## **ERP Implementation and Knowledge Sharing:** The Convergence of Efficiency and Flexibility

Shu Yi Huang

Department of Information Management National Central University, Taiwan 92423037@cc.ncu.edu.tw

### Abstract

ERP systems are supposed to promote efficiency and eliminate non-value-added activities, hence to gain the competitive advantages. And recently, knowledge is now being seen as the most important strategic resource in organizations, and the management of knowledge is considered critical to organizational success. However, the most important activity of KM, knowledge sharing, requires flexible organizational environment. The postulate of the tradeoff between efficiency and flexibility is one of the more enduring ideas in organizational theory. Will organizations be able to accommodate both ERP systems and knowledge sharing well? This paper is a correlation study designed to examine the relationships between ERP implementation and intra-organizational knowledge sharing level. The results of this paper point out that the relationships between ERP implementation and knowledge sharing seem positive. According to the results of this study there is no significant conflict found in the relationships between ERP implementation and knowledge sharing, though some are complementary and some indicates there is no significant relationship. In this study we also found that organizations have no problem accommodating both ERP systems and knowledge sharing processes. Therefore, there is no need to assign priorities to these two organizational variables.

### 1. Introduction

More recently, as organizations' dependence on IT grows (Orlikowski & Robey, 1991; Land 1996), ERP systems have been strongly promoted promising improved competitiveness through increasing productivity, reducing costs, improving decision quality and resource control, thereby enabling leaner production (Palaniswamy & Frank, 2000). In other words, ERP systems are promoted as systems that will improve organizational efficiency through both enhanced information capture and organizational redesign.

Meanwhile, competing in the age of knowledge economics, more and more business organizations are coming to view knowledge as their most valuable and strategic resource. They are realizing that to remain competitive they must explicitly manage their intellectual resources and capabilities. To this end, the primary focus of efforts has been on developing new applications of Eric Y. Cheng Ph.D. Department of Information Management National Central University, Taiwan ycheng@mgt.ncu.edu.tw

information technology to support knowledge management.

Knowledge management processes include many activities. Such as knowledge creation, knowledge storage/retrieval, knowledge sharing/transfer and knowledge application. Knowledge sharing can be considered as the most important activity of them. Because the objective of KM is to make the knowledge assets be reused and transferred, moreover creating advanced organization value.

Approaches to improving knowledge sharing between individuals in organization have tended to emphasize the need for cross-departmental collaboration and communication to mitigate environmental uncertainty through the adoption of organic organizational structures (Argote, 1982; Burns & Stalker, 1961). Knowledge sharing emphasizes how firms can enhance competitive advantage through more effective utilization of their knowledge assets. This is achieved by allowing free flow of knowledge across organizations. In other words, through improved organization flexibility, knowledge sharing should be enhanced. However, the key characteristics of ERP systems and knowledge sharing suggest that they are rather different in their orientation: with ERP systems focusing primarily on efficiency and knowledge sharing on flexibility. Organization theory has traditionally posited a dilemma or tension between efficiency and flexibility. This would suggest that there may be problems for a company attempting to introduce ERP and knowledge sharing simultaneously. Maybe the rigid, fixed processes will limit organizations to create environments that facilitate agile and knowledge sharing.

Extending this idea, this work aims to answer the following research questions:

- (1) What are the relations between ERP and knowledge sharing?
- (2) Is there any conflict exists? Or are they complementary?
- (3) How would they interact with each other?
- (4) How would/should organizations evolve to accommodate ERP systems and knowledge sharing process?
- (5) Which one should have higher priority over the other and in what aspect?

## 2. Literature Review

### 2.1 ERP and Benefits for ERP

The rapid diffusion of Internet technologies has led to many drastic changes in the global business. In addition to information flow integration among departments inside an enterprise, communications among upstream suppliers and downstream manufactures also require seamless integration. ERP (Enterprise Resource planning) systems have been considered to be the best solution to this problem. ERP is a set of activities designed to solve the fragmentation of information and processes in large business organizations (Davenport, 1998). An ERP system is an integrative mechanism, which has a shared database that connects the diverse departments through compatible software modules.

The ERP system adoption is expected to improve business performance because ERP systems support the entire business processes integrates them across organization functions and locations (Shin and Knapp, 2001). The implementation of ERP systems is a trend to accelerate the organizational resources integration and strengthen the competition superiority and operational efficiency for the corporation.

The motivations for ERP implementation vary from companies. Ross (1998) stated that the need for a common IT platform was the major reason for implementing an ERP system. Glover et al. (1999) noted response to pressure from counterparts who have already converted their systems. Davenport (2000) referred to the increase of customer satisfaction through integration and consistency.

Despite the variety of motivations for ERP implementation, companies implement ERP systems must expect to benefit from the installation. So, in this paper, we focus on what benefits companies can get from the ERP implementation.

There are many studies refer to ERP benefits which can be group into four categories (Gattiker and Goodhue, 2000).

(1) Many organizations establish ERP systems to improve the flow of information across subunits (Davenport, 1998). Goodhue et al. (1992) point out that standardization and integration facilitate communications and better coordination. Data standards eliminate the burden of reconciling or translating information that is inconsistently defined across the subunits (Huber, 1982), they do away with the potential for translation errors and ambiguity about a field's true meaning (Sheth and Larson, 1990).

(2) The process standardization and integration across organizational units makes administrative activities centralized, like account payable and payroll. This may allow administrative savings (Davenport, 1998).

(3) ERP may reduce IS maintenance costs and increase the ability to deploy new IS functionality (Ross, 1998). Standardization of the IS across subunits create economies of scale in development and maintenance whether these are done in-house or are outsourced by using packaged software.

(4) ERP may be an instrument to move a firm away

from inefficient business processes and toward accepted best practice business process (Cooke and Peterson, 1998).

Further, the types of benefits arising from ERP systems use can be classified as operational, strategic, managerial, organizational, and IT infrastructure benefits at different times during the ERP experience according to Shang and Seddon (2002). Their proposed ERP benefits framework is shown in Table 1.

Dimensions	Sub dimensions	
Operational	1.1 Cost reduction	
	1.2 Cycle time reduction	
	1.3 Productivity improvement	
	1.4 Quality improvement	
	1.5 Customer service improvement	
Managerial	2.1 Better resource management	
	2.2 Improved decision making and	
	planning	
	2.3 Performance improvement	
Strategic	3.1 Support for business growth	
	3.2 Support for business alliance	
	3.3 Building business innovations	
	3.4 Building cost leadership	
	3.5Generating product differentiation	
	3.6 Building external linkages	
	3.7 Enabling e-commerce	
	3.8 Generating or sustaining	
	competitiveness	
IT infrastructure	4.1 Building business flexibility for	
	current and future changes	
	4.2 IT cost reduction	
	4.3 Increased IT infrastructure capability	
Organizational	5.1 Changing work patterns	
	5.2 Facilitating organizational learning	
	5.3 Empowerment	
	5.4 Building common vision	
	5.5 Shifting work focus	
	5.6 Increased employee morale and	
	satisfaction	

Table 1. Proposed ERP benefits framework

# 2.2 Knowledge Management and Knowledge Sharing

The recent interest in organizational knowledge has prompted the issue of managing the knowledge to organization's benefit. Knowledge management refers to identifying and leveraging the collective knowledge in an organization to help the organization compete (von Krogh, 1998). According to Davenport and Prusak (1998), most knowledge management projects have one of three aims: (1) to make knowledge visible and show the role of knowledge in an organization, mainly through maps, yellow pages, and hypertext tools; (2) to develop a knowledge-intensive culture by encouraging and aggregating behaviors such as knowledge sharing (as opposed to hoarding) and proactively seeking and offering knowledge; (3) to build a knowledge infrastructure—not only a technical system, but a web of connections among people given space, time, tools, and encouragement to interact and collaborate. The major objective of KM is to make the knowledge assets be reused and transferred, moreover creating advanced organization value. And the importance of knowledge sharing is due to knowledge is different from other assets. The value of knowledge won't reduce through sharing it, but the synergy will be generated instead. Therefore, to multiply the knowledge value, companies have to advocacy the concept of knowledge sharing. As the more knowledge the employees share, the more worth companies have.

One factor that influences knowledge sharing is opportunity to share (Minu Ipe, 2003). Opportunities to share knowledge in organizations can be both formal and informal in nature. Although purposive learning channels play an important role in facilitating knowledge sharing, research indicates that the most amount of knowledge is shared in informal settings—through the relational learning channels (Pan, 1999 & Jones, 1998). Informal opportunities include personal relationships and social networks that facilitate learning and sharing of knowledge (Nahapiet, 1998). That means companies should provide employees a flexible environment. In the environment, they have more opportunities to communicate with others.

#### 2.3. ERP Systems and Knowledge Sharing

Gattiker and Goodhue (2000) suggested that ERP systems may hinder local business processes innovation. The people who work closest to a business process and its information system interface often best understand how it works and how it could be improved. Indeed, "tinkering" or experimenting with small changes drives improvement in many firms.

The level of integration in ERP makes for highly complex systems with difficult to understand interrelationships between subsystems. When front line managers and staff do not understand the business system, they are in a much weaker position to generate possible process and control innovations. Further, they will not be able to easily test out their innovative ideas, since they lack the authority and know-how to make many changes. Finally, those who cross these first hurdles face the possibility that changes might negatively impact other parts of the organization.

It reveals that creating rigid, procedural approaches to fix processes may inhabit organizational innovation. The efficacy of communications between employees and knowledge sharing may be limited. Some business activities require much more brain power than computing power. Though it's well recognized that ERP systems are capable of facilitating a more integrated environment for information management, they do not automatically fix the old problems by creating an environment that could facilitate agile, learning organizations which are able to adapt quickly as the market changes.

### 3. Research Model and Research Hypotheses

### **3.1 Research Model**

This study examines the relationship between the ERP implementation and organizational knowledge sharing level. We want to explore whether the installation of ERP can facilitate (or inhibit) employees to share their knowledge. Because ERP systems integrate all business operation data and through ERP systems people can share information more easily, ERP systems may improve intra-organizational knowledge sharing. From another point of view, ERP systems are supposed to promote efficiency, to avoid duplication of work, and to eliminate non-value-added activities, and hence to gain the competitive advantages. However, knowledge sharing requires flexible organizational environment. Will organizations be able to accommodate both ERP systems and knowledge sharing well? The present study tested a model to understand the relationship between ERP implementation and organizational knowledge sharing level. The research model is illustrated in Figure 1 and discussed below.



Figure 1. Research model

Studies of effects of ERP implementation almost focus on ERP benefits. Companies decide weather they implement ERP systems by evaluating benefits of ERP systems. There are few studies of adverse effects of ERP implementation. So this study uses "ERP benefits" to present "effects of ERP systems". On the other hand, through literature review, we use knowledge sharing inventory to see how well an organization is implementing its knowledge management framework and sharing its knowledge. The research framework is illustrated in Figure 1.

Another tool, knowledge sharing inventory (Liebowitza, 2001), could be used to see how well an organization is implementing its knowledge management framework and sharing its knowledge. Knowledge sharing effectiveness inventory was divided into four parts: communication flow, KM environment, organizational facilitation, measurement. The purpose of each dimension is shown in Table 2.

Table 2	Purposes	of dimensions
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Dimensions	Purposes
Communication	To assess how knowledge and
flow	communication exchanges are
	captured and disseminated
	throughout the organization

KM	To look at internal cultural factors
environment	related to knowledge management
	within the organization
Organizational	To assess the sophistication of the
facilitation	KM infrastructure and knowledge
	sharing capability within the
	organization
Measurement	To assess the likelihood of
	knowledge sharing and knowledge
	management being successful within
	the organization

### **3.2 Operational Benefits and Measurement**

Information technology has a long history of use in cutting costs and raising outputs by automating basic, repetitive operations. There is evidence that investment in information technology to streamline processes and automate transactions provides business benefits by speeding up processes, substituting labor, and increasing operation volumes (Weill and Broadbent, 1998; Weill, 1990; Lichtenberg, 1995; Blackburn, 1991; Smith, 1991; Morrison and Berndt, 1990; Brynjolfsson and Hitt, 1996; Brynjolfsson and Hitt, 1993). Since ERP systems automate business processes and enable process changes, one would expect ERP systems can make employees have more time to do valuable or value-added activities.

In the knowledge sharing effectiveness inventory, the fourth part, measurement, is defined to assess the likelihood of knowledge sharing and knowledge management being successful within the organization. Hence, we argue that after implementing ERP systems, people should have more time to do non-routine or more value-added activities. As well as, the likelihood of knowledge sharing and knowledge management being successful within the organization may become higher. This leads to our first hypothesis.

H1 : There is a positive relationship between the degree of operational benefits and the level of measurement of knowledge sharing.

# **3.3 Strategic Benefits, Organization Facilitation and Measurement**

Porter and Miller (1985) define three generic strategies where IT could be used to contribute to achieving business competitive advantages: cost leadership, differentiation and focus. McFarlan (1984) and Earl (1989) argue that IT has matured to become an integral part of the way enterprises conduct their business. Rackoff, Wiseman, and Ullrich (1985) expanded Porter's model to five strategic thrust areas where the company could make a major offensive or defensive move. These five thrusts are: differentiation, cost, innovation, growth and alliance. Integrated information systems present a new opportunity for achieving competitive differentiation by customizing products or services for individual users at a lower cost (Victor and Boynton, 1998; Pine II, 1993; Jaikumar, 1986; Ferdows and Skinner, 1987), to directly support a tight link with customers (Clemons and McFarlan, 1986; Vitale,

1986; Malone and Yates, 1987) and to all related business parties (Venkatraman, 1994). ERP systems, with their large scale of business involvement and internal/external integration capabilities, could assist in achieving these strategic benefits: business growth, alliance, differentiation, innovation, cost, and external linkages.

To achieve these strategic benefits, such as differentiation and innovation, organization may place more importance on design of knowledge management infrastructure. For building business innovation, creating new products or services, generating new ideas or reusing knowledge may be a frequent occurrence in organizations. This leads to our second and third hypotheses.

- H2: There is a positive relationship between the degree of strategic benefits and the level of organizational facilitation of knowledge sharing.
- H3 : There is a positive relationship between the degree of strategic benefits and the level of measurement of knowledge sharing.

# **3.4 Organizational Benefits, Knowledge Flow, Knowledge Environment and Measurement**

In Peters and Waterman's (1982) observations of forty-three successful US corporations, information technology was highly relied upon for its integrated processes and flexible system co-ordination in either supporting employee "common vision" communications or facilitating a flattened organizational structure and empowering users. IT tools, accumulated information, and application knowledge are key factors that facilitate organizational learning behavior (Garvin, 1993; Baets and Venugopal, 1998, Argyris, 1992; Andreu, 1996).

As summarized in points 5.1 through 5.4 of Table 3.x, the integrated information processing capabilities of ERP systems could affect the establishment of the organizational capabilities by: 1) changing work patterns, 2) facilitating organizational learning, 3) empowerment, 4) building common visions, 5) shifting work focus, 6) increased employee morale and satisfaction. In which, changing work patterns means ERP systems can co-ordinate different interdisciplinary matters and harmonize interdepartmental processes. Because organizations usually reengineer their business processes before implementing ERP, business processes are redesigned and become cross-departments to suit organizations requirements. Employees will develop a good sense of process orientation and ownership. This will make employees with motivation to learn more about processes. And due to the design of processes, employees have more opportunities to share and communicate with colleagues belong to different departments. Furthermore, it facilitates organizational learning and broadens employee skills.

After implementing ERP, organizations usually empower workers to be account for their work. Users have ownership of the system and greater involvement in business management. In addition, ERP systems contribute to build common visions of organizations. It makes the whole organization acts as one and works as a common unit. And these common visions are consistent across different levels of the organization.

We think integrated processes and flexible system co-ordinate could facilitate communication exchanges throughout the organization. Besides, due to the building of common visions, the organizational culture is positive to knowledge sharing. Therefore, likelihood of knowledge sharing within the organization will become higher. These lead to our following hypotheses.

- H4: There is a positive relationship between the degree of organizational benefits and the level of knowledge flow of knowledge sharing.
- H5 : There is a positive relationship between the degree of organizational benefits and the level of KM environment of knowledge sharing.
- H6: There is a positive relationship between the degree of organizational benefits and the level of measurement of knowledge sharing.

### 4. Data Collection and Analysis

The questionnaire is developed based on literature reviewing. There is one pair of instruments adopted in this study. First, the ERP benefits framework (Shang and Seddon, 2002) was adopted to evaluate the benefits from ERP implementation. Another set, knowledge sharing inventory (Liebowitza, 2001), was used to see how well an organization sharing its knowledge (See Figure 1). Each construct is measured by 18 items on a five-point Likert scale.

First, for enhancing the validity of the questionnaire, an EMBA class at National Central University was chosen to execute a pilot test. The sample frame was drawn from the directory of TOP 5000, The Largest Corporations in Taiwan (China Credit Information Service, 2004). The questionnaire was targeted at MIS managers because they are more likely than managers in other functions to understand the overall situation of organizational IT infrastructure and the use of IT. A total of 900 questionnaires were sent and 80 valid responses were collected. The characteristics of the sample are shown in Table 3 and Table 4.

Lubic of Sumple characteristic	Table	3.	Sample	characterist	ics
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Company Characteristics	Category	Effective data	%
	Manufacturing	39	48.8
	Transportation	2	2.5
Industry group	Retail business	4	5.0
	Education	2	2.5
	Communication	5	6.3
	Finance	10	12.5
	Software	5	6.3
	Others	13	16.3
	Total	80	100.0

	Less than 0.8	9	12.2
	0.8-2	11	14.9
	2-5	17	23.0
	5-10	5	6.8
Total assets	10-20	7	9.5
(\$NT 100	20-50	11	14.9
million)	50-100	3	4.1
	More than 100	11	14.9
The situation of ERP implementation	Total (Valid)	74	100.0
	Missing value	6	
	Total	80	
	Live	24	30.0
	Partial modules	24	30.0
	are live		
	During the	4	5.0
	implementation		
	Still in	14	17.5
	evaluation		
	Never	14	17.5
	Considered		
	Total	80	100.0

#### Table 4. Profile of the ERP adopting

Category	Effective data	Percentag e (%)	Cumulative Percentage (%)
Manufacturing	33	68.8	68.8
Transportation	1	2.1	70.8
Retail business	1	2.1	72.9
Communication	5	10.4	83.3
Finance	3	6.3	89.6
Information			
service	1	2.1	91.7
/Software			
Others	4	8.3	100.0
Total	48	100.0	

A quantitative-based analysis on the survey data has been conducted and displayed in the following tables from Table 5 to Table 7. Descriptive statistics and significance were presented in table 5. There are 22 variables among a total of 25 variables are significant at two levels. 20 are strongly significant at 0.01 level and 2 are significant at 0.05 level. If we aggregate and take average of those 25 variables by the four dimensions they belong to, those four dimensions: 1. knowledge flow; 2. knowledge environment, 3. organizational facilitation; 4 measurement are all strongly significant at 0.01 level (tavg1 = 6.593, p = 0.000; tavg2 = 4.158, p = 0.000; tavg3= 4.438, p = 0.000; tavg4 = 6.146, p = 0.000). This means the knowledge and communication exchanges are captured and disseminated effectively throughout the organization; the internal cultural factors related to knowledge management within the organization are positive; the knowledge management infrastructure and knowledge sharing capability within the organization are sophisticated; the likelihood of knowledge sharing and knowledge

management being successful within the organization is relatively high.

Table 5.	<b>One-Sample</b>	Statistics	and	Significance ·
	knowledg	ge sharing	g iter	ns

Items of knowledge sharing inventory	t	Sig. (2-tailed)
1. Key expertise is often captured in an online way in my organization.	6.174	.000
2. I get appropriate lessons learned sent to me in areas where I can benefit.	6.461	.000
3. I usually have time to chat informally with my colleagues.	3.709	.000
4. Individualized learning is usually transformed into organizational learning through documenting this knowledge into our knowledge repository.	1.976	.052
Aggregation of communication flow	6.593	.000 (**)
5. There are many knowledge fairs/exchanges within my organization to spawn new colleague to colleague relationships.	3.359	.001 (**)
6. There are lessons learned and best practices repositories within my organization.	.107	.915
7. We have a mentoring program within my organization.	9.310	.000 (**)
8. We have Centers of Excellence in our organization whereby you can qualify to become a member/affiliate of the Center	-7.39	.000 (**)
9. We typically work in teams or groups.	9.747	.000
10. Our main product is our knowledge.	4.842	.000
11. I feel that we have a knowledge sharing culture within our organization versus a knowledge hoarding one.	4.398	.000 (**)
12. We have a high percentage of teams with shared incentives whereby the team members share common objectives and goals.	6.552	.000 (**)
13. There are online communities of practice in my organization where we can exchange views & ideas.	-3.069	.003 (**)
Aggregation of KM environment	4.158	.000 (**)
14. I am promoted and rewarded based upon my ability to share my knowledge with others.	-3.013	.003 (**)
15. There is an adequate budget for professional development and training in my organization.	2.692	.009 (**)
16. Success, failure, or war stories are systematically collected and used in my organization.	-1.563	.122
17. The measurement system in my organization incorporates intellectual and customer capital, as well as the knowledge capital of our products or services.	2.218	.029 (*)
18. We have the technological infrastructure to promote a knowledge sharing environment within our organization.	4.820	.000 (**)
19. We typically have integrated assignments where the number of projects in which more than one department participates occurs.	8.439	.000 (**)
20. We have internal surveys on teaming which surveys employees to see if the departments are supporting and creating opportunities for one another.	5.350	.000 (**)

21. We track the degree to which the organization is entering team-based relationships with other business units, organizations or customers.	2.310	.023(*)	
22. The organization's office layout is conducive to speaking with my colleagues and meeting people.	5.961	.000 (**)	
Aggregation of organizational facilitation	4.438	.000 (**)	
23. The reuse rate of "frequently accessed/reused" knowledge in my organization is high.	7.681	.000 (**)	
24. The distribution of knowledge to appropriate individuals in my organization is done actively on a daily basis.	4.119	.000 (**)	
25. New ideas generating innovative products or services are a frequent occurrence in my organization.	3.077	.003 (**)	
Aggregation of measurement	6.146	.000 (**)	
** is significant at the 0.01 level (2-tailed)			
* is significant at the 0.05 level (2-tailed)			

Descriptive statistics and significance were presented in table 6. There are 24 variables among a total of 25 variables are significant at two levels. 22 are strongly significant at 0.01 level and 2 are significant at 0.05 level. If we aggregate and take average of those 25 variables by the five dimensions they belong to, those five dimensions: 1. operational benefits; 2. managerial benefits, 3. strategic benefits; 4. IT benefits; 5. organizational benefits are all strongly significant at 0.01 level (tavg1 = 10.345, p = 0.000; tavg2 = 11.26, p =0.000; tavg3 = 7.367, p = 0.000; tavg4 = 7.964, p = 0.000; tavg5 = 7.892, p = 0.000). The respondents perceived that ERP systems can provide benefits in these five dimensions.

 
 Table 6. One-Sample Statistics and Significance-ERP benefits

Items of EDD herefits		Sig.
Items of ERP benefits	t	(2-tailed)
1.1 Cost reduction	8.783	.000(**)
1.2 Cycle time reduction	8.638	.000(**)
1.3 Productivity improvement	5.396	.000(**)
1.4 Quality improvement	8.322	.000(**)
1.5 Customer service improvement	6.743	.000(**)
Aggregation of operational benefits	10.345	.000(**)
2.1 Better resource management	12.454	.000(**)
2.2 Improved decision making and	6.913	.000(**)
2.3 Performance improvement	9.019	.000(**)
Aggregation of managerial benefits	11.260	.000(**)
3.1 Support for business growth	12.179	.000(**)
3.2 Support for business alliance	3.197	.002(**)
3.3 Building business innovations	.784	.437
3.4 Building cost leadership	4.876	.000(**)
3.5 Generating product differentiation	2.114	.040(*)
3.6 Building external linkages	3.472	.001(**)
3.7 Enabling e-commerce	6.597	.000(**)
3.8 Generating or sustaining competitiveness	7.875	.000(**)
Aggregation of strategic benefits	7.367	.000(**)

4.1 Building business flexibility for current and future changes	7.655	.000(**)			
4.2 IT cost reduction	3.363	.002(**)			
4.3 Increased IT infrastructure capability	7.534	.000(**)			
Aggregation of IT benefits	7.964	.000(**)			
5.1 Changing work patterns	11.656	.000(**)			
5.2 Facilitating organizational learning	5.755	.000(**)			
5.3 Empowerment	5.496	.000(**)			
5.4 Building common vision	2.356	.023(*)			
5.5 Shifting work focus	4.252	.000(**)			
5.6 Increased employee morale and satisfaction	5.016	.000(**)			
Aggregation of organizational benefits	7.892	.000(**)			
** is significant at the 0.01 level (2-tailed)					
* is significant at the 0.05 level (2-tailed)					

 
 Table 7. Correlations between ERP benefits and knowledge sharing effectiveness

ERP					
Benefits					
	Operati	Manager			
K-Sharing	onal	ial	Strategic	IT	Org
Knowledge Flow	.352	.293	.490	.387	.493
	(*)	(*)	(**)	(**)	(**)
	.014	.043	.000	.007	.000
Knowledge Environment	.232	.150	.389 (**)	.072	.397 (**)
	.112	.309	.006	.627	.005
Organization Facilitation	.301 (*)	.172	.486 (**)	.159	.416 (**)
	.037	.242	.000	.281	.003
Measuremen t	.317 (*)	.167	.348 (*)	.165	.378 (**)
	.028	.257	.015	.262	.008

The correlations between ERP implementation and knowledge sharing are presented in Table 7. From the table we found that:

First, all types of ERP benefits are positively correlated with knowledge flow dimension of knowledge sharing effectiveness. In detail, strategic, IT, organizational benefits of ERP are strongly positively correlated with knowledge flow of knowledge sharing ( $r_{13} = 0.490$ ;  $r_{14} = 0.387$ ;  $r_{15} = 0.493$ ).

Second, strategic benefits of ERP are positively correlated with knowledge sharing disregard of those four dimensions. In details, the knowledge flow, knowledge environment and organization facilitation of knowledge sharing are strongly positively correlated with strategic benefits of ERP implementation (r13 = 0.490; r23 = 0.389; r33 = 0.486). As mentioned above, organizations in order to achieve strategic benefits, such as differentiation and innovation, organizations will, therefore, put emphasis on knowledge sharing. The purpose is to facilitate innovation within the organization, creating new products or services, or generating new ideas.

Third, organizational benefits of ERP are strongly

positively correlated with knowledge sharing disregard of those four dimensions (r15 = 0.493; r25 = 0.397; r35 = 0.416; r45 = 0.378). This means the perceived organizational benefits are related to organizational knowledge sharing level. By building of common visions, empowering people and expending employee's expertise, the level of intra-organizational knowledge sharing success will be increased as well.

Fourth, organization facilitation and measurement of knowledge sharing are positively correlated with operational benefits of ERP implementation. Since measurement, is defined to assess the likelihood of knowledge sharing and knowledge management being successful within the organization. Therefore, it indicates that after implementing ERP systems, people would have more time to do non-routine or more value-added activities. Those saved "energy" and "time" could be used on knowledge sharing, which is recognized as more productive nowadays. And due to the changed work pattern, organizations have to design their knowledge management infrastructure to enhance their knowledge sharing capability.

### **5.** Conclusion

Overall, the relationships between perception of ERP benefits and knowledge sharing seem positive. According to the results of this study there is no significant conflict found in the relationships between them (there is no negative correlation coefficient), though some are complementary and some indicates there is no significant relationship. It implicates—although the ERP system can make organizations function more efficiently, it won't create an "efficient" environment in organizations. As well as, it won't hinder some activities which require more flexible environment like knowledge management activities. Organizations have no problem accommodating both ERP systems and knowledge sharing processes. Therefore, there is no need to assign priorities to these two organizational variables.

In this paper, a conceptual framework for the relationship between ERP and KM is proposed. We suggest that ERP systems probably can be the foundation of KM activities. Because results of this paper point out users' perceived ERP benefits are positively correlated with intra-organizational knowledge sharing level. Further, ERP systems are expected to support the knowledge management activities.

### 6. Limitations and Future Directions

### **6.1 Research Limitations**

Due to the limitation of time, labor and cost, there are many shortcomings in this research. We hope to improve the limitation to obtain more representative results of the research. The following are four limitations of this research.

(1) The limited numbers of samples. 250 copies of questionnaires were sent in this study, and only 41

firms responded.

- (2) Owing to the data collection method, questionnaire survey, the data were collected at only one point after implementation. We cannot be sure of what is caused and what effect. We only can exam the phenomenon at some point of time. It is part of cross-sectional way to observe the individual behavior.
- (3) The ERP benefits are used to evaluate the effects of ERP implementation. There must be some effects of ERP implementation not included in the ERP benefits.
- (4) Selecting respondents are MIS managers in companies. But their perception of ERP benefits and knowledge sharing level may be biased as a result of their position.

### **6.2 Future Directions**

Another important issue about knowledge sharing is what incentives are effective in encouraging knowledge sharing in organizations. Future studies can explore weather ERP systems stimulate people with motivations to share their knowledge. Does ERP inspire people to share their knowledge through building a common vision across different levels of organizations?

Second, future studies can probe into how ERP systems interact with knowledge sharing. Ultimately, researchers can study on how ERP systems integrate with other knowledge management processes.

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