AWARENESS, PERCEPTION & BARRIER: AN EMPIRICAL STUDY OF CAMPUS ERP IMPLEMENTATION

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ABSTRACT

The ERP system must provide a business with wide collection of functionalities supported by features like flexibility, modularity, widespread, finest business processes and global focus. Recently, Institution of higher learning has invested considerable resources in the implementation of the Enterprise Resource Planning (ERP) systems. Similar to the experiences in other industries, there is a risk that these systems fail in the higher education environment due to poor planning and preparation. Therefore, it is interesting to do a strategic research towards implementing the campus ERP. The study is focused on the level of Campus ERP implementation and the level of awareness against the ERP implementation in education industries, identify perceptions of implementing Campus ERP and identify the barriers of implementing Campus ERP. The respondents are at the private institution of higher learning with University and College University status.

Keywords: *Enterprise Resource Planning, Academic Institutions, Awareness, Perception, Barriers*

1. INTRODUCTION

Today's ERP systems can cover a wide range of functions and integrate them into one unified database. For instance, functions such as Human Resources, Supply Chain Management, Customer Relations Management, Financials, Manufacturing functions and Warehouse Management functions were all once standalone software applications, usually housed with their own database and network. The ERP system must provide a business with wide collection of functionalities supported by features like flexibility, modularity, widespread, finest business processes and global focus.

Recently, Institutions of higher learning have invested considerable resources in the implementation of the Enterprise Resource Planning (ERP) systems. ERP vendors are now exploring new markets by promoting business software to higher education as a solution to their data management needs. It is expected that higher education's collective investment in vendor-supplied enterprise administrative systems, modified versions of the standard ERP systems, may exceed $5 billion to date, placing it "among the academy's most significant information technology (IT) investments of any kind" [1]. In order to accurately gather data regarding the use of ERP software in higher education, the EDUCAUSE Center for Applied Research (ECAR) conducted a qualitative and quantitative survey of institutions that completed an ERP implementation since 1995 and published the results of this research in the King study [2]. The budget for an ERP implementation can run into tens to hundreds of millions of dollars, with expenditures estimated to range between approximately 6% of their annual revenue for a large organization to up to 50% for small firms. In addition, as implementation costs rise, so does the chance of an implementation failure [1], [3]. Similar to the experiences in other industries, there is a risk that these systems fail in the higher education environment due to poor

planning and preparation. Therefore, it is interesting to do a strategic research towards implementing the campus ERP.

2. LITERATURE

This Literature survey is predicated to the barrier and perception that has been identified having the most significant element with the study that will be carried out. Results which are common for ERP perception on ERP system implementations are as follow; Modernization of Campus ICT environment, ICT is an integral part of the activities at the Institution of Higher Learning (IHL). Campus ICT environment as a pillar of the IHL, ensures that there is a sustainable goal and users can gain maximum benefit from the ICT facilities in the furtherance of their administration, academic and research work. So it is important to continue identifying ICT opportunities and advancing the ICT infrastructure (Software and hardware) and services to meet changing demands and economic dynamics of the IHL (Ahmad A. Rabaa'I, 2009). Replacing aging legacy systems, Need to change legacy system to new ERP system are predicated limited capacity by legacy system among those known is where it is not integrated and additionally it also unable to fulfill desire of new work processes [2], [4]. Maintaining and upgrading legacy systems is one of the most difficult challenges for management today. Constant technological change often weakens the business value of legacy systems, which have been developed over the years through huge investments [5]. Efficiency (reduces cost, improve speed of transaction), ERP system can be used as a tool to help improve the performance level of a supply chain network by helping to reduce cycle times [6]. Transaction efficiency and performance are critical for the institution of Higher learning (IHL). If customer transactions (Finance, academic and human resource) are not executed quickly, efficiently and reliably, the institution will lose their customers. If poor performance persists, the IHL can experience an increased in IT costs, lower productivity and ultimately will damage the reputation of the IHL [2]. Increase productivity, ERP system is highly customized covers almost everything that you need to run your organization. It includes the system starting from the beginning of the work processes till to the end of work processes. All facilities or functions of the organization for example customer complaints, accounting and finance, Human Resource, sales and marketing, purchase, inventory and etc. will also be handled by the system. To maintain all this has high degree of excellence system. Ultimate result is that it helps in increasing productivity and better profits [7], [8]. Make it easier to do the job, that integrated approach can have a tremendous payback if companies install the software correctly. Building a single software program that serves the needs of people in finance as well as people in human resources and in the warehouse, is a tall order. Each of those departments typically has its own computer system, optimized for the particular ways that the department does its work. But ERP combines them all together into a single, integrated software program that runs off a single database so that the various departments can easily share information and communicate with each other [9]. Increase customer satisfaction, ERP software is available in the market with modules to increase customer satisfaction by providing fast response and easily available services [9]. In today's competitive market where customers have many options to choose, customer's satisfactions have become a prime importance for all the companies whether in manufacturing, distribution or Institution of Higher Learning. Every institution has tones of data like student details (prospect or current student), examination, student billing, asset, finance and etc. related to its customers. It is a tedious task to analyze and straighten out the facts of this data accurately and correctly within short time to give prompt and right response. The ERP software can contribute immensely in improving this situation by integrating all departments and making information available to each department in real time. Improve departmental coordination, These sets usually include a set of mature business applications and tools for financial and cost accounting, sales and distribution, materials management, human resource, production planning and computer integrated manufacturing, supply chain, and customer information [10],[11],[12]. These packages have the ability to improve departmental coordination by facilitating the flow of information between all supply chain processes (internal and external) in an organization and with this and with this relation also enhance solutions effectiveness within the organization [13]. Enhance solutions effectiveness, These sets usually include a set of mature business applications and tools for financial and cost accounting, sales and distribution, materials management, human resource, production planning and computer integrated manufacturing, supply chain, and customer information [10],[11],[12]. These packages have the ability to improve departmental coordination by facilitating

the flow of information between all supply chain processes (internal and external) in an organization and with this relation also enhance solutions effectiveness within the organization [13]. Facilitate business process change, Implementing an ERP system involves reengineering the existing business processes to the best business process standard [15]. ERP system are built base on the best practices that are followed in the industry, and to succeed a full install ERP system, all the processes in the company have to confirm with the ERP system /model [16], [17]. Using C-ERP will support decision making process, A CAMPUS ERP system can be used as a solution to integrate and increase the efficiency of the processes and this will support in decision making process by providing the instruments in supporting processes by showing the data and analysis necessary for strategic planning and future enhancement [18].

And result that are common for ERP barriers on ERP system implementation are as follows; Absence or lack of top management participation in the implementation, 'Top management support' was the most frequently cited CSF for ERP implementation. The ERP project must receive approval and support from the top management before it can be implemented. Top management must be willing to become involved and to allocate valuable resources to the implementation effort [19],[20]. As ERP projects span divisional boundaries and affect many stakeholders in an organization, senior executives need to mediate between various interest groups to resolve political conflicts when necessary [21]. All of the studies in every region or country were in high agreement on the critical role played by top management support in the successful implementation of ERP. This showed that top management support is widely recognized as a necessity for ERP implementation, and that this factor may be independent across regions and countries. Lack of understanding about the importance of Campus ERP system, When an institution does not understand the importance of ERP system, it is an obstacle to successful ERP implementation [22]. It is very important for the organization understand the advantages of ERP system, because it can give various advantages to the organization, when this happens, barriers such as rejection from employee and inside management will not happen. Lack of teamwork spirit to implement the ERP system, Teamwork spirit is the key to success for almost all of the ERP implementation. An ERP implementation will involve all the functional area of the organization

with cooperation between technical, business expert and end users [23]. As mentioned by [24] teamwork spirit should be balance, cross functional and comprise a mix of external consultant and internal staff so the internal staff can develop the necessary technical skills for the implementation. Resistance to change among employees, It's commonly perceived that people in general don't like change, and ERP system involve changes in work processes. So that may explain why resistance to change is so common on ERP projects implementation. It is therefore very important for the organization to overcome this resistance before implementing the ERP project [25],[26]. ERP systems only increase work rather than solving the problems, When a company goes live with an ERP system, following [27] model of the research study indicated that people experience a range of emotions in response to this change, including fear, anger and denial, and that people resist changing the way they work. New roles and skills were required in many areas of business as a result of the ERP programme. It is common for staff wanting to hear about what will happen to their jobs, grades etc not how ERP will alter the strategy or competitiveness of the company [28]. Inappropriate training program for the implementation, Knowledge transfer is explicitly mentioned as an important factor for the success of the ERP implementation. The organizations used different approaches to train and mentor their staff. The most common training approach was to train key users and key project team members, who then established an internal training program. This is also referred to as the "Train the trainer" approach. The training of users was often decentralized and responsibility was given to the individual departments. For this reason and the fact that almost all of the technical realization and even project management issues were handled by the consultants, hardly any knowledge was transferred from the consultants to the internal staff [14]. Lack of financial resources, ERP system implementation is very expensive; this is one of the causes of the failure of the ERP implementation. Among the cost is the ERP software itself, use consultant service, needs comprehensive training, involving present work process change and also ICT infrastructure change [26],[29]. Lack of expert in the implementation the C-ERP, Shortage of expert staff is among the cause to ERP system implementation's failure. Such known ERP system is a fully integrated system and this for sure needs an expert not only on technical problem in fact it also requires inside specialists best practices

determination [12],[30]. ERP system is too complex to be understand, The implementation of ERP system is a complex exercise, and many adopters have encountered problems in different phases [30], [31]. This happened because ERP's system implementation will involve the entire department of the organization in term of the work processes and also the technical complexity of the software. ERP involves too many requirements or procedures, Although ERP systems have certain advantages such as low operating cost and improving customer service, they have some disadvantages due to the tight procedure of application modules and data. Huge storage needs, networking requirements and training overheads have frequently mentioned ERP problems. However, the scale of business process re-engineering (BPR) and customization tasks involved in the software implementation process are the major reasons for ERP dissatisfaction [32], [33].

3. METHODOLOGY

The study is focused on the level of Campus ERP implementation and the level of awareness against the ERP implementation in education industries, identify perceptions of implementing Campus ERP and identify the barriers of implementing Campus ERP. The respondents are at the private institution of higher learning with University and College University status. The total population of the study consists of 50 private institution of higher learning with 154 respondents and having various background (Management, Academic, Technical and researcher). Instrument that will be used in collecting data is questionnaire. It consists of 2 sections; Section 1: 2 parts and Section 2: 3 parts. The details of every part and the scales used are shown in the table 1.

Table 1: Scales of data.

Section	Part	Types of data	Scale
1	A	Background of Institution	Nominal and Ordinal
	B	Demographic of respondent	Nominal and Ordinal
2	A	ERP Awareness	Nominal and Ordinal
	B	ERP Perception	Interval
	C	Barriers To ERP Implementation	Interval

The data collected in Section 2; Part B and C are achieving the objective of the study, which is to identify the level of the ERP perception and Barriers of ERP implementation. Part A and B consist of 10 questions each. The scale used for the data is based on Likert Scale as illustrated in Table 2 below.

Table 2: Evaluation of ERP implementation - Likert Scale

Scale	Evaluation of ERP implementation
1	Strongly disagree
2	Disagree
3	Less agree
4	Agree
5	Strongly agree

Reliability refers to the extent to which the results are consistent over time and accurately represent the total population under the study. In this study, we used the Cronbach's Alpha to measure the reliability of the questionnaire. The Cronbach's Alpha is a coefficient of reliability. It measures how well a set of items (or variables) measures a one-dimensional latent construct. When data has a multidimensional structure, Cronbach's Alpha will usually be low. Statistical package for social science (SPSS) for windows will be used to analyse the data. Both descriptive analysis and inference analysis will be used in the analysing process.

Descriptive analysis is the analysis, which is concerned with obtaining, organizing and summarizing the collected data and information. In this study, the analysis used to present the data in Section 1(Part A and Part B) and Section 2 (Part A) is as means.
The formula to calculate 'mean' is as below:

$$\overline{X} = \frac{\Sigma X_i}{n} \qquad (1)$$

$\overline{X}$ = Mean

X_i = Sample number i

n = Sample size

Multiple correlations are used to determine the relation and degree of relationship between a dependent variable (Y) and two or more independent variables (X s). In the study, Y refers to institution with ERP implementation while X s consists of Perception and barriers to ERP

implementation. The relationships between X s and Y are determined by the following formula:

$$r = \frac{\sum_{i=1}^{n} (X_i - \overline{X})(Y_i - \overline{Y})}{\sqrt{\sum_{i=1}^{n} (X_i - \overline{X})^2 \sum_{i=1}^{n} (Y_i - \overline{Y})^2}} \quad (2)$$

r = Correlation coefficient
n = Sample size

"Pearson correlation" is chosen because the data, perception and barriers to ERP implementation will be calculated in interval form. The correlation coefficient, r will show the relationship while the determinant coefficient, r2 will indicate the degree to X s is related to the variation in Y. The covariance between X and Y may be positive (r = +ve value), negative (r = -ve value) or no linear relationship (r = 0). The values are between 1 to – 1 a value close to 1 or –1 shows strong correlation while a value close to zero shows weak correlation.

The multiple regressions involve a single dependent variable (Y) and two or more independent variables (X s). This method is used to identify the relationship between Y, which is institution with ERP implementation, and X s, which consist of 10 perception and 10 barriers to ERP implementation. The identification of the relationship between the X s and Y are determined by the following formula:

$$Y_i = a + b_i X_i + e_i \quad (3)$$

a   = Intercept of line
bi   = Slope of line (i = 1, 2, …, n)
ei is the error term associated with the ith observation.

The coefficient b1 to bn shows the type of relationship between the dependent variables and the independent variables. The type of relationship can be positive, negative or no relationship at all. The coefficient of multiple regressions, R2 will show how much the 10 barriers influencing the institution with ERP implementation. Besides, this method is also used to identify the barriers that give the most profound impact to the ERP implementation too. The value of 't' shows the strength of relationship in the pair of variables. The higher the 't' value, the relationship is stronger.

4. STUDY ANALYSIS / RESULT

The total population of the study consists of 50 private institution of higher learning with 154 respondents and having various background (Management, Academic, Technical and researcher). The descriptive data that was collected from the survey forms consist of Section 1 (Part A and B) and Section 2 (Part A).

The frequency and the percentage for the position level of knowledge about enterprise resource planning respondents are shown as Table 3 and Figure 1 below.

Table 3: Knowledge about ERP level of respondent

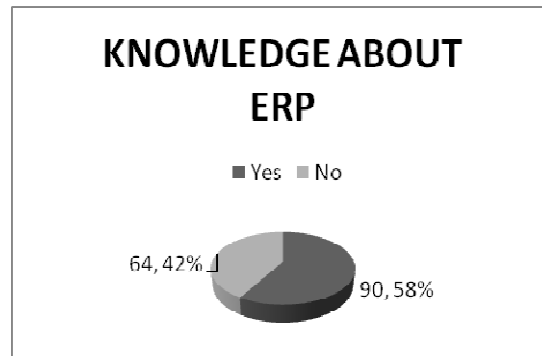| Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	90	58.4	58.4	58.4
No	64	41.6	41.6	100.0
Total	154	100.0	100.0	

Figure 1: Knowledge about ERP level of respondent

The frequency and the percentage for the position level of Institution with enterprise resource planning respondent are shown as Table 4 and Figure 2 below.

Table 4: Institution with ERP level of respondent

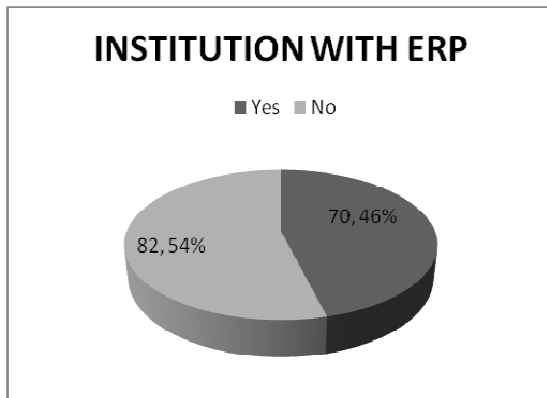|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	70	45.5	46.1	46.1
	No	82	53.2	53.9	100.0
	Total	152	98.7	100.0	
Missing	System	2	1.3		
Total		154	100.0		

Figure 2: Institution with ERP level of respondent

The frequency and the percentage for the position level of suitability of ERP for the Institution respondent are shown as Table 5 and Figure 3 below.

Table 5: Suitability of ERP for the Institution

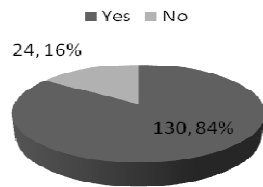| Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	130	84.4	84.4	84.4
No	24	15.6	15.6	100.0
Total	154	100.0	100.0	

Figure 3: Suitability of ERP for the Institution

Reliability analysis was used to measure the data and variables of the study. The analysis model that is being used is Cronbach Alpha (refer to table 6), based on internal consistency method. The reliability coefficient for determinants is 0.905, which is bigger than 0.6 (Mohd. Salleh Abu & Zaidatun Tasir 2001). The value represents that the design of survey form that is being used in the study has high reliability.

Table 6: Reliability Statistics

Cronbach's Alpha	N of Items
.905	20

4.1 Identifying the Perception of Implementing ERP

Multiple correlations were chosen to test the relationship between the perception of ERP implementation and Institution with ERP. The result of the test shows the correlation between 10 perceptions and the ERP implementation among the respondents is indicated (refer to table 7).

Table 7: Correlation between 10 perception and Institution with ERP implementation

Perception to ERP implementation	Correlation coefficient (r)	Determinant coefficient (r2)	Strength of relationship	Sig. (2-tail)
D1	-0.029	0.000841	Very weak	0.725
D2	0.021	0.000441	Very weak	0.797
D3	0.018	0.000324	Very weak	0.823
D4	-0.112	0.012544	Very weak	0.169
D5	-0.040	0.0016	Very weak	0.620
D6	-0.090	0.0081	Very weak	0.269
D7	-0.001	0.000001	Very weak	0.991
D8	-0.069	0.004761	Very weak	0.397
D9	-0.041	0.001681	Very weak	0.618
D10	0.054	0.002916	Very weak	0.511

The correlation coefficients of all perceptions are below +0.5 and -0.5, a value close to '0', this means that the perceptions to ERP implementation are weakly associated with the institutions that have installed ERP system. Furthermore, the negative sign of r implies a negative relationship; the more a perception the respondent face, the lower the ERP implementation in their company.

The determinant coefficients of all perceptions are less than 0.20. This means that all perceptions have very weak relationship with institution that

have install ERP system according to the classification in Table 8 below.

Table 8: Range of correlation coefficient for the strength of relationship

RANGE OF CORRELATION COEFFICIENT	STRENGTH OF RELATIONSHIP
< 0.20	Very weak
0.20 – 0.40	Weak
0.41 – 0.70	Moderate strong
0.71 – 0.90	Strong
0.91 – 1.00	Very strong

Besides, the result in table 7 also shows that all the perceptions have significant value more than 0.05 at 2-tail correlation test. This means that all the perception are not associated with the institution have install the ERP system, but based on the descriptive analysis focusing on mean calculation, Table 9 shows that all mean for the perception is above 4 (Agree) meaning that all the presented perception are accept by the respondent.

Table 9: Mean for Perception of ERP Implementation

	N	Min	Max	**Mean**	Std. Dev
D1	152	2	5	**4.16**	.831
D2	153	3	5	**4.11**	.730
D3	153	2	5	**4.20**	.708
D4	153	1	5	**4.10**	.741
D5	153	1	5	**4.10**	.788
D6	153	2	5	**4.08**	.765
D7	153	2	5	**4.13**	.741
D8	153	2	5	**4.03**	.720
D9	153	2	5	**4.14**	.669
D10	153	2	5	**4.06**	.745

Accepted perceptions:

D1.   Modernization of Campus ICT environment

D2.   Replacing aging legacy systems

D3.   Efficiency (reduce cost, improve speed of transaction)

D4.   Increase productivity

D5.   Makes the job easier

D6.   Increase customer satisfaction

D7.   Improve departmental coordination

D8.   Enhance solutions effectiveness

D9.   Facilitate business process change

D10.   Using C-ERP will supports decision making process

4.2 Identifying the Barriers of Implementing ERP

Multiple correlations were chosen to test the relationship between the barriers of ERP implementation and Institution with ERP. The result of the test shows the correlation between 10 barriers and the ERP implementation among the respondents is indicated (refer to Table 10).

Barriers to ERP implementation	Correlation coefficient (r)	Determinant coefficient (r2)	Strength of relationship	Sig. (2-tail)
E1	0.272	0.073984	Very weak	0.038
E2	0.241	0.058081	Very weak	0.001
E3	0.197	0.038809	Very weak	0.003
E4	0.119	0.014161	Very weak	0.015
E5	0.217	0.047089	Very weak	0.145
E6	0.123	0.015129	Very weak	0.007
E7	0.112	0.012544	Very weak	0.133
E8	0.074	0.005476	Very weak	0.171
E9	0.221	0.048841	Very weak	0.006
E10	0.037	0.001369	Very weak	0.650

The correlation coefficients of all barriers are below 0.5, a value close to '0' this means that the barriers to ERP implementation are weakly associated with the institutions that have installed ERP system. The determinant coefficients of all barriers are less than 0.20. This means that all barriers have very weak relationship with institution that have install ERP system.

Besides, the result in table 10 also shows that E1, E2, E3, E4, E6 and E9 have significant value less than 0.05 while the other barriers have significant value more than 0.05 at 2-tail correlation test. This means that E1, E2, E3, E4, E6 and E9 are associated with the experience of respondent with their institution having installed ERP system.

Accepted barriers:

E1.   Absence or lack of top management participation in the implementation

E2.   Lack of understanding about the importance of Campus ERP system

E3.   Resistance to change among employees

E4.   ERP systems only increase work rather than solving the problems

E5.   Lack of financial resources

E6.   ERP system is too complex to be understand

E7.   ERP involves too many requirements or procedures

5.   CONCLUSION

The result of the analysis indicated that the level of campus ERP implementation among the respondents is consider low; it's about 45.5% of the respondent. While the level of awareness about ERP (Enterprise Resource Planning) and suitability of Campus ERP for their institution among the respondents is consider high, which is 58% and 85% of the respondents.

Generally, the objectives of study were achieved. The analysis indicates that both level of perception for ERP implementation and level of barriers against ERP implementation in private institution of higher learning in Malaysia are accepted. The 10 perception are all accepted and mean while 10 barriers that cover this study E1, E2, E3, E4, E6 and E7 were identified as related to the ERP implementation in the Malaysia private institution of higher learning. The other barriers that were identified do not have association to the ERP implementation.

REFERENCES:

[1] Davis, M. (2007). ERP in Higher Education: A Case Study of SAP and Campus Management. Issues in Information Systems , 8 (1), 120-126.

[2] King, P., Kvavik, R., & Voloudakis, J. (2002). The Performance of ERP System. Educause , 2002 (22), 43-48.

[3] Bajwa, D., Garcia, J., & Mooney, T. (2004). An Integrative Framework for the Assimilation Enterrpise Resource Planning Systems: Phases, Antecedents, and Outcomes. The Journal of Computer Information Systems , 44 (3), 81-90.

[4] Swartz, D., & Orgill, K. (2002). Higher Education ERP: Lesson Learned. Educause , 24 (2), 21-27.

[5] Light, C. H. (1999). A Critical Success Factors Model for Enterrpise Resource Planning Implementation. 7th European Conference on Information System ECIS, (pp. 30-36). Copenhagen.

[6] Gardiner, S., Hanna, J., & LaTour, M. (2002). ERP and the re-engineering of industrial marketing processes: a perpective overview for the new-age marketing manager. Industrial Marketing Management , 31 (4), 357-365.

[7] Barney, J.B. (1991). Firm Resources and SustainedCompetitive Advantage. Journal of Management , 17 (1), 99-120.

[8] Chalmeta, R., Campos, & Grangel, R. (2001). Reference Architectures for Enterrpise Integration. The Journal of System and Software , 57 (3), 175-191.

[9] Calisir, F., & Calisir, F. (2004). The relation of interface usability characteristics, perceived usefullness, and perceived ease of use to end-user satisfaction with enterprise resource planning (ERP) systems. Computers in Human Behaviour , 20 (4), 505-515.

[10] Boykin, R. (2001). Enterprise Resource Planning software: a solution to the return material authorization problem. Computer in Industry , 45, 99-109.

[11] Chen, I. (2001). Planning for ERP systems: analysis and future trend. Business Process Management Journal , 7 (5), 374-386.

[12] Yen, D., Chou, D., & Chang, J. (2002). A synergic analysis for web based enterrpise-resource planning systems. Computer Standards & Interfaces , 24 (4), 337-346.

[13] Al-Mashari, M., & Zairi, M. (2000). Supply Chain re-engineering using enterprise resource planning (ERP) systems: an analysis of a SAP R/3 implementation case. International Journal of Physical Distribution & Logistics Management , 30 (3/4), 296-313.

[14] Haines, M., & Goodhue, D. (2003). Implementation partner involvement and knowledge transfer in the context of ERP

implementation. International Journal of Human-Computer Interaction , 16 (1), 23-38.

[15] Grossman, T., & Walsh, J. (2004). Avoiding the Pittfalls of ERP System Implementation. Information System Management , 21 (2), 38-42.

[16] Gibson, N., Holland, C., & Light, B. (1999). A Case Study of Fast Track SAP R/3 Implementation at Guilbert. Electronic Market , 9 (3), 190-193.

[17] Jarrar, F., Al-Mudimigh, Y., & Zairi, M. (2000). ERP implementation critical success factor- The role and impact of business process management. The 2000 IEEE International Conference on Management of Innovation and Technology, ICMIT2000.

[18] Sabau, G., Munten, M., Bologa, A., & Surcel, T. (2009). An Evaluation Framework for Higher Education ERP Systems. WSEAS Transactions on Computers , 8 (11), 1790-1799.

[19] Light, B., & Holland, C. (1999). Global Enterrpise Resource Planning Implementation. 32nd Annual Hawaii International Conference on System Sciences (p. 10). Hawaii: Proceeding of HICC 32.

[20] Ahmad, R.M.T.R.L., Othman, Z. and Mukhtar, M. (2011) 'Campus ERP implementation framework for private institution of higher learning environment in Malaysia', WSEAS Transactions on Advances in Engineering Education, Vol. 1, No. 8, pp.1–12.

[21] Ngai, E., Law, C., & Wat, F. (2008). Examining the critical success factors in adoption of enterrpise resource planning. Computer in Industry , 59 (6), 548-564.

[22] Marsh. (2000). The implementation of Enterrpise Resource Planning systems in small-medium manufacturing enterrpises in south-east Queensland: A case study approach. Proceeding of the 2000 IEEE Conferance on Management of Innovation and Technology, (pp. 592-597).

[23] Hoegl, M., & Gemuenden, H. (2001). Teamwork Quality and the Success of Innovative Projects: A Theoretical Concept and Empirical Evidence. Organization Science , 12 (4), 435-449.

[24] Nah, F. F.-H., Zuckweiler, K. M., & Lau, J. L.-S. (2003). ERP Implementation: Chief Information Officers perception of Critical Success Factors. International Journal of Human-Computer Interactions , 16 (1), 5-22.

[25] Ahmad, R.M.T.R.L., Othman, Z. and Mukhtar, M. Integrating CSF and Change Management for Implementing Campus ERP System'. International Journal of Information System and Change Management. Vol.6, No.3, 2013. pp.189-204.

[26] Yusuf, Y., Gunasekaran, A., & Canglin, W. (2006). Implementation of enterprise resource planning in China. Technovation , 26 (12), 1324-1336.

[27] Lewin, K. (1939). Field Theory and Experiment in social phsychology: Concepts and Methods. The American Journal of Sociology , 44 (6), 868-896.

[28] Skok, W., & Legge, M. (2001). Evaluating enterrpise resource planning (ERP) systems using an interpretive approach. Proceeding of the 2001 ACM SIGCPR conference on computer personnel research, (pp. 189-197). California.

[29] Muscatello, J., Small, M., & Chen, I. (2003). Implementing enterrpise resource planning (ERP) systems in small and midsize manufacturing firms. Journal of Operation & Production Management , 23 (8), 850-871.

[30] Shebab, E., Sharp, M., Supramaniam, L. S., & and Spedding, T. (2004). Enterprise Resource Planning: An integrative review. Business Process Management Journal , 10 (4), 359-386.

[31] Markus, M., Axline, S., Petrie, D., & Tanis, C. (2000). Learning from adopters experiences with ERP: Problem encountered and success achieved. Journal of Information Technology , 15, 245-265.

[32] Scheer, A., & Habermann, F. (2000). Enterrpise Resource Planning: Making ERP a success. Communication of the ACM , 43 (4), 57-61.

[33] Adam, F., & O'Doherty, P. Lessons from enterprise resource-planning implementations in Ireland: towards smaller and shorter ERP projects. Journal of Information Technology, 15, 2000, pp. 305-316.