizational change, results in change efficacy (Weiner 2009).
- b) User training can also determine the organizational members' readiness to accept and use ICT application (Igbaria et al. 1997). A regular, proper, consistent and exciting training can positively influence the IS adoption (Sidal et al. 2009).

2.2.5 IT Support

According to Sidal et al. (2009), the provision of adequate IT officer can help solving technical problems, updating equipment, improving ICT systems and providing other support to improve the user understanding and application skills. We proposed the new following technical support sub-dimension as follows:

- a) Technical Support. The technical support provided by IT staff is very helpful in terms of support, troubleshooting and other matters. Lack of technical support resulted in problematic system implementation and development including increased delays and frustrations (Dent 1990).

2.3 Validation of Organizational Readiness Measures

A case study on a Human Resource Management Information System (HRMIS) were conducted at the Public Service Department of Malaysia (JPA), a HRMIS lead agency to validate the proposed, extended Pare's model for evaluating organizational readiness in IS adoption. The data in this qualitative research were collected during 2 month period using in-depth interview, observation and document analysis. Purposeful sampling were used in order to gain in-depth information from key informant about their perception towards the staff exchange online system implementation. A construct validity and reliability were performed to ensure high quality empirical study. Our findings show that the model is applicable in measuring organizational readiness in IS adoption. During the initial state of staff exchange online system implementation, we identified a number of issues and problems from the organizational readiness assessment. The staff exchange online system is beneficial for them from explicitly addressing change appropriateness. Organizational context dimension play an important role in this measurement. Full commitment and cooperation from organizational members and top management support gave a positive impact to the organizational readiness. The results show JPA is ready to implement staff exchange online system but identified issues and problems need to be resolved immediately in order to achieve system implementation objectives.

3. CONCLUSION

There is no single best model or measure for all circumstances. Measuring organizational readiness for change at an organizational level is more advantageous than that of individual level because the organizational member (group) will more

confident and capable of learning new methods. We argue that there are five classes of antecedents that have direct effects on organizational readiness in IS adoption: attributes of change, leadership support, internal context, attributes of change targets and IT support. We reviewed the literature to identify relevant organizational readiness factors and tested them empirically. There is a need to aggregate different measure together because organizational change for IS adoption require comprehensive evaluation of attributes of change, leadership support, internal context, attributes of change target and IT support. It is also necessary to carry out organizational readiness assessment before or during initial IS implementation to ensure its successful implementation. By understanding readiness, organizational leaders may improve their ability to implement planned changes and with that the proximal outcome of organizational readiness will improve efficiencies and productivities.

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