

Uncertain Supply Chain Management

homepage: www.GrowingScience.com/uscm

An investigation of the role of human resource management on enterprise resource planning

Samiyeh Baddad and Somayeh Hozouri*

Department of Management, Islamic Azad University, South Tehran Branch, Tehran, Iran

CHRONICLE

Article history:

Received June 10, 2013
 Received in revised format
 25 August 2013
 Accepted September 26 2013
 Available online
 October 14 2013

Keywords:

ERP
 Factor analysis
 Human resource management

ABSTRACT

This paper presents an investigation on the role of human resource management on enterprise resource planning in one of higher educational systems in city of Tehran, Iran. The proposed study designs a questionnaire in Likert scale consists of 30 questions, distributes it among some Iranian experts and analyzes it based on principal component analysis. During the survey, the number of questions is reduced to 20. Cronbach alpha is calculated as 0.86 and Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Approx. Chi-Square are 0.716 and 1169, respectively. Based on the results of our survey, we have derived five factors including environment analysis, infrastructure components, managerial decisions, integrated information systems and control components.

© 2014 Growing Science Ltd. All rights reserved.

1. Introduction

Enterprise resource planning (ERP) is one of the most important issues, which could create improvement on organizational efficiency (Oztemel et al., 2011; Azevedo et al., 2012). However, many ERP implementations may fail because of lack of support from human resources within organizations. There are literally various studies associated with ERP implementation. Boltena and Gomez (2012), for instance, presented a case study of an ERP system implementation by a medium company in Ethiopia named Mesfine Industrial Engineering (MIE) Pvt. Ltd., which has recently adopted and implemented an ERP system. They examined key dimensions of implementation of ERP system within MIE and performed an in-depth investigation at the issues behind the process of ERP implementation by concentrating on business and technical as well as cultural issues. The case study also looked at the implementation risks and reported how MIE had coped with the typical challenges that most medium organizations faced when implementing an ERP system. Pacheco-Comer and González-Castolo (2012) reported there was a relationship between size of the company and the amount of investment.

* Corresponding author. Tel.: +98 912 536 7924
 E-mail addresses: saho84@rocketmail.com (S. Hozouri)

Asl et al. (2012) identified and ranked the important factors influencing on selecting ERP system using the combined Delphi and Shannon Entropy approach. They identified the most important criteria of ERP selection that organizations should consider in the process of their selection, through a comprehensive investigation on the past literature and researches and including the exports' viewpoints. They detected different factors including cost, software quality, vendor and software capability as the main factors, which should be considered by the organizations.

Rouhani and Ravasan (2013) stated that achieving a proper level of ERP success depends on different factors associated with an organization or project environment and they discussed the idea of forecasting ERP post-implementation success based on organizational profiles. They developed an expert system by exploiting the Artificial Neural Network (ANN) technique to articulate the relationships between some organizational factors and ERP success. Azad et al. (2013) presented an empirical investigation to find important factors influencing ERP implementation in one of the biggest Iranian automakers named Iran Khodro. They derived eight factors including intelligence information, customer comfort, structure oriented, resource management, process oriented, customer oriented, flexible structure and knowledge management. Karande and Chakraborty (2012) solved two ERP system selection problems using fuzzy multi-objective optimization on the basis of ratio analysis (MOORA) method and it was observed that in both the cases, SAP (Khoury et al., 2012) was the best solution.

2. The proposed study

This paper presents an investigation on the role of human resource management on enterprise resource planning in one of higher educational systems in city of Tehran, Iran. The proposed study designs a questionnaire in Likert scale consists of 30 questions, distributes it among some Iranian experts and analyzes it based on principal component analysis. During the survey, the number questions are reduced to 20. Cronbach alpha is calculated as 0.86 and Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Approx. Chi-Square are 0.716 and 1169, respectively. Fig. 1 demonstrates the results of Scree plot.

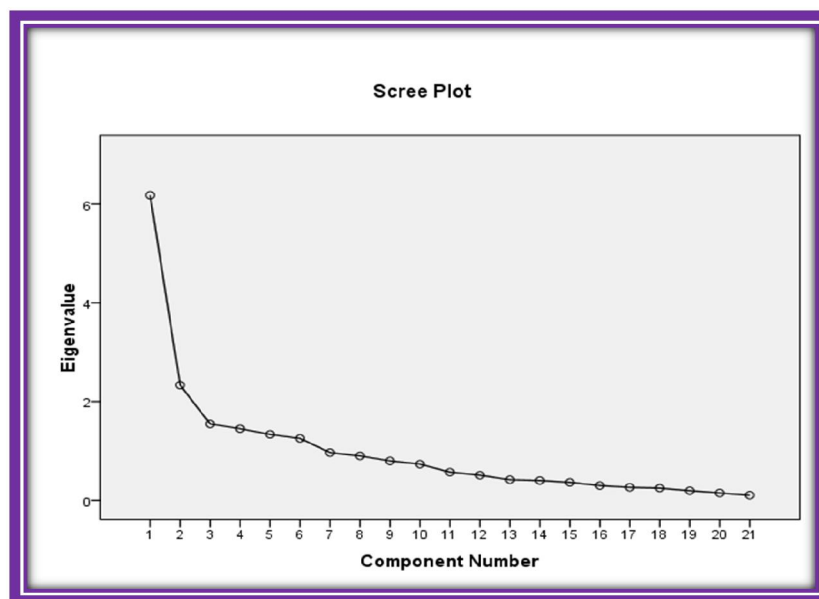


Fig. 1. The summary of Scree plot

As we can observe from the results of Fig. 1, there are five factors, which could be extracted for further studies. In addition, as we can observe from the results of communalities given in Table 1, most factors are well above the minimum acceptable level of 0.5. Table 2 demonstrates the results of factor analysis on these factors.

Table 1
The summary of communalities

	Communalities	
	Initial	Extraction
VAR00002	1.000	.654
VAR00003	1.000	.787
VAR00005	1.000	.701
VAR00006	1.000	.585
VAR00009	1.000	.481
VAR00013	1.000	.657
VAR00014	1.000	.628
VAR00015	1.000	.764
VAR00016	1.000	.798
VAR00017	1.000	.783
VAR00018	1.000	.710
VAR00019	1.000	.492
VAR00020	1.000	.738
VAR00021	1.000	.715
VAR00024	1.000	.654
VAR00025	1.000	.698
VAR00026	1.000	.742
VAR00027	1.000	.713
VAR00028	1.000	.499
VAR00029	1.000	.445
VAR00030	1.000	.851

Table 2
The summary of principal component analysis after rotation

Component	Total Variance Explained								
	Total	Initial Eigenvalues % of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %	Rotation Sums of Squared Loadings Total	% of Variance	Cumulative %
1	6.178	29.419	29.419	6.178	29.419	29.419	3.338	15.894	15.894
2	2.333	11.109	40.528	2.333	11.109	40.528	2.751	13.098	28.992
3	1.547	7.367	47.895	1.547	7.367	47.895	2.380	11.334	40.326
4	1.450	6.906	54.802	1.450	6.906	54.802	2.282	10.868	51.194
5	1.335	6.359	61.161	1.335	6.359	61.161	1.924	9.163	60.357
6	1.253	5.968	67.129	1.253	5.968	67.129	1.422	6.771	67.129
7	.966	4.599	71.727						
8	.899	4.281	76.008						
9	.797	3.797	79.806						
10	.732	3.485	83.291						
11	.569	2.712	86.002						
12	.508	2.420	88.422						
13	.416	1.982	90.404						
14	.400	1.907	92.310						
15	.363	1.727	94.037						
16	.299	1.423	95.460						
17	.263	1.253	96.713						
18	.247	1.177	97.890						
19	.194	.923	98.813						
20	.147	.701	99.514						
21	.102	.486	100.000						

Based on the results of our survey, we have derived five factors including environment analysis, infrastructure components, managerial decisions, integrated information systems and control components.

3. The results

In this section, we present details of our findings on five influencing factors.

3.1. The first factor: Environment analysis

The first factor is associated with environment analysis. Table 3 demonstrates details of our study. As we can observe from the results of Table 3, “Facilitating the flow of information” is the most important factor, followed by “Having completely automated systems”.

Table 3

The summary of factors associated with environment analysis

Option	Factor weight	Eigenvalues	% of variance	Accumulated
Having completely automated systems	.775			
Facilitating the flow of information	.803	2.489	62.223	62.223

Cronbach alpha =0.82

3.2. The second factor: Infrastructure components

Infrastructure components are the second important factors and they include three factors, which are summarized in Table 4 as follows,

Table 4

The summary of factors associated with infrastructure components

Option	Factor weight	eigenvalues	% of variance	Accumulated
Completion times of projects	.728			
Organization budget	.746	2.031	50.767	50.767
Upgrade as the primary objective	.726			

Cronbach alpha =0.69

According to the results of Table 4, “organization budget” is number one priority followed by “completion times of projects” and “Upgrade as the primary objective of organization”.

3.3. The third factor: Managerial decisions

Managerial decisions other important factors with five items summarized in Table 5.

Table 5

The summary of factors associated with managerial decisions

Option	Factor weight	eigenvalues	% of variance	Accumulated
Providing solutions	.853			
Management skills improvement	.863	2.093	69.762	69.762
Resources	.753			
Analysis of responses	.813			
Actual times of project completions	.846			

Cronbach alpha =0.738

According to the results of Table 5, “Management skills improvement” is the most important component in organizational assessment followed by “Providing solutions”, “Actual times of project completions”, “Analysis of responses” and “Resources”.

3.4. The fourth factor: Integrated information system

Integration information system is another important factor with four items summarized in Table 6. According to the results of Table 6, “Administration and support systems” is the most important component in organizational assessment followed by “Databases”, “Quality of supporting systems” and “Recording information”.

Table 6

The summary of factors associated with integrated information system

Option	Factor weight	eigenvalues	% of variance	Accumulated
Databases	.853			
Administration and support systems	.863	2.153	70.784	70.784
Recording information	.751			
Quality of supporting systems	.823			

Cronbach alpha =0.79

3.5. The fifth factor: Control components

Communication strategy is another important factor with two items summarized in Table 7. According to the results of Table 7, “Hierarchy structure” is the most important component in control components followed by “Reducing costs”.

Table 7

The summary of factors associated with organizational development

Option	Factor weight	eigenvalues	% of variance	Accumulated
Reducing costs	.853			
Hierarchy structure	.863	3.093	80.789	80.789

Cronbach alpha =0.79

3. Conclusion

This paper has presented an investigation on the role of human resource management on enterprise resource planning in one of higher educational systems in city of Tehran, Iran and the study has determined five factors including environment analysis, infrastructure components, managerial decisions, integrated information systems and control components. The first factor was associated with environment analysis where “Facilitating the flow of information” was the most important factor, followed by “Having completely automated systems”. Infrastructure components are the second important factors and they include three factors where “organization budget” was number one priority followed by “completion times of projects” and “Upgrade as the primary objective of organization”. Managerial decisions other important factors with five items where “Management skills improvement” is the most important component in organizational assessment followed by “Providing solutions”, “Actual times of project completions”, “Analysis of responses” and “Resources”. Integration information system is another important factor with four items where “Administration and support systems” is the most important component in organizational assessment followed by “Databases”, “Quality of supporting systems” and “Recording information”. Finally, communication strategy was the important factor with two items where “Hierarchy structure” is the most important component in control components followed by “Reducing costs”.

Acknowledgment

The authors would like to thank the anonymous referees for their construction comments on earlier version of this work.

References

- Asl, M. B., Khalilzadeh, A., Youshanlouei, H. R., & Mood, M. M. (2012). Identifying and ranking the effective factors on selecting Enterprise Resource Planning (ERP) system using the combined Delphi and Shannon Entropy approach. *Procedia-Social and Behavioral Sciences*, 41, 513-520.
- Azad, N., Shadmanfard, A., & Zarifi, S.F. (2013). An exploration study to find important factors influencing on enterprise resource planning. *Management Science Letters*, 3(9), 2405-2410.
- Azevedo, P. S., Romão, M., & Rebelo, E. (2012). Advantages, limitations and solutions in the use of ERP systems (Enterprise Resource Planning)—A case study in the hospitality industry. *Procedia Technology*, 5, 264-272.
- Boltena, A. S., & Gomez, J. M. (2012). A successful ERP implementation in an Ethiopian company: A case study of ERP implementation in Mesfine industrial engineering Pvt. Ltd. *Procedia Technology*, 5, 40-49.
- Karande, P., & Chakraborty, S. (2012). A Fuzzy-MOORA approach for ERP system selection. *Decision Science Letters*, 1(1), 11-21.
- Khoury, S., Jenab, K., & Staub, S. (2012). Faculty perceptions of the integration of SAP in academic programs. *Management Science Letters*, 2(4), 1047-1052.
- Oztemel, E., Arslankaya, S., & KorkusuzPolat, T. (2011). Enterprise knowledge management model (EKMM) in strategic enterprise resource management (SERM). *Procedia-Social and Behavioral Sciences*, 24, 870-879.
- Pacheco-Comer, A. A., & González-Castolo, J. C. (2012). An empirical study in selecting Enterprise Resource Planning Systems: The relation between some of the variables involve on it. Size and Investment. *Procedia Technology*, 3, 292-303.
- Rouhani, S., & Ravasan, A. Z. (2013). ERP success prediction: An artificial neural network approach. *Scientia Iranica*, 20(3), 992–1001.