



## Investigation of relationship between knowledge management and enterprise resource planning(RD) systems

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### ABSTRACT

In this research, we recognized 5 variables by using 170 data of Production Company in the environment of resource planning. In addition, we investigated relationship between knowledge management and competitive advantage of production companies in e-commerce (electronic trade) the results revealed that admission of organization preparation for knowledge management. Staff training and learning. Information network, knowledge sharing process and knowledge verification as variables of knowledge management has a positive synergistic effect on competitive advantage of companies.

### Keywords

knowledge management, enterprise resource planning, institutional information system, competitive advantage, organizational change, management information system, research systems

## 1. INTRODUCTION

Increasing in level of speed are power of computers and informational system has been crossed with development of institution's advanced information system and also , their ways of knowledge management and intellectual properties has been changed in e- commerce environment . In recent years, e- commerce (or electronic trade) has been recognized as a new way to conduct business in a competitive market. Enterprise resource planning (ERP) system, as an important part of e-commerce has been assimilated with the functional areas of business such as marketing and sale, finance, production, human resource and financial management of company and suppliers and customers in the hierarchy of supply chain.

During the last decade, enterprise resource planning system (ERP) replaced with the legacy system in more than 500 fortune companies. The cost of enterprise resource planning systems allocated the most part of it capitalization since 1990 and also it has been exited in more than 60 percent of multinational companies. In 1998, the marked maintenance's 17.2 billion dollars per a year.

The original software companies of United States, even though accepted the products of enterprise resource planning (ERP). For example, IBM and Microsoft apply R/3 ER SAP as most popular business software's yet. Enterprise resource planning applies on the part of customer relationship management (CRM) and also supply chain management (SCM).

Implantation of enterprise resource planning exactly related to the knowledge management. Although technology is not knowledge management by itself, but knowledge management fascinated by someone who use technology, frequently. Frequently an enterprise resource planning system (ERP) reserves data of company, products information and stabilizes knowledge. This knowledge may located in scheduling software of the company's enterprise resource planning. Some knowledge is like knowledge of process which is established in the way that activities are guided. Another form of

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knowledge may be recorded on a regular basis however this knowledge may be fixed in the main members who directly work with the enterprise reserves planning. In the framework of systematic researches, Knowledge's dimension includes special knowledge which is related to the fields and profession. Totally, it is not a comprehensive definition for knowledge management.

Leidnerandschultzer (2002) considered that knowledge management produce. Present, reserves, transfer, apply, fix and protecting enterprise, reserve, transfer. Apply, fix end protecting enterprise knowledge. We may have an overview of knowledge management as a process which is produced same values of knowledge-based thoughts and assets through the enterprise. So knowledge management is a way to produce knowledge through knowledge-based assets which is fixed by individuals, staffs and information system in order to improve and increase competitive advantage. Although there is not many research which investigated the impact of knowledge management and enterprise resource planning (ERP) on the competitive advantage. But this research surveys the role of knowledge management after applying enterprise resource planning system in competitiveness of production companies.

This research presented the results at knowledge management fascinators in 170 production institution of United States which is accepted and applied enterprise resource planning. Two main questions which is responded in this research are.

Which factors facilitate knowledge management in applying enterprise resource planning systems?

Is there any relationship between knowledge management and competitive advanced of participation in e-commerce?

This research's attitude is to consider whether there is a relationship between cooperation of tacit knowledge management in implantation of company's competitive advantage in e-commerce or not?

The study oriented to investigate cooperation of tacit knowledge management in applying enterprise resource planning in a survey manner.

This paper is organized as follows:

In second section hypothesis and review are mentioned in third chapter discussed about methodology of research and analysis and discussion about the topic presented in are mentioned in chapter five.

## Literature of Research

### 2. Enterprise Resource planning

Relationship and implementable cohesion of business process caused by / result from applying enterprise resource planning system which increases effectiveness and competitiveness of enterprise or institution. Production companies will be able to integrate business process and operational units of organization by means of enterprise resource planning system and also assimilate the flow of information. this cohesion create a new knowledge which by use of it companies will be able to reach a true intuition, moderate the changes of business quickly and respond very fast to customer's requirements.

Companies and also enterprise resource planning system by using truer knowledge management will be able to develop their business process with customers, Suppliers and business partners beyond organizational boundaries. That is related to the power of knowledge management in applying enterprise resource planning system.

Few experimental researches are existed to our knowledge that assimilates knowledge management. Applying of enterprise resource planning (ERP) and its effects on competitive performance of productive companies. Explicitly,

The attitude of this research is to investigate the split of literature by consider of enterprise resource planning system's applying in relation with knowledge management mechanics and also its effect on competitive priorities. The sample is organized based on extensive review of literature and discussion focused on a large number of employed management. This sample has a two dimension that reflected the two question of research mentioned in chapter 1 one, first dimension and second dimension consider the effect of knowledge management and enterprise resource planning system on the company's competitive advantage.

#### 1-1) .Organizational preparation for knowledge management:

Nowadays knowledge locates not only in organization document but also in normal affairs of institution. Process function, norms and staff's mind. Knowledge is the fact or condition of something's recognition obtained early from experiences or relationships.

Based on Davenport and Prusak's opening knowledge is on indeterminate companies of experiences, values conceptual information and technical intuition provided a framework to analysis and incorporate new information and experiences and it also improve smoothness of inter organization network, knowledge transfer mission and organizational, Learning capabilities. so effective knowledge management include institution preparation on as example of movement from vertical organization to following organizational networks, accelerating organizational culture of share intuition and values and boundaries variation from specific boundaries to indistinctive and ambiguous ones.

#### 1-2). Staff training and learning:

Generally knowledge management supported by designing knowledge-based organization. This system should be encouraged interaction between members of organization. In the other hand, the applications integration of enterprise resource planning and important of staff's knowledge and their skills are important for using of enterprise resource planning.

In the decades of 1990, Most of teaching hospital followed an integrated delivery networks (IDN) and pursued a new integrated informational system. The idea of integrated delivery network provides continues service for primary care in complex cases. This project has been failed due to the lack of staff training and learning. Hospital directors and nurses were not able to use integrated database system or were reluctant to adapt themselves with new processes by integrated delivery networks. This example shows that organizations may not achieve slightly results without staff training and learning when they pursue enterprise resounding systems. (Hayes et al, 2005) in order to this aim, theatrical, is the idea to create a learning environment which is critical to manage the effectiveness of new process, normal affairs, Norms that related to the applying of enterprise resource planning and also for amplification of knowledge management.



### 1.3) information and data network:

Information and data network are so important for organization because a knowledge management system would be able to storage and recycling knowledge in order to facilitate organizational learning in an a dynamic institutional memory . Applying of enterprise resource planning require

Functional cohesion since enterprise resource planning system protect and support an environment as a place where all functional units work together to gain organization goals. An information and date network provide a strange range of communication and structural connection.

And also it creates a flow of information and knowledge to different organization units.

This network facilitates effective relationships which are federated organization units and it is essential to increase competitive advantage. For example in develop intent of staff evaluation , professional human resource can attain a general domain of relative data to work force in order protect true planning, faulted simulated planning and also control the actual performance in relation with program.

## 2. Knowledge management

### 2-1)- the process of knowledge sharing:

An effective date network and information provide an organizational sharing knowledge basis. The process of knowledge sharing is a space in organization which is defined relationships and may be facilitator or deterrent of relationship process the process of knowledge sharing can improve ability of staff to knowledge sharing provide analysis tools to operational and analysis porting which is shared by multiple functional areas of company.

An affective process of knowledge sharing can help staff to analysis the chain of Cause and effect and optimize the processes in order to increase the values of shareholders and customers.

For example, A purchasing manager can apply his /her knowledge and experience to analysis statistical distribution that is required for measuring supply chain list. And get up- to data information and storage data in on enterprise resource planning system.

### 2.2) the consult of knowledge

Enterprise resource planning system is able to store discovery and recovery large volumes of data and useful information. Nevertheless, manager think that, It is difficult to understand the significant pattern due to the large amount of information and data. So consult of knowledge can be helpful in discovery of useful information till get it beyond knowledge. The consult of knowledge is a mechanism which is identified and captured internal and external knowledge.

This process may be containing many business activities such as market tracking, Bench marking and technology analysis. As a helpful ways to consult of knowledge we can remind data storage repertory and data analysis tools. Data analysis is a process of discovery of Knowledge in the repository database.

Data analysis is a helpful tool to customer's profile.

Data analysis as soon as possible is a requirement for supply chain management instead of competitive advantage.

All information is not valuable so the determination of information's value developed as intellectual and knowledge-based properties. Intellectual properties generally, are based on the explicit and implicit knowledge. Explicit knowledge includes some properties that can be in written forms such as brand names, royalty and lists of customers. The conception of implicit knowledge or know-how is in the human minds and its description is so difficult. The fundamental implicit knowledge challenge is to comprehend how to recognize, produce, share and manage knowledge. The consult of knowledge can improve organization ability in order to comprehend and exploration of knowledge and sources.

Knowledge management is a way to consult a large amount of data and organization s information which is collected by IT network and its communication process. The enterprise resource planning systems exchange, reserve and recovery data and information. These activities extend knowledge management. The following assumption and hypothesis have been explanted based on the discussion of knowledge management mechanisms in an enterprise resource planning environment.

Hypothesis1: organization readiness for knowledge management, staff training and learning, data network and effective information, knowledge sharing process and the consult of knowledge affected on development of knowledge management in an enterprise resource planning environment.

1. Competitive advantage:

Competitive advantage includes cost performance, high quality, time and manufacturing/process flexibility.

2. Cost:

Competition in the market place on the basis of cost efficiency needs to keep costs at the low level. Manager should be pay attention to the materials, work force, prices and other costs in order to compete in the production costs. In the production companies the main focused is on the material costs with the purpose of reducing costs. So materials and purchase are related to some activities which are considered as indicators of cost sufficiency. The work force controlling, differences in material costs and production are important factors in cost efficiency.

3. Quality:

Quality is considered as ability of producers who compete in universal level, since the quality of effective mechanism is to attract and retain customers. Quality is defined as top features of production. Quality determination includes production design quality, manufacturing quality and technical skills of staff that obtained through training and learning. Quality may Cause increasing efficiency in order to achieve a competitive market and also to maintain the reliability performance of production. Quality frequently considered as a part of competitive advantage such as lower costs or operation in real time.

4. Time:





Time centralized on reducing the time needed to complete business activities as a competitive advantage in order to satisfy the needs of customers. In the recent years, production companies achieved to the time reducing in different areas for example delivering capability is a time issue. Delivery is usually defined as one of the aspects of organization's operations that determined how fast a product or services are delivered to the customer? And although how products and services are developed? And with the assurance are taken to the market. The third one is the rate of improvement in products and processes are created. Most of the companies are looking for maintaining and increasing the number of their customers by focusing on the priorities such as development speed of new products, return on assets cycle time (ROA cycle time) and speed and reliability of delivery. Time management will be helpful in reducing costs and increasing productivity. In time-based competition, managers need to help delivery of commodity or services and analyzing of balance between time and cost and also between time and quality.

#### 5. Flexibility:

Flexibility is an ability to respond to the changes. Flexibility is also an ability to adopt to the individual customer needs which is referred to this fact that operating system would be flexible in order to handle specific requirement of any customers and shifts in production. Flexible manufacturing is a production approach for competitive advantage which is focused on using of flexibility to respond the customer needs and market changes. Flexibility process includes rapid change equipment, production planning and scheduling. Flexibility reflected in capability to increase or decrease of combined production, size and design of production. Flexibility of combined production usually measure by frequent changes in competition of production. In the other hands size of flexibility is the acceleration or slowness of production rate which is quickly manage large variation in demand.

Second hypothesis: knowledge management in the enterprise resource planning environment facilitated the competitive advantage of companies.

Hypothesis a2: knowledge management helps low cost abilities of companies.

Hypothesis b2: knowledge management helps high cost abilities of companies.

Hypothesis c2: knowledge management helps flexibility of company.

Hypothesis d2: knowledge management helps time ability of company.

Research methodology:

Research has been done on a group of 2000 members of APICS who are employed in United States production organizations. We chose members of APICS as sample since they have required knowledge and expertise for an applying enterprise resource planning (ERP). We received 210 responses. The major reason for lack of accountability is that companies have not yet implemented the enterprise resource planning systems. 170 of the all response used for this research and 40 of them put aside because they are not complete. The sample was included large groups which were widely distributed among companies.

### 3. Research tools

Questionnaire is the basic tools for this research which is designed to data collection about knowledge management of enterprise resource planning environment among the production organization of United States. Research items used to model measurement listed in table 1. Likert scale of 7 options has been used to data collection. These questions contain some experimental studies of knowledge management and implementation of enterprise resource planning (ERP). Performance has a theoretical and experimental background. The most popular competitive priorities in the literature of research are low cost, high quality, flexibility and time. Indicators of competitive advantage based on the production and literature of operation management has been focused on the quality performance, process flexibility, cost control, time-based competition and so on. Performance items based on the Likert scale of 7 options arranged from (1) ultra-low to (7) excellent which is compared by pre-implementation performance.

### 4. Analysis

This stage contains two parts. First the results analyzed as descriptive statistics in order to explain factors that illustrate the knowledge management mechanisms. Afterward the relationship between knowledge management and competitive advantage is tested by Regression and correlation test. Generally Regression analysis connected with the factor/s of special outcome. The least square method used to estimate the simple Regression coefficient (bi) of each factor and it also used to estimate multi-factor Regression coefficient. Regression coefficient of expected changes that occurred on the change of one factor in dependent variable for example knowledge management facilitators, stability of 5 scales of knowledge management and 4 scales of competitive advantage are in the range of 0.77 to 0.901 (table 2). The acceptable stability is 0.6.

Table 1 – items ranking of knowledge management

subject	question	average	SD
Oc3	Have a customer-centric organization		
ID2			
EL2			
OC5	Organization culture assumption where intuition, value and goals are shared		
OC1	Organization hierarchy has been flatted		
ID3	Procedures in all business operations are developed and implemetated in order to ensure about standardization of information		
ID4	Business procedures and courses are developed to ensure about data consistency		
OC2	Organization hierarchy has been flatted		



OC4	Organization has been truly globalized		
KN4	The continuation process and speed of operation improvement has been institutionalized		
EL4	Fear of acceptance of the new system has been abundant		
KN2	Flexible workforce and capability process has been precisely developed		
EL1	Staff thoroughly trained in the enterprise resource planning reflection (ERP) rise-wide		
ID1	The integrated principle of supply chain management have adopted		
KN3	Have the formal process to identify and resolution of process restrictions		
EL3	Our staff are ready to work in the paperless environment		
EL5	All business leaders are trained in integrating of training resource management		
KS1	Supporting of warehouse data		
KL3	Our staff are ready to work in the paperless environment		
KS2	Data supporting		
KN1	Company performance can explain capability of comprehensive process of 6 Sigma or more		

Table2-knowledge management and competitive advantage items

subject	question	average	SD	Alpha
	Organization readiness for knowledge management(X1)			
OC1	Organization hierarchy has been flatted			
Oc2	Organization has been successfully moved toward teams			
Oc3	Have a customer-centric organization			
Oc4	Organization has been truly globalized			
Oc5	Organization culture assumption where intuition, value and goals are shared			
	Staff training and learning(X20)			
E11	Staff thoroughly trained in the enterprise resource planning reflection (ERP) rise-wide			
E12	Business conductor are committed to continues learning			
E13	Our staff are ready to work in the paperless environment			
E14	Fear of acceptance of the new system has been abundant			
E15	All business leaders are trained in integrating of training resource management			
	Data network and information(x3)			
ID1	The integrated principle of supply chain management have adopted			
ID2	Data network and certain information have been applied completely			



ID3	Procedures in all business operations are developed and implemented in order to ensure about standardization of information			
ID4	Business procedures and courses are developed to ensure about data consistency			
	The process of sharing knowledge(X4)			
KN1	Company performance can explain capability of comprehensive process of 6 Sigma or more			
KN2	Flexible workforce and capability process has been precisely developed			
KN3	Have the formal process to identify and resolution of process restrictions			
KN4	The continuation process and speed of operation improvement has been institutionalized			
	The consult of knowledge(X5)			
Ks1	Supporting of warehouse data			
Ks2	Data supporting			
Ks3	Supporting tools provide a decision to analysis and solve reports			
	Quality(Y1)			
Qu1	Performance quality			
Qu2	Production quality control			
Qu3	Experienced/trained staff			
Qu4	Reliable performance			
	flexibility			
Fx1	Flexibility of production s level			
Fx2	Flexibility of production s variety			
Fx3	Innovation in production process			
Fx4	Innovation in products or services			
	Time(Y3)			
TM1	The speed of new products introduction			
TM2	Timely performance information of workers			
TM3	Delivery speed			
TM4	The ability to reliable delivery			
TM5	Time cycle efficiency			
	cost			
CT1	Financial performance			
CT2	Purchase cost variance			



CT3	Job cost variance			
CT4	Activities cost/cost of activities			

## 5. Knowledge management fascinators

Knowledge management fascinators are described in 5 area .the average and the rank of important rates of 21 Knowledge management items are given in table1. It is show that companies tend to be better implementation of more important items, three of 21 important items of Knowledge management are in the domain of Knowledge management, communication systems and information network and also staff training and learning (table1). The average of being customer-centric company is 4.83 which is the highest value of 7 and the average of communication systems and information network that include hardware and software are 4.45 and the average of committing to learning is 4.37. These results show that the purpose of Knowledge management is to be customer-centric organization.

The mechanisms that used by production companies in order to facilitate knowledge management contain a perfect and reliable information network and communication system which is administered by trained and knowledgeable staff. Two items of five ones are located in the domain of organization readiness for knowledge management. The acceptance of organizational culture based on the sharing of intuition, values and goals (with the average of 4.28), change of organization from hierarchy to flat one (with the average of 4.13) . The readiness of organization is achieved due to the current products. Enterprise resource planning (ERP) can be considered as a part of various range of institutional content memory such as organizational processes, culture and structure.so production companies focused on the harmonization of their organization in the aspect of processes, structure and culture in order to be able to adjust the enterprise resource planning (ERP) environment and manage knowledge of business functions. The result of research shows that the readiness of organization to knowledge management helps the formation and strengthening of behavior prescribed in the organization. Three of these items placed with the least emphasis in the domain of process and consult of knowledge such as: some tools that support decision (with the average of 3.18) process capability of these sixsigma (with the average of 2.79). One of the reasons to the low rates is that these three items are the new applications of business and production companies don't spend enough time and cost to implement these functions. We supposed that the readiness of organization for knowledge management, staff training and learning, data network and effective information, the process of sharing knowledge and the consult of knowledge affected on promotion of knowledge management in the enterprise resource planning (ERP) environment (H1). The results of research shows that the production companies have strong emphasis on these factors which is facilitate the knowledge management in the enterprise resource planning (ERP) environment.

Cohesion of knowledge management and competitive advantage:

The relationship between knowledge management and competitive advantage has been tested by use of Regression analysis. The multiple Regression analysis has been used for five independent variable that contain the readiness of organization for knowledge management, staff training and learning, data network and information, the process of sharing knowledge and the consult of knowledge. Four variables of competitive advantage (quality, flexibility, time and cost) are dependent variables. The sample is tested four times by each competitive advantage variables as dependent variable. The results of Regression analysis show in table 3 lists R2 is sample, intercept, p is sample value and the parameters of dependent variable. The multiple Regression samples have been calculated by dependent variables, quality, flexibility, time and cost with the same degree of confidence p0.01.

## 6. Conclusion

The production companies, in the decade of e-commerce, are following to prepare end users, partners and customers with the data knowledge of company which is invigorate by implementation of knowledge management in an enterprise resource planning (ERP) environment. The result of research shows that the effective knowledge management should be equipped with the data network and information that is able to collect data from various sources and data distribution via the internet. The process of sharing knowledge also should be created to data integration, its delivery to the users, simplification of complex information, preparing standard reports and the analysis of production information and related to the production information. Although the knowledge management system broadcasts the correct data, reports and information simultaneously it will be able to vest on someone who uses the enterprise resource planning (ERP) systems. The study shows that the organizational learning and committing to continuous learning is the new intellectual framework of knowledge management.

The results of advantages of knowledge management show that it is directly related with the competitive advantage of company such as better financial performance, lower variance of production and purchase costs. User can increase time-based competitive capability by use of knowledge management mechanisms through effective use of information and collected and stored data in the enterprise resource planning systems. The effective knowledge management mechanisms can help to improve of services and the time of responding to customer, increasing of incomes by the faster delivery of products and services to the market, and decreasing costs by elimination of waste and unnecessary process.an innovative way of knowledge management may lead to the improvement of cost performance, high quality, and increasing of flexibility of each organization. In the todays informational economic, the companies which is more aware about competitive opportunities, will





achieve more value and advantage of intellectual properties. Knowledge would be shared among the knowledge management staff, end user, partners and customers in order to achieve more value of the intellectual properties of companies. In the other words knowledge should help to the organization as basis for collaboration of tasks. We defined 5 facilitators for the knowledge management in the enterprise resource planning by the use of 170 data of production companies. Moreover we investigate the relationship between knowledge management and competitive advantage of production companies. The results of research show that the readiness of organization for knowledge management, staff training and learning, data network and information, the process of sharing knowledge and the consult of knowledge have a severe synergistic effect of competitive advantage.

We achieved to the two main results: 1. the creation of a mechanism for direction of knowledge management in the enterprise resource planning environment (ERP) especially readiness of organization for knowledge management, staff training and learning, data network and information, the process of sharing knowledge and the consult of knowledge 2. Knowledge management has a severe effect of competitive advantage in production companies.as the result; production organization should be relay on facilitators of knowledge management in the enterprise resource planning to promote competition

## 7. References

- [1] Black, E. 1999. Enterprise reporting extends ERP with data knowledge. *Manufacturing Systems*, 17(4): 28
- [2] Devenport T, Prusak L. 1998. *Working Knowledge: How Organizations Manage What They Know*. Harvard Business School Press: Boston, Mass.
- [3] Hall D, Paradise D, Courtney J. 2003. Building a theoretical foundation for a learning-oriented knowledge management system *Journal of Information Technology Theory and Application* 5(2): 63–89.
- [4] Hayes R, Pisano G, Upton D, Wheelwright S. 2005. *Operations, Strategy, and Technology*. John Wiley: New York.
- [5] Merriam Webster's Collegiate Dictionary, 1996. Hill T. 1994. 'Manufacturing Strategy' 2nd edn. Irwin: New York.
- [6] Hitt L, Wu D, Zhou X. 2002. Investment in enterprise resource planning: business impact and productivity measures. *Journal of Management Information Systems* 19(1): 71–98.
- [7] Krajewski L, Ritzman L. 1996. *Operations Management: Strategy and Analysis*, Addison-Wesley: Reading, MA.
- [8] Li H, Xu L. 2001. Feature space theory-a mathematical foundation for data mining. *Knowledge-Based Systems* 14(5–6): 253–258.
- [9] Li H, Xu L, Wang J, Mo Z. 2003. Feature space theory in data mining: transformations between extensions and intensions in knowledge representation. *Expert Systems* 20(2): 60–71.
- [10] Li L. 2000. Manufacturing capability development in a changing business environment' *Industrial Management and Data Systems* 100(5–6): 261–270.
- [11] Li L, Xu L. 2002. Knowledge-based problem solving. *Encyclopedia of Microcomputers* 28(7): 149–167.
- [12] Santosus M, Surmacz J. 2005. The ABCs of knowledge management. [www.cio.com/research/knowledge/ edit/kmabcs.html](http://www.cio.com/research/knowledge/edit/kmabcs.html) retrieved July 2005.
- [13] Schultze U, Leidner D. 2002. Studying knowledge management in information systems research: discourses and theoretical assumptions. *MIS Quarterly* 26(3): 213–242.
- [14] Tu Q, Vonderembse M, Ragu-Nathan T, Sharkey T. 2005. Absorptive capacity: enhancing the assimilation of time-based manufacturing practices. *Journal of Operations Management* [Available online 22 June 2005].
- [15] Van Stijn E, Wensley A. 2001. Organizational memory and the completeness of process modeling in ERP systems. *Business Process Management Journal* 7(3): 181–195.
- [16] Wang C, Xu L, Liu X, Qin X. 2005. ERP research, development and implementation in China: an overview. *International Journal of Production Research* 43(18): 3915–3932.
- [17] Warfield J. 1989. *Societal Systems—Planning, Policy and Complexity*. Intersystem Publications: Salinas, CA. [www.sap.com](http://www.sap.com)