

A Study of Successful ERP – From the Organization Fit Perspective

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ABSTRACT

Many enterprises implemented Enterprise Resource Planning (ERP) systems as a bedrock strategy with a view to integrating all data and bringing an organization into a joint system. However, most enterprises in an attempt to carry out ERP often end up in failure and it seems the probability of the mishaps is considerably high. This paper applies the Organization Fit Theory to examine an organization characters and features beforehand can present a clearer picture for the ERP designers. This paper is to sort out key variables in Organization Fit corresponding to successful ERP cases. Questionnaires are sent through conventional postal means and electronic networks. Its samplings include top 500 enterprises in Taiwan with data regarding successful working experience of ERP as well as impacts on the ERP process as a result of the related variables. The research result shows that organizational fit of ERP has a positive influence on implementation success. The research result also shows that none of ERP adaptation, process adaptation, and organizational resistance has any moderating effect on organizational fit of ERP and ERP implementation success.

Keywords: organization fit, enterprise resource planning system (ERP)

1. INTRODUCTION

As it can help enterprises to integrate internal business information and introduce business process of world class enterprises, the application of Enterprise Resource Planning (ERP) systems is mandatory to equip the enterprises with capabilities to meet the fast changing requirement of customers. It is a very complicated job to implement an ERP system because it may cause alteration of business processes, reassignment of responsibility, and even the adaptation of organization structure. In addition, the implementation takes a long time and spends very high estimated cost. Davenport (1998) addressed that not all enterprises are successful in applying ERP system, and there is no lack of failure cases. The enterprise' competitiveness will be hurt badly due to lack of timely integrated information once the ERP implementation is failed.

The concept of "fitness" was originally defined within the domain of organization theory, but now many researches have extended the concept of "fitness" to the field of information systems (Gordon and Miller, 1976; Ewusi-Mensah, 1981; Ein-Dor and Segev, 1982; Daft et al., 1987; Leifer, 1988; Raymond et al, 1994; Goodhue and Thompson, 1995). Weill and Olson (1989) made a study on the research essays that concerns the application of Contingency Theory to Management Information System (MIS), and found that over 70% of these essays kept the following mode: If there is a good fitness among the contingency factors (such as strategy, structure, technology, etc.), the organization would have a good performance.

According to the research model of Hong and Kim (2002) and the related factors of other implementation results reported in the literatures, this research investigates the relations between the organizational fit of ERP system and the success of ERP implementations.

2. LITERATURE REVIEW

Organizational Fit of ERP

Kanellis et al. (1999) suggested that in recent 30 years, the fitness between the organization and its contingency factors (such as strategy, structure, process, technology, environment, etc.) is the cornerstone for many theoretical frameworks and strategy management researches. Till now, many researchers even find that because the multiple characteristics of an organization will exert different effects in different environments, the current researchers would like to focus on some specific fitness.

Weill and Olson (1989) classified these information system related contingency factors into the following aspects: strategy, structure, scale, environment, technology, task feature, and personal characteristics.

Henderson and Venkatraman (1993) ascribed the reason why IT investment fails to that information technology strategy can not be aligned with enterprise strategy. For this reason, strategy moderating model is developed to emphasize the fitness among enterprise strategy, information technology strategy, fundamental structure and process of organization. Gattiker and Goodhue (2000) suggested that ERP system is a kind of software used to integrate the process of each functional

department in the entire enterprise. If there is a strong dependency among different functional departments of an enterprise, the ERP system will much fit the requirement of enterprise general process. On the contrary, the discrepancy between the process of each functional department and ERP software will decrease the compatibility between ERP software and the operation requirement of enterprise. Soh et al. (2000) pointed out that the unfitness of ERP resulted from the specific business process and requirement of individual enterprise, and such requirement can not well cooperate with the functions provided by ERP system. Swan et al. (1999) also pointed out that if there are incompatible problems between enterprises, it is because that the organization and the enterprise system software manufacturer have different focuses.

The research results described in previous paragraph can induce that the organizational fit of ERP is one of the determinants to the success of ERP implementation. Hong and Kim (2002) also developed a research model for successful ERP implementation from the angle of organizational fit, and induced that organizational fit of ERP produced an obvious influence on the successful application of ERP systems.

Contingency Factors for ERP Implementation

An importance factor for the success of ERP implementation is that the enterprise should choose an ERP system that is suitable for its own business processes (Everdingen et al. 2000). When the enterprise needs to make some adjustment because its own business process is not supported by the ERP system, such adjustment can be either an adjustment of the business process of the enterprise or the tailoring of the software package. Adjusting the business process is a preferable choice (Hammer and Stanton, 1999; Volkoff, 1999a). Soh et al. (2000) thought that in Asia, the relation of organizational fit may be worse, because ERP systems are all structured based on European and American large scale business process, which is greatly different from that of Asia. The adaptability between IT and user is also a key factor for ERP implementation. Most application software implementations focus on process adaptation (Lucas et al. 1988; Gross and Ginzberg, 1984; Gattiker and Goodhue, 2000).

In this study, we adopt the concept of organizational fit of ERP and empirically examine its impact on ERP implementation success along with the moderating roles of ERP implementation contingency variables such as ERP adaptation, process adaptation, and organizational resistance.

ERP adaptation: As for the function, ERP system is an enterprise reconstruction resolution plan, used to make a thorough estimation and integration for enterprise management strategy, business process and organizational mechanism with the help of information technology. ERP system manufacturer supposes that ERP system is the optimal application practice and most organizations can adapt themselves to the organizational background of ERP system (Swan et al. 1999)

Process adaptation: In order to introduce the ERP system, the enterprise must moderate its business process and management method according to the requirement of ERP system, so that the expected effect can be achieved. In order to apply the optimal practices, the enterprise may need to moderate the business process of the organization, thus raise the necessity of business process reengineering. According to Hammer and Champy (1993), business process reengineering

(BPR) helps to redesign the enterprise business process based on a fundamental analysis in order to improve the performance.

Organizational resistance: No matter how the revolution proceeds, the main target appeal in the revolution is the employees. For most employees, because they have been accustomed to the past traditional business mode, once encountering a revolution, they will be unwilling to cooperate and will resist in order to keep a stable condition (Robbins 1996). Loh’s research (1998) implied that in order to achieve the revolution target, the enterprise must first try to dispel the employees’ resistance against the revolution. The resistance against revolution is mainly caused by the following factors: (1) over-decisive mind; (2) narrow focus; (3) bad education background; (4) special skills are challenged; (5) rights are threatened; (6) habit and feeling of security; (7) economic factors; (8) lack of cognition; (9) fear of unclear future.

3. RESEARCH MODEL AND HYPOTHESES

The research model in this essay is mainly the research model designed by Hong and Kim (2002). In the model, the independent variable is organizational fit of ERP; the dependent variable is the introduction result; and the moderator variable is the ERP adaptation, process adaptation, and organizational resistance. See the research model in Figure 1. According to the research framework and theoretical perspective, this research puts forward the following hypotheses.

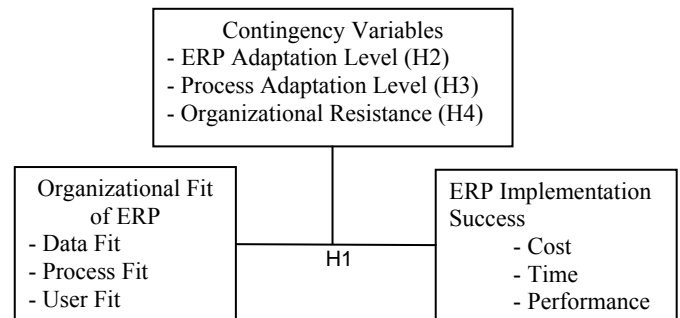


Figure 1 - Research model.

ERP Implementation Success

It is a significant challenge to dispose the differences between ERP functions and organizational requirements (Bancroft et al., 1998; Volkoff, 1999; Soh et al. 2000). In assessing the result, the ERP organizational fit is very important, because in order to meet the requirement of ERP system, it is necessary to modify the organization or the ERP system or both (Pereira 1999). Therefore, hypothesis 1 is provided:

Hypothesis 1 (H1): Organizational fit of ERP is positively related to ERP implementation success.

ERP Adaptation

In tailoring the ERP system, special functions are added to the ERP system. Among them, some may reduce the resistance, training necessity and organizational adaptability (Bingi et al. 1999). The system adaptation in the aspect of information technology mainly includes three classifications (Glass 1998): customization, extending function, and system modification. Customization means selecting related process and specific

parameters to adapt to the organizational process. It does not change the original code of the system. Extending function means that when the system manufacturer finds the provided function can not conform to the actual requirement, the manufacturer allows the user applying the current system and the to-be-introduced ERP system cooperatively. System modification involves the alteration of system original code. In this research, because the system customization does not alter the system, the ERP moderating model is limited to extending function and system modification. In H1 hypothesis, the organizational fit of ERP produces an obvious positive influence on the introduction result. If the adaptation is low, the influential relation between organizational fit of ERP and ERP implementation success will be strengthened, because a lower ERP adaptation will less influence the original organizational fit of ERP. High ERP adaptation will help to decrease the gap between ERP system and organizational requirement, reduce the effect of organizational fit of ERP. Therefore, hypothesis 2 is provided:

Hypothesis 2 (H2): There is an interaction effect of the level of ERP adaptation on the relationship between organizational fit of ERP and ERP implementation success.

Process Adaptation

Davenport (1998) thought that when the enterprise introduces an enterprise system, the business process will be greatly changed. When the implementation of ERP system involves adaptability to current business process standard or other organizational modules (such as organizational structure, measurement and awards system, organizational culture, training, etc), necessary alteration should be made (Hammer 1999). Literatures about organization revolution management emphasize that the adaptability process of an organization should consider the organization revolution of management. According to Grover et al. (1995), revolution management is an important factor for BPC implementation.

High ERP adaptation will help to decrease the gap between ERP system and organizational requirement, reduce the effect of organizational fit of ERP. Therefore, hypothesis 3 is provided:

Hypothesis 3 (H3): There is an interaction effect of the level of process adaptation on the relationship between organizational fit of ERP and ERP implementation success.

Organizational Resistance

When the organizational resistance is lower, this research thinks that the relation between ERP organizational fit and the implementation result will be stronger; while when the organizational resistance is higher, this research thinks that the relation between ERP organizational fit and the introduction result will be weaker. Therefore, hypothesis 4 is provided:

Hypothesis 4 (H4): There is an interaction effect of the organizational resistance on the relationship between organizational fit of ERP and ERP implementation success.

4. RESEARCH METHOD

Measures

This research aims to understand the transactional effect between the organizational fit of ERP and ERP implementation

success. In this research model, there are five variables and user basic data: implementation success, organizational fit of ERP, ERP adaptation, process adaptation, and organizational resistance. Their operational definitions are described as follows:

1) Implementation success:

Operational definition: The degree of deviation from project goal in terms of expected cost, time, system performance and benefits.

Measurement: Refer to the scale of Hong and Kim (2002). Implementation result is the dependent variable and reverse scale of this research, measured by Likert seven point scale and 4 questions.

2) Organizational fit of ERP:

Operational definition: The degree of alignment between ERP model and organization needs in terms of data, process and user interface.

Measurement: Refer to the scale of Hong and Kim (2002). ERP organizational fit is the independent variable of this research, measured by Likert seven point scale and 11 questions.

3) ERP adaptation:

Operational definition: The extent of efforts and time spending in ERP alteration to align with organizational process needs except for ERP customization.

Measurement: Refer to the scale of Hong and Kim (2002). ERP program adaptation is a moderating variable of this research, measured by Likert seven point scale and 6 questions.

4) Process adaptation:

Operational definition: The extent of efforts and time spending in process change to align with ERP.

Measurement: Refer to the scale of Hong and Kim (2002). Process adaptation is a moderating variable of this research, measured by Likert seven point scale and 5 questions.

5) Organizational resistance:

Operational definition: The strength of negative organizational response to ERP implementation.

Measurement: Refer to the scale of Hong and Kim (2002), organizational resistance is a moderating variable of this research, measured by Likert seven point scale and 5 questions.

6) Demographic statistics:

To know the basic data and sample distribution of the interviewees, including served industry, years of company establishment, employee population, company average annual turnover, information software, the percentage of IT personnel expense to the total revenue, population of information department, year of using ERP system, gender, education background.

Subject

This research mainly aims to investigate the relation between organizational fit of ERP and the success of ERP implementation. Therefore, the objects investigated are the top 500 enterprises in Taiwan that have implemented ERP system. We constructed the Internet questionnaire through my3q website. The questionnaire was also emailed to the ERP implementation project managers of the top 500 enterprises. The project managers were also asked to transfer the questionnaire to their end users. Totally, 500 emails were

successfully sent out; 159 questionnaires were filled through Internet, and 157 questionnaires were valid ones; thus the effective recovery rate was 31.4%.

The related statistical methods used in this research include descriptive statistics, factor analysis, correlation analysis, and moderated regression analysis. The software tool SPSS 12 is applied to assist the analysis.

Characteristics of Respondent Firms

63% of the respondent firms are from manufacturing industry; 63.1% have been established for over 20 years; 44.6% have over 1001 employees; and 36.9% have over 5 billions NT dollars annual revenue. 61.8% have utilized ERP systems for more than 4 years. The descriptive statistics for the basic information of the recovered samples is provided in Table 1

Table 1- Profile of respondent firms

Interval Scale	Frequency	Percentage
Manufacturing	74	47.1
Manufacturing-Electronics	24	15.3
Manufacturing-Vehicle	1	0.6
The transport industry	3	1.9
Information Services	26	16.6
Retail sales	7	4.5
Financial services industry	5	3.2
Government units	1	0.6
Other	16	10.2

Reliability and Validity of Research Constructs

Reliability is used to measure the consistency and stability of the result. The reliability can be reflected as the testing result keeps consistent at any time under an unchanged external condition (Straub, 1989). In this research, coefficient Cronbach α is used to stand for the reliability of the questionnaire. The coefficient Cronbach α of each construct in this research is shown in Table 2. Table 2 indicates that all Cronbach α values are between 0.78 and 0.96, which are all within the good range, so this questionnaire has consistency and stability (Cuieford, 1965).

Table 2 - Reliability of the measurement

Measure	Cronbach's alpha
Implementation success	0.783
Organizational fit of ERP	0.957
ERP adaptation	0.956
Process adaptation	0.945
Organizational resistance	0.918

Validity analysis: In this research, the validity is tested through principal component analysis and factor extraction. The factors are extracted according to three parts: independent variable, dependent variable, and moderating variable. There are totally 157 samples. Obtain those whose Eigen value is over 1 and factor loading is over 0.5, and use Varimax to conduct orthogonal rotation to make the meaning of these factors clearer and more obvious.

For **independent variables**, there are a total of 11 questions which structure a factor construct after principal component analysis. The appropriateness measure for KMO (Kaiser-Meyer-Olkin) is 0.915. The component matrix is shown in

Table 3. This construct is named as organizational fit of ERP. The accumulated explanatory variable is 70.07%.

Table 3 - Summary of measurement scales

Comp.	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	7.708	70.072	70.072
2	0.883	8.028	78.101
3	0.774	7.033	85.134
4	0.468	4.254	89.388
5	0.252	2.286	91.674
6	0.227	2.068	93.742
7	0.182	1.654	95.396
8	0.147	1.334	96.730
9	0.137	1.249	97.979
10	0.131	1.189	99.168
11	0.092	0.832	100.000
Extraction Sums of Squared Loadings			
Total : 7.708			
% of Variance : 70.072			
Cumulative % : 70.072			

Extraction method: principal component analysis.

For **dependent variables**, there are a total of 4 questions which structure a factor construct after principal component analysis, Varimax rotation, and component matrix. The KMO value is 0.637. The produced construct is the result of ERP implementations. The accumulated explanatory variable is 60.98% (see Table 4).

For **moderating variables**, there are a total of 16 questions. After principal component analysis and component matrix, those with a factor loading of over 0.5 are chosen as reference for the naming. Totally 3 factor constructs are formed. The KMO value is 0.893.

Table 4 - Summary of measurement scales

Comp.	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	2.439	60.979	60.979
2	0.965	24.125	85.103
3	0.383	9.569	94.672
4	0.213	5.328	100.000
Extraction Sums of Squared Loadings			
Total : 2.439			
% of Variance : 60.979			
Cumulative % : 60.979			

Extraction method: principal component analysis.

Based on the result of principal component analysis, combine the system adaptation and process adaptation in the questionnaire designed according to the research model of Hong and Kim (2002) into the single construct of program adaptation. Then, the 3 factor constructs are respectively ERP adaptation, process adaptation, and organizational resistance. The accumulated explanatory variable is 81% (see Table 5).

Table 5 - Summary of measurement scales

C	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumul . %	Total	% of Variance	Cumul . %
1	7.638	47.738	47.738	5.048	31.548	31.548
2	3.026	18.913	66.651	4.113	25.704	57.252
3	2.297	14.354	81.005	3.800	23.752	81.005
4	0.544	3.399	84.403			
5	0.456	2.851	87.254			
6	0.376	2.348	89.602			
7	0.301	1.880	91.483			
8	0.268	1.675	93.158			
9	0.222	1.386	94.544			
10	0.171	1.069	95.613			
11	0.167	1.043	96.656			
12	0.145	0.909	97.565			
13	0.125	0.783	98.348			
14	0.101	0.634	98.982			
15	0.092	0.575	99.557			
16	0.071	0.443	100.00			

Extraction method: principal component analysis.

Correlation analysis: In order to understand the relation of organizational fit of ERP and the success of ERP implementation, this research uses correlation analysis method to analyze the correlation and change direction of two variables. Then, Pearson product-moment correlation is used to check the result.

The analysis result is shown in Table 6. It is found that in the corrected matrix, the correlation of independent variable (organizational fit of ERP) and dependent variable (implementation success) is significant under the obvious level of 0.05. In addition, the multi-co-linearity problem that should often be considered in the analysis of common regression model can be avoided, because in this research we have only one independent variable of organizational fit of ERP. Although the correlation of moderating variable and independent variable is significant, there is no multi-collinearity problem because the correlation coefficient is less than ±0.5, (Hair et. al., 1998).

Table 6 - Correlations matrix between variables

	1	2	3	4	5
1.Implementation success	1.000				
2.Organizational fit of ERP	0.272**	1.000			
3.ERP adaptation	-0.238**	0.040	1.000		
4.Process adaptation	0.344**	-0.018	0.000	1.000	
5.Organizational resistance	0.457**	0.163*	0.000	0.000	1.000
* : p-value < 0.05					
** : p-value < 0.01					

Moderated regression analysis: In this research model, we try to discuss how the three moderating variables of ERP adaptation, organizational resistance, and process

adaptation influence the relation of ERP implementation success and organizational fit of ERP. This research would apply Moderated Regression Analysis to check the prediction ability of the transactional effect for the equation (Zedeck, 1971). That is to say, use the independent variable to make regression analysis for dependent variable; and then take the independent variable into interactive item of the moderating variable and the original independent variable to check whether the explanatory ability has been improved. If the β value of the interactive item in the regression equation is remarkable, it means that the transactional effect of moderating variable exists (Kleinbaum et al., 1998). Then, we can judge its disturbance according to the positive-negative direction and value of β .

Based on Subgroup and MRA (Moderated Regression Analysis), Sharma et al. (1981) established a framework used to define each moderating variable. The steps are as follow:

- 1) Confirm whether it is really a hypothesis for moderating variable.
- 2) If it is real, moderating variable will influence the original contingency relationship through two methods: (1) indirectly influence the strength of the original relationship through the error term of the Subgroup. Such moderating variable is called as relative moderating variable (Homologizer), which is caused by inappropriateness of the questionnaire questions. At this moment, it is necessary to redesign an appropriate questionnaire. Besides, it may also be caused by such possibility that when the independent variables are classified into Subgroup, the correlation of the classification standard and the discussed subjects are too low. (2) Influence the original model through the transactional effect between moderating variable and independent variable.
- 3) If we first use transactional effect to influence the research model, and then determine whether it is a quasi variable or a pure moderator according to the correlation of moderating variable and independent variable. The moderating variable that has transactional effect on independent variable will influence the structure of the original research model with the transactional effect. At this moment, it is necessary to moderate the value and direction of the coefficients of moderating variables in the moderated regression model, in order to explain their different influences on the original contingency relationship.

Based on moderated regression analysis method (Kleinbaum et al., 1998) and the moderating variable classification frame addressed by Sharma et al. (1981), this research discusses the influence of each moderating variable on the relation of organizational fit and dependent variable. The analysis results are as follows:

The moderated regression analysis result for organizational fit of ERP and implementation success is shown in Table 7. Under the obvious level of 0.05, the three moderating variables of ERP adaptation ($\Delta R^2 = 0.062, p\text{-value} = 0.001$), process adaptation ($\Delta R^2 = 0.115, p\text{-value} = 0.000$), and organizational resistance ($\Delta R^2 = 0.175, p\text{-value} = 0.000$) has an obvious influence on implementation success and organizational fit of ERP.

Table 7 - The test results of the moderated regression effects

Regression model ^a	Beta (inter-action)	P (inter-action)	R ²	p (model)	ΔR ²
ORGFIT			0.074	0.001**	0.074
ORGFIT+ERPA DPT+interaction	0.117	0.038*	0.136	0.001**	0.062
ORGFIT+PROA DPT+interaction	0.008	0.086	0.251	0.000**	0.115
ORGFIT+ORGRST+interaction	-0.035	0.491	0.426	0.000**	0.175
* : p-value < 0.05					
** : p-value < 0.01					
^a ORGFIT, organizational fit of ERP;ERPADPT, ERP adaptation; PROADPT, process adaptation; ORGRST, organizational resistance.					

5. RESULTS

According to the result of correlation analysis and moderated regression analysis, this research verifies the hypotheses made in this research. The verification results are as follows:

Organizational Fit of ERP

H1: Organizational fit of ERP is positively related to ERP implementation success.

Verification result: Support

Explanation: From correlation analysis result in Table 6, we can see that when the correlation coefficient of organizational fit of ERP and implementation success is lower than the conspicuous level of 0.272 (p-value <0.01), organizational fit of ERP and implementation success have an obvious positive relation. This discovery conforms to the organizational fit of ERP and ERP implementation success research result suggested by Hong and Kim (2002). It means that when organizational fit of ERP increases, the ERP implementation success will be positively affected.

ERP Adaptation

H2: There is an interaction effect of the level of ERP adaptation on the relationship between organizational fit of ERP and ERP implementation success.

Verification result: Not support.

Explanation: From moderated regression analysis result in Table 7, we can see that when the ERP adaptation is lower than the conspicuous level (p-value <0.05), there is a transactional effect on the organizational fit of ERP and the ERP implementation success. From the correlation analysis in table 6, we know that ERP adaptation is irrelevant to organizational fit of ERP (-0.238) and implementation success (0.040). Therefore, in this relation, ERP adaptation is a pure moderator. As ERP adaptation seems to have no moderating effect on the relation, such research result does not conform to the research result of Hong and Kim (2002).

Process Adaptation

H3: There is an interaction effect of the level of process adaptation on the relationship between organizational fit of ERP and ERP implementation success.

Verification result: Not support.

Explanation: From moderated regression analysis result in table 7, we can see that when the process adaptation is lower than the conspicuous level (p-value <0.01), there is no transactional effect on the organizational fit of ERP and the implementation success. From the correlation analysis in table 6, we know that process adaptation is irrelevant to organizational fit of ERP (-0.344) and implementation success (0.018). Therefore, in this relation, process adaptation is a homologizer, between the organizational fit of ERP and implementation success. As process adaptation seems to have no moderating effect on the relation, such research result does not conform to the research result of Hong and Kim (2002). According to Shorma et al. (1981), questions about such moderating variables may be not suitable for study on relation of organizational fit of ERP and implementation success, so it is necessary to develop a new suitable questionnaire.

Organizational Resistance

H4: There is an interaction effect of the organizational resistance on the relationship between organizational fit of ERP and ERP implementation success.

Verification result: Not support.

Explanation: From moderated regression analysis result in Table 7, we can see that when the organizational resistance is lower than the conspicuous level (p-value <0.01), there is no transactional effect on the organizational fit of ERP and implementation success. From the correlation analysis in Table 6, we know that organizational resistance is obvious correlated to organizational fit of ERP (-0.163) (p-value <0.05), and implementation success (0.457) (p-value <0.01). Based on these facts, we suggest that organizational resistance is not a moderator of the base relation but one of the intervening, exogenous, antecedents, suppressor, or predictor variables types. Such research result conforms to the research result of Hong and Kim (2002). Although the improved explanatory ability is weak, it is still helpful to the prediction validation of the whole research model.

6. DISCUSSION

According to the empirical result, this research gets conclusion and provides some research suggestions as reference for future practical application and follow-up researches. In the following, we will discuss the result of empirical analysis step by step.

Research Conclusion

From the angle of organizational fit of ERP and implementation success, this research discusses correlated influential factors, and gets the results that ERP adaptation is a pure moderator for organizational fit of ERP and implementation success; process adaptation is a relative homologized moderator for organizational fit of ERP and implementation success; organizational resistance was not

found to have a moderating effect. In the following are descriptions in light of the verification result of the hypotheses.

Organizational Fit of ERP

The research result shows that organizational fit of ERP has a positive influence on implementation success. This conforms to the Hong and Kim's (2002) research result, which is made in Korea. It is shown that even at different region and different time, the result is the same, and that the organizational fit of ERP really has a positive influence on implementation success. It is also indicated that organizational fit of ERP is actually a significant and non-negligible factor for implementation success of ERP.

It also suggested that when make plan of implementation success of ERP, the program manager in the enterprise should first assess the fitness of the ERP system and the enterprise system, in order to make proper adaptation, including adaptation of ERP system to meet the organizational requirement, and adaptation of enterprise's business process to meet the rules designed by ERP system, thus reduce the risk and users' resistance.

ERP Program Adaptation and Process Adaptation

The research result shows that ERP adaptation and process adaptation does not have any moderating effect on organizational fit of ERP and ERP implementation success. Different from the Hong and Kim's (2002) research result made in Korea, this result shows that the applications of ERP system in Korea and in Taiwan are different. From the sample statistical data, it is suggested that more than 60% enterprises customized the ERP system in order to cooperate with the enterprise's business process. But in fact, it has been a common knowledge that the ERP function can not satisfy individual enterprises at 100%. Generally, there are 2 resolutions: Customization or organizational revolution. The more the software is customized, the more difficult the future maintenance and system update will be. In addition, the customization degree will directly influence the total cost of system establishment. On the contrary, reduction of customization will increase the resistance against organization revolution; relatively speaking, this would increase the risk and profit of system introduction.

At all events, in the stage of ERP system assessment, it is important to select a system that can conform to the industrial characteristics, provide complete functions, and support current and future business process. It is also necessary to carefully estimate the fitness between the enterprise organization and ERP software and reduce the customization degree; then, the enterprise may realize the maximum value of ERP and reduce unnecessary risk.

The correlation coefficients of ERP adaptation and process adaptation against the introduction result are respectively -0.238 and -0.344 (See Table 6). This implies that when an enterprise determines whether to implementation of ERP or not, it is necessary to check the fitness between ERP and the organization first. That the ERP adaptation and process adaptation have an obvious negative correlation to the introduction result shows that the degree of ERP adaptation and process adaptation would involve cost rise of corrective maintenance and modulating maintenance. Then, organization fit of ERP can help to judge whether the program has implementation priority.

Organizational Resistance

Organizational resistance does not have moderating effect on organizational fit of ERP and implementation success. This conforms to Hong and Kim's (2002) research result that organizational resistance does not have a direct correlation to future system maintenance. The organization revolution and process change caused by ERP implementation will lead to involuntary alteration and readjustment of organization right structure and resource. For this reason, organizational resistance would have a moderating effect on the relation of the organizational fit of ERP and implementation success. Therefore, in order to reduce the negative effect of organizational resistance, before the implementation of ERP, the partner members should negotiate and communicate with each other for a common desire and target. The high-level directors of both parties should play an exemplary role in promoting the ERP implementation.

7. CONCLUSIONS AND LIMITATION

This research mainly has 6 limitations:

- 1) Because the questionnaire in this research is a subjective questionnaire, if only 1 or 2 persons in a single company are investigated, there may be a single respondent bias. In the future, the questionnaire can be developed to objective questionnaire by sending several questionnaires to a single company or integrating the qualitative and quantitative data in order to provide a more valid discovery.
- 2) The invested firms which have introduced ERP system for more than 4 years occupy 61.8%. Because it has been a long time since the initial introduction, the introduction initiator may have leaved the company. The current user may be unclear about the introduction situation at that time, so there may be subjective bias. And this part is not further discussed.
- 3) The effective recovery samples of this research are all successful in introducing ERP system and have used it for a period of time, and there is no case of introduction failure. Therefore, there is a risk of Common Method Variance, which is also a limitation of this research. The follow-up researches are suggested to make further revision for the research design and sampling method.
- 4) This research uses perceptive scale instead of objective data to measure the correlated variables. This may cause instability and bias to the variables, so the objectivity and precision of the questionnaire should be improved.
- 5) The topic discussed in the research focus on organizational fit to discuss ERP implementation, so some other external factors are not further discussed, such as the impact of cultural difference among organizations, biased influence of strategic advantages, and so on.
- 6) The samples of this research are limited to enterprises in Taiwan that has introduced ERP system. Further researches are needed if it is expected to extend to other countries or transnational cooperation.

With a different angle from common ERP field, this research focuses on the influence of organization on the implementation success of ERP. This research can provide an analysis framework to help the managers to detect the potential problems before actually step into the introduction stage, and to make strategies for ERP implementation.

The expense on business process reengineering (BPR) management occupies 30~45% of the total expense on ERP implementation (Al-Mashari, 2001). From these phenomena, we can see that BPR management plays an important role in ERP project. Any neglect of BPR management will cause high risk of failure.

Therefore, the enterprises are suggested to take the difference degree of ERP software and the organization as an important reference parameter before select the ERP software package in the decision-making stage. Try to select ERP software that is conformable to the organizational nature, so as to reduce the revolutionary resistance the program risk during the introduction. However, the difference between ERP software and the organization can not totally avoided; moreover, the enterprise may even apply an ERP system that are much nonconforming because of environmental pressure. For this reason, the successful introduction will more or less produce influence negative influence on the organization. Therefore, the manager in charge of the project should be fully equipped with knowledge about the business process and ERP software, carefully analyze the difference degree between ERP software and organization before the ERP system is formally introduced, and make suitable adjustment plan for a revolution, as well as reduce the risk of future system setting fault.

In addition, the project manager should well know the important business process and related detailed knowledge of ERP system, analyze the difference degree between software and organization before introduce ERP system (Soh et al., 2000), and plan suitable methods and adjusting degree for necessary adjustment and alteration (Hong and Kim, 2002). Besides, the analysis of the difference degree between software and organization will also help to reduce the risk of system setting fault and avoid unnecessary software customization. Thereby, as for the practical introduction of ERP system, the manager is suggested to pay attention to organization revolution related subjects and the decisive role of organizational preparation.

Finally, when the organizational resistance is controlled, a highly suitable ERP system will help to gain a good project performance. Accordingly, when introduce the ERP system, the enterprise can provide some trainings and establish remuneration and motivation system to reduce organizational resistance. Furthermore, high-level directors' support mentioned by Bingi et al. (1999) is also a significant factor to reduce organizational resistance. Hence, in order to reduce the negative influence of organization resistance, before the introduction of ERP program, the partner members should negotiate and communicate with each other for a common desire and target. The high-level directors of both parties should play an exemplary role in promoting the ERP introduction.

8. REFERENCES

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