

STAFF READINESS FOR CHANGE IN PRE- IMPLEMENTATION PHASE IN ENTERPRISE RESOURCE PLANNING (ERP) PROJECT

Adiel Harun
Dr. Zulkefli Mansor

Fakulti Teknologi & Sains Maklumat, Universiti Kebangsaan Malaysia

ABSTRACT

In recent years, the current globalization has revolutionized transformed the landscape and ecosystem of institution of higher education where demanding that the university transition from legacy system to Enterprise Resource Planning (ERP) system to enhance university competitiveness. This shift requires the entire organization to be ready for change as early as the pre-implementation phase to ensure the successful implementation of ERP and resistance among staff is reduced. Past studies related to readiness for change are more focused in the ERP implementation phase for Human Resources, Finance and Manufacturing. However, studies on the individual readiness for change (IRFC) among public university staff in the pre-implementation phase are limited especially in Malaysian. Therefore, this study aims to analyze the IRFC factor among public university staff by combining the theoretical and empirical results of the study. Data analysis was obtained from a questionnaire from 117 public university staff who were in the pre-implementation phase of the Campus ERP project. The findings show that appropriateness, management support, change-specific efficacy and personal valence as contributing IRFC public university staff in pre-implementation phase of Campus ERP project. Beside that, there are 24 items representing that four factors in measuring IRFC. In the future, studies can be done in a variety of perception such as students and other ERP systems such as Human Resource System and Financial System which are also a core system for university. Additionally, this study leads for further study in implementation and post-implementation phase of the Campus ERP project.

Keyword: Campus ERP, ERP pre-implementation phase, Individual Readiness for Change, IRFC

1. INTRODUCTION

Globalization has demanded the landscapes and ecosystems of institutions of higher learning to revolutionize rather than focusing solely on teaching and learning solely to research, publication, ranking and global recognition. Although most universities are facing constraints budget, but at the same time the need for technology and business services also increased (Raja Mohd Tariqi Raja Lope Ahmad et al. 2013). Therefore, more organizations shift from functional information technology infrastructure to Enterprise Resource Planning (ERP) processes and systems into one of the most extensive information technology solutions now even though ERP has a reputation for high cost and low benefit because users do not know how to use the functionality provided (Motwani et al. 2005).

ERP implementation has been popular in many organizations to make application development strategy in the organization more manageable (Al-Shamlan & Al-Mudimigh 2014).

However, these efforts are often regarded as a failure, in part because of potential users that resist to change (Abdellatif 2014; Kwahk & Lee 2008). According to Al-Shamlan & Al-Mudimigh (2014), the implementation of ERP recorded a failure rate and the inability to achieve a benefit between 60-90% and the main reason was the resistance from the user. There are two fundamental sources of resistance when implementing ERP in the organization which are the habit and risks concern (Aladwani 2001). According to Dhafari & Li (2014), there are users who resist to use ERP because they fear that their personal information will be accessible to other users even to users outside the university.

Kwahk & Lee (2008) found that, readiness for change plays an active role in reducing the resistance that occurs and raising the individual's desire to use ERP. This opinion is also supported by Ahmadi et al. (2015) which states that organizations need activities related to the readiness to ensure the successful implementation of ERP. At the university level, the organization's readiness is significantly and positively influence the effectiveness of the Campus ERP project implementation at Albaha University and university management should examine the organizational readiness to measure the capabilities of technology, human resources and infrastructure in planning and implementing ERP.

However, identifying a individual readiness for change (IRFC) among university staff has its own challenges and there is evidence that there is a need to study them specifically because of the unique characteristics of universities compared to other organizations such as corporate. A study conducted by Seo (2013) shows the structure and culture of the Massachusetts Institute of Technology (MIT) as an university have caused limited capacity with a limited degree of staff readiness to implement the ERP compared corporate organization like ENGCO that has more appropriate organizational structure There are efforts to make the university's organizational structure to be a multinational company structure in order to enable best business practices created in the ERP but this raises pressure on staff (Pollock & Cornford 2004).

In the Malaysian context, studies conducted on the Campus ERP project implementation are limited and mostly focused on private universities. A study by Raja Mohd Tariqi Raja Lope Ahmad et al. (2011) has stated that in a change management, the university needs to implement a strategy analysis to assess the risk, resistance level and the establishment of a special tactic to minimize resistance during the Campus ERP project implementation. Further study by Raja Mohd Tariqi Raja Lope Ahmad et al. (2016) has identified the level of readiness for change in Malaysian private universities is absence or lack of top management, lack of understanding about the importance of Campus ERP system and resistance to change among staffs.

From previous studies as mentioned above, research findings from private university respondents are unlikely to apply to public universities as there is a difference between these two institutions of higher learning. The most significant difference is that private universities are owned by individuals or companies whose principles focus on higher education components that are to produce skilled manpower to meet the needs of skilled and professional workforce while public universities are government-owned, focusing on fundamental research for more scholars (scientists) and applied / development research to empower the nation's high technology advancement (Ibrahim Komoo 2017). Therefore, this study will fill the study gap by focusing on the IRFC among public university staff in pre-implementation phase of the Campus ERP project in Malaysia.

This paper consists of five (5) sections. Section I discuss the background of this study including the issues and problems of Campus ERP implementation. Section II discuss the ERP, ERP implementation phase and individual readiness for change (IRFC). Section III elucidates the methodology used in the study. Section IV presents the findings of the work and discussion. Lastly, section V concludes the paper with a summary of the findings and recommended future work.

II. LITERATURE REVIEW

A. *Overview of Campus Enterprise Resource Planning (ERP)*

Implementation of the ERP System at universities around the world has increased significantly over the past decade (Rabaa'i & Gable 2009; Mohamed Soliman & Noorliza Karia 2015). This is in response to a growing global competition in higher education environments and acts as a way of replacing the existing management and administration system (Abdellatif 2014). Previously, the university relied on the student information system to improve their service efficiency (Kalema et al. 2014). However, there is a call by the government to universities around the world to improve their performance and efficiency and as a result, universities have shifted to the ERP system to address environmental changes and overcome the limitations of the legacy system as a means of integration and performance improvement (Abugabah et al. 2013). The main reason of ERP implementation in the university is to meet changing university needs and to facing global education changes and increasing competition. This integrated information solution provides competitive advantages to universities and universities that do not shift to integrated information solutions, will have a difficulty in maintaining marketing to students and students either sooner or later to request the services offered by other universities (Rabaa'i et al. 2009). This opinion is supported by Abdellatif (2014) which states that universities are facing a growing global competition for attracting and retaining students as students expect ease of access to information, self-service transactions, fast processing and learning

especially since the cost of study and other fees increases at a rate that does not never happened before.

In addition, a study by Pollock & Cornford (2004) shows the purpose of the implementation of ERP by renowned universities because the university is already in a multinational environment such as a large organization where the role of top management is to oversee the overall business, making strategic decisions, etc. Further more, among other purposes that influence the decisions in using ERP are due to current changes, weak integration of information between departments and negative perceptions of civil (Aljohani et al. 2015). Beside that, ERP system is believed to help organizations share information, reduce costs and enhance business process management (Aladwani 2001). This opinion is supported by Mohamed Soliman & Noorliza Karia (2015) which lists the advantages of implementing ERP system as below;

- Better information access for planning and managing the institutions.
- Improved service for the university, students and employees.
- Increased income and decreased expenses due to improved efficiency
- Unlimited access to authorized users.
- Maintainability of the system.
- High performance and reliability.
- Scalability/adaptability.
- Unifying information and processes related to students, faculty and staff.
- Better decision making.
- Meeting compliance and governance.
- Promoting relationships.
- Providing greater flexibility to users.
- Easier and quicker access to data for reporting and decision making

B. ERP Implementation Phase

According to Herold, Farmer & Mobley (1995) there are six phases of implementation namely pre-adoption, adoption, pre-implementation, pilot study, implementation and post-implementation. Pre-implementation is a period of time before the physical exercise and can shape the individual attitudes involved with the implementation (Abdinnour-Helm, Lengnick-Hall & Lengnick-Hall 2003; Herold et al. 1995). In this phase, the organization will prepare itself and develop a plan to implement innovation initiatives (Javahernia & Sunmola 2017). Among the activities that took place was to study and evaluate, to provide awareness and preparation to the staff (Al-Shamlan & Al-Mudimigh 2014). There is a need to anticipate potential conflicts and resistance from staff in pre-implementation phases that may cause project failure to occur (Meissonier & Houze 2010).

C. Individual Readiness for Change (IRFC)

In pre-implementation phase, Al-ghamdi (2013) has presented seven strategies to support the change management and one of them is related to a readiness for change strategy. This opinion is supported by Sun, Ni & Lam (2015) which proposed an organization's readiness assessment as the first phase of performance evaluation and improvement measures of ERP implementation. According to Stewart (2000), the implementation of ERP is not merely a result of technological change, but changes in the task, structure and staff. It is often seen that individuals generally do not like the changes and the ERP system involves changes in work processes that evoke resistance to changing among staff. This can explain why resistance to change is very common in the ERP implementation (Raja Mohd Tariqi Raja Lope Ahmad et al. 2016).

Therefore, Calvert (2006) proposed a readiness for change assessment is one of the mechanisms in the change management models to increase motivation to learn and use ERP system effectively. By assessing that change agents, managers, human resource management professional and organizational development consultant can identify the gaps that exist between their own expectations about business changes and other staffs (Abdel-ghany 2014). If a significant gap is observed and no action is taken to close the gap, the resistance will be expected, and the implementation will be threatened. Basically, organizational readiness for change assessment can be a guide as a strategy for implementing organizational change developed (Holt et al. 2007).

III. RESEARCH MODEL AND RESEARCH QUESTIONS

The objective of this study is to identify the contributing factors IRFC among public university staff in pre-implementation phase of Campus ERP project in Malaysia. Therefore, based on the conceptual study and the research literature, a model based on the study by (Holt et al. 2007) has been developed. The model contains appropriateness, management support, change efficacy and personal valence as

the factors affecting the readiness for Campus ERP implementation. The associated factors are explained as follows.

A. Appropriateness

To ensure that organizations are ready to change, Armenakis et al. (2007) emphasized the importance of appropriateness and discovered total of 18 articles from the organization's management publication to supporting such factor since 1965. Moreover, Paré et al. (2011) stated that if the staff supports the change, they must also believe that the proposed changes would be appropriate to deal with conflict.

B. Management Support

A study by Kwahk & Lee (2008) states that management commitment and support are factors that influence readiness for change. In addition, organizational support is geared towards reducing opposition to changes, increasing readiness for changes and intentions to use the ERP system due to staff readiness to implement the ERP system (Yaghoubi & Hojatizade 2015).

C. Change Efficacy

The study conducted by Weiner (2009) suggests that the belief of the change efficacy among staffs should not be ignored by the organization when assessing organizational readiness for change. In addition, study by Shea et al. (2014) has shown a high consistency between individual and change efficacy. The opinion was supported by a Haffar, Al-Karaghoulis & Ghoneim (2014) which also found the change efficacy and personal benefits influenced by organizational culture.

D. Personal Valence

Personal valence is also associated with the staff's readiness to accept the changes implemented in the organization (Haffar et al. 2014). Moreover, Weiner (2009) stressed that staff who believe that the changes that take place will benefit personally will make them appreciate the changes and encourage them to be involved in the implementation. This opinion supported by the evidence that there is a correlation between pre-change and work attitude and individual readiness for change (Vakola 2014). It is common for staffs to hear about what will happen to their job, position and so on, not how the ERP will change the organization's strategy or competitiveness (Skok et al. 2001).

The case for this study comprise the selected Malaysian public university that in pre-implementation phase of Campus ERP project. In general, the study aims to answer the following research questions:

- i) RQ1: What are the contributing factors IRFC among public university staff in pre-implementation phase of Campus ERP project in Malaysia?
- ii) RQ2: What are the items measures the identified factors?

IV. METHODS: PARTICIPANTS AND DATA COLLECTION

The participants of the study were 117 staffs from various department which is Vice Chancellor Office, Deputy Vice Chancellor (Academic & International)/ Provost, Deputy Vice Chancellor (Student Affairs & Alumni), Deputy Vice Chancellor (Development), Bursar, Registrar and Academic/ Faculty/ Centre. According to the results, 28.21% of the respondents were men and 71.79% were women.

In terms of education, 0.85% had a PMR (the lowers), 15.38% had a SPM, 21.37% had a diploma, 49% had a Bachelor degree, 12.82% had Master degree and 8.55% had a Ph.D. Moreover, 88.03% of respondent were the non-academic staff and 11.97% were academic staff; also 48.72%% of them had worked experience between 11 - 20 years and 26.50% with 6 – 10 years working experience. Beside that, 60.68% of respondent from administrative service classification and 23.08% from information technology service classification. In term of position level, 32.48% of respondent were executive/ officer, 18.80% of respondent were manager/ senior officer, 24.79% of respondent were assistant officer and 19.66% of respondent were clerk.

For validity and reliability of instrument, four (4) test have been conducted which is a) person-item reliability and separation, b) validity and polarity of items to measure constructs based on the value of Point Measure Correlation (PTMEA CORR) value, c) fit of items to measure constructs and d) determine the correlation value by Standardized Residual Correlations.

V. RESULTS & DISCUSSION

The questionnaire developed by (Holt et al. 2007) was used for gathering the required data. The table below listed the factors and the items used in this study.

Table 1 Factors for Staff Readiness for Change in Pre-Implementation phase for Campus ERP Project

Factor	Item
Appropriateness	S1_ Organization benefit
	S2_ Sense to initiate the change

	S3_ Legitimate reasons S1_ Organization benefit
	S4_ Improve organization's overall efficiency
	S5_ Rational reasons
	S6_ Worthwhile in long run
	S7_ Change makes job easier
	S8_ There is anything to gain
	S9_ The time be spent on something else
	S10_ Change matches with organization's priorities
Management Support	P1_ Encouraged to embrace this change
	P2_ Put all support behind this change effort
	P3_ Stressed the importance of this change
	P4_ Committed to this change
	P5_ Don't even want it implemented
	P6_ Sent a clear signal this organization is going to change
Change Efficacy	B1_ Do not anticipate any problems adjusting to the work
	B2_ Don't think can do well some tasks
	B3_ Can handle it with ease
	B4_ Have the skills that are needed
	B5_ Can learn everything that will be required
	B6_ Past experiences make confident
Personally Beneficial	M1_ Will lose some of status
	M2_ Will disrupt many of the personal relationships
	M3_ The future will be limited

The reliability and validity of the questionnaire using Cronbach's Alpha (CA) score is 0.94 for person and 0.90 for item. Beside that, separation score is 3.38 for person and 3.01 for item. Therefore, this shows the item's reliability value is at an excellent level above the minimum level of 0.70 set and the item separation value is at a good level of more than 2.0 (Gliem & Gliem 2003; Linacre 2012).

The standardized residual correlations analysis found that all items had a low correlation value and not more than 0.7 as prescribed (Figure 1). This shows that all the items are different and do not measure the same thing or merge several other dimensions that are shared. Therefore, all items used in the questionnaire are maintained (Linacre 2012).

CORREL- ATION	ENTRY NUMBER IT	ENTRY NUMBER ITE
.69	12 P2	14 P4
.67	23 M1	25 M3
.60	11 P1	12 P2
.59	4 S4	10 S10
.57	24 M2	25 M3
.54	13 P3	14 P4
.51	11 P1	14 P4
.51	12 P2	13 P3
.48	7 S7	10 S10
.47	23 M1	24 M2

Figure 1 Top Item with high correlation

Beside that, there is no negative value for PTMEA CORR and the score between 0.41 to 0.74. Next, analysis has shown acceptable value for Infit MNSQ between 0.64 to 1.36. There are 9 out of 25 items that are outside of the MNSQ Infit range and also beyond the ZSTD predictability range which is between - 2.00 to 2.00. After re-assessment, 8 of the items are retained namely S1_Organization benefit, S9_The time be spent on something else, S10_Change matches with organization's priorities, P2_Put all support behind this change effort, P4_Committed to this change, B1_Do not anticipate any problems adjusting to the work, B2_Don't think can do well some tasks and M1_Will lose some of status. However, S3_Legitimate has been dropped by considering the suggestion from Holt et al. (2007) which states that the item has more valence of the organization than it is discrepancy. In addition, during the questionnaire content verification, the expert stated this item was ambiguous and confusing. Therefore, only 24 out of 25 items that are identified to measure factors for IRFC.

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	TOTAL MEASURE	MODEL			INFIT		OUTFIT		PT-MEASURE		EXACT MATCH		ITEM
				S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%			
9	393	117	1.07	.14	1.91	5.4	2.32	7.0	A	.46	.66	43.6	56.1	S9	
17	414	117	.64	.15	1.62	3.8	1.94	5.1	B	.41	.64	56.4	59.4	B1	
18	399	117	.95	.14	1.52	3.3	1.81	4.7	C	.48	.65	57.3	56.9	B2	
23	443	117	-.03	.16	1.47	2.8	1.37	2.2	D	.56	.61	64.1	64.1	M1	
25	462	117	-.53	.17	1.31	2.0	1.17	1.0	E	.58	.59	63.2	66.1	M3	
24	458	117	-.42	.16	1.30	1.9	1.20	1.2	F	.56	.60	63.2	65.9	M2	
20	416	117	.60	.15	1.08	.6	1.30	1.9	G	.55	.64	67.5	59.6	B4	
2	457	117	-.39	.16	1.21	1.3	1.14	.9	H	.68	.60	67.5	65.8	S2	
6	465	117	-.61	.17	1.16	1.1	1.08	.5	I	.59	.59	75.2	66.3	S6	
8	449	117	-.18	.16	1.13	.9	1.13	.8	J	.72	.61	62.4	64.7	S8	
15	406	117	.81	.14	.99	.0	1.12	.8	K	.67	.65	68.4	58.4	P5	
5	460	117	-.47	.17	1.05	.4	1.01	.1	L	.62	.60	77.8	66.1	S5	
16	424	117	.42	.15	.75	-1.9	.94	-.3	M	.62	.63	67.5	60.3	P6	
21	456	117	-.36	.16	.90	-.6	.84	-.9	I	.61	.60	80.3	65.6	B5	
7	446	117	-.10	.16	.89	-.7	.85	-.9	k	.64	.61	68.4	64.4	S7	
13	418	117	.56	.15	.81	-1.4	.89	-.7	j	.62	.64	65.0	59.8	P3	
19	427	117	.36	.15	.79	-1.5	.78	-1.5	i	.64	.63	77.8	60.9	B3	
11	435	117	.17	.15	.77	-1.7	.72	-1.9	h	.69	.62	70.9	62.7	P1	
22	455	117	-.34	.16	.74	-1.8	.74	-1.7	g	.65	.60	73.5	65.5	B6	
4	466	117	-.64	.17	.73	-2.0	.69	-1.9	f	.72	.59	74.4	66.3	S4	
10	462	117	-.53	.17	.62	-3.0	.57	-3.0	e	.72	.59	82.1	66.1	S10	
3	458	117	-.42	.16	.62	-3.0	.61	-2.7	d	.71	.60	79.5	65.9	S3	
12	442	117	.00	.16	.60	-3.1	.59	-2.9	c	.70	.62	73.5	63.7	P2	
14	433	117	.22	.15	.56	-3.5	.55	-3.4	b	.72	.62	67.5	61.8	P4	
1	471	117	-.78	.17	.56	-3.5	.53	-3.4	a	.74	.58	78.6	66.1	S1	
MEAN	440.6	117.0	.00	.16	1.00	-.2	1.03	.0				69.0	63.2		
S.D.	22.3	.0	.53	.01	.36	2.4	.44	2.6				8.6	3.2		

Figure 2 Misfit Order

Base on survey, 23 items have more than 50% positive responds from respondents which the top 3 highest percentage are S6_Worthwhile in long run (82.92%), S5_Rational reasons (82.05%) and S1_Organization benefit (81.20%). Besides, only 2 items have less 50% but still more than 47% positive responds from respondents which is S9_The time be spent on something else (47.84%) and B2_Don't think can do well some tasks (49.58%). Therefore, all four factors are identified as contributed to public university staff's readiness for change in pre-implementation phase of Campus ERP project.

VI. CONCLUSION

This study was designed to identified factors and items that measures IRFC among public university in pre-implementation phase for Campus ERP project in Malaysia. The published readiness-for-change instruments by Holt et al. (2007) have been adopt in this study and supported by literature review from previous studies. This analysis confirmed that appropriateness, management support, change-specific efficacy and personal valence are factors for IRFC in pre-implementation phase for Campus ERP project. In addition, this study also found that only 24 out of 25 items fit to

measure that four factors. In the future, further studies can be conducted on factors and items of staff readiness for changes in the implementation and post-implementation phase of the ERP Campus project. In addition, studies can also be conducted on students who are the largest stakeholder in the university as well as on other major systems in the university.

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