Chapter 4 : RESEARCH RESULTS

4.1 Proposition Analysis

The detailed description of the research results of the four cases may be found in Appendices B, C, D and E. The summarized score of the research results is shown in Table 4.1. The score in Table 4.1 was simplified into a high (H) or low (L) indicator in Table 4.2.

With respect to the combination of the potential ACAP and realized ACAP, each of the four companies is distinct. As the interview results summarized in Table 4.3 show, company A has low potential ACAP with low realized ACAP, company B has low potential ACAP with high realized ACAP, company C has high potential ACAP with low realized ACAP and company D has high potential ACAP with high realized ACAP. Even though the four companies this study interviewed understand that the absorption of knowledge related to the ERP systems implementation and use is important for companies, only half of the companies put the concept into practice. On the other hand, even if a company has assimilated knowledge related to the ERP systems exploitation, this does not mean that it can transform and exploit the knowledge properly. Company C is an example of this problem.

Regardless of the level of exploitation of ERP systems in the four companies, their ERP systems benefit realizations were all high, because the operational benefit of the ERP systems is the most basic benefit and the one most easily achieved. In order to further illustrate the different benefits realization among these companies, this study focused on managerial, strategic, IT infrastructure, and organizational benefits.

Table 4.1 Survey results for the four companies

		Company A		Company B		Company C		Company D	
Potential ACAP	Knowledge acquisition	2.6	2.7	3.2	2.75	4.1	4.05	4.3	4.0
	Knowledge assimilation	2.8		2.3		4.0		3.7	
Realized ACAP	Knowledge transformation	2.8	2.6	3.8	3.9	2.8	2.75	3.8	4.1
	Knowledge exploitation	2.4		4.0		2.7		4.4	
Benefit Realization		4.5 / 2.9		4.3 / 4.1		4.3 / 2.7		4.5 / 4.4	

Table 4.2 ACAP results for the four companies

	Company A	Company B	Company C	Company D
Potential ACAP	L	L	H	H
Realized ACAP	L	H	L	H
Benefit	L	H	L	H

Table 4.3 Summary of interview results

	Company A	Company B	Company C	Company D
Knowledge acquisition	• Provides operational documentation • Organizes internal user training • Attends conferences occasionally to learn the latest information about ERP systems	• Provides operational documentation and updates the content dynamically by each division • Organizes internal user training by each division • Attends conferences occasionally to learn the latest information about ERP systems • learns latest information about ERP systems from papers and documentation • Acquires experienced employees as consultants to help in implementation and use	• Provides documentation and on-line help to support users in solving operational problems • Acquires experienced employees as consultants to help implementation and use • Attends conferences to learn how other enterprises employ ERP systems and gain latest information • CIO identifies the technology and concept knowledge which the IT department needs and then organizes training and study groups	• Update the documentations dynamically by IT department and provide on-line F&Q to help users • Attend seminars regularly to know how the new application technology bundled with ERP systems can bring benefits • CIO identifies the technology and concept knowledge which the IT department needs and then organize trainings or gather related knowledge to study • Acquire consultants properly
Knowledge assimilation	• Rarely attend classes about ERP systems provided by IT consulting firms • Audits the operational training but fails to set mechanisms to review IT training provided by IT consulting firms • Provides knowledge platform for ERP systems, but the utilization is low	• Rarely attend classes about ERP systems provided by IT consulting firms • No review mechanisms of training and classes • No knowledge platform for ERP systems	• Regularly attend classes about ERP systems provided by IT partners • The employees need to present what they gained from the conferences and teach other employees to prove their assimilation • Directs managers to closely evaluate the training quality • The employees attending the	• Regularly attend classes about ERP systems provided by vendors • The employees need to present what they gained form the conferences and teach other employees to prove their assimilation • Set the projects for employees not only to exploit the acquired knowledge but

			sharing meeting also needed to be audited by CIO and senior managers • Provides knowledge platform to discuss and share ERP knowledge	also to accelerate the assimilation • Encourage employees to experience practically what they learned
	Company A	**Company B**	**Company C**	**Company D**
Knowledge transformation	• Improves processes to fit the processes embedded in ERP systems in the beginning of implementation • Rarely keeps improving processes of the organization or modifying processes of ERP systems Check and extend hardware/software regularly (every three years) and sometimes rebuild hardware/software when systems crash	• Mostly directed by headquarters to implement applications • Try their best to improve organizational processes to fit the processes embedded in ERP systems instead of substantially customizing their ERP systems • Keeps improving processes of the organization or modifying processes of ERP systems to achieve process optimization • Check and extend hardware/software regularly (every three years) Keep managing changes, including processes, human resource and culture to reduce resistance	• Improves processes to fit the best practice embedded in ERP systems in the beginning of implementation, but rarely keep improving processes • Add systems into ERP systems according to the MIS suggestions Check and extend hardware/software regularly (every three years)	• Improve processes by examining differences processes between ERP systems and the company, by requesting from users and by organizational strategies changing • Try to maintain process optimization. Always pursue the most effective and efficient way to operate • Check and extend hardware/software regularly (every year) Keep managing changes, including processes, human resource and culture to reduce resistance

Knowledge exploitation	• Inside the bloc of their business, integrate the systems to facilitate the transactions but outside the bloc of their business, still deal transactions by using emails • Add the needed modules in the ERP systems • Extract correctness and consistency information from ERP systems for managers • Try to increase the utilization of adopted modules, but the outcome is not outstanding (ex: CRM)	• Extend ERP systems by integrating supply chain management systems (SCM) and customer relationship management systems(CRM) into ERP systems • Add the needed modules/functions in the ERP systems • Extract correctness and consistency information from ERP systems and then transform into high quality customized information for decision making by self-developing function • Upgrade regularly ERP systems by vendor's advice	• Integrate B2B transaction systems (not including suppliers' transactions) and ERP systems, but the utilization is low because the exploitation is in the initial stage • Integrate EIS and ERP systems to gain every day/week report for managers • Try to increase the utilization of adopted modules , but the outcome is not outstanding	• Integrate ERP systems, e-procurement and EDI to streamline processes between suppliers and company and further get the real time information to forecast and react to the dynamic environment • Extract information about transaction records of customers and suppliers to analyze the tendencies and patterns of different customers • Improve the report ERP systems can support to meet the managers decision making • Add the needed functions in the ERP systems, for example, Advanced production schedule(APS) for planning manufacturing products • Increase the utilization of adopted modules/functions by modifying the functions and stimulate the users • Upgrade regularly ERP systems by vendor's advice

	Company A	Company B	Company C	Company D
Benefit Realization	• Reduce labor, inventory and management cost • Improve productivities • Regularly review error rate report and try to keep improving quality Improve inventory and product management	• Reduce labor, inventory and management cost • Improve productivities • Improve decision making provide drill-down information and many customized graphs/forms to support different managers' decision making and performance controlling • Link well with different global suppliers and distributors to allocate inventory properly • Support process organizational structure changes • Increase the employees' satisfaction Increase IT infrastructure capability	• Reduce labor, inventory and management cost • Improve productivities • Improve decision making integrate with executive information systems (EIS) to support managers' decision making • Improve inventory and product management Increase IT infrastructure capability modulized systems can adjust to future changes	• Reduce labor, inventory and management cost • Improve productivities • Improve decision making keep adjusting and improving reports/forms to meet the managers needs • Improve inventory and product management • Link well with different global suppliers and distributors to allocate inventory properly • Support the company growing support processes changing and network complexity increasing • Increase the employees' satisfaction Increase IT infrastructure capability

4.1.1 Propostion1a *Higher potential ACAP with higher realized ACAP leads to higher benefits gained*

Based on prior research, this study knows that higher assimilation helps organizations upgrade the knowledge and capabilities of users to create the potential for use of the ERP systems. If organizations further exploit their ERP systems properly, it is possible to obtain the full value of ERP implementation and use.

The results of the research show that among the interviewed companies, company D is the case of the highest potential ACAP with the highest realized ACAP, leading to the greatest benefits gained. Therefore, proposition 1a is accepted.

- *High Potential ACAP of ERP systems implementation and use*

In company D, the ERP systems have been implemented over ten years and the knowledge related to ERP systems continues to accumulate over time.

They regularly attend seminars informed by vendors or partners to learn and discuss how the new applications bundled with ERP systems can bring benefits for companies. They obtain new information and knowledge not only by attending seminars but also by reading magazines and web resources.

After attending the seminars or obtaining new information, the chief information officer (CIO) may identify the techniques and knowledge which the IT members need and then organize the training and/or study groups. Although the study group is not a formal organization, it enables employees to discuss and brainstorm with persons having the same interests. In other words, company D encourages employees to catch new information and knowledge and then discuss or communicate ot to others. In this way, each employee obtains increasing amounts of knowledge with minimal effort.

The employees also go to the classes in topics such as supply chain management (SCM) and business process management (BPM) provided by vendors. After classes, the employees must report to their managers to demonstrate their assimilation. Sometimes, if managers consider the technique/knowledge to be critical for ERP systems use in the future, the employees need to present or teach what they learned to other members.

Although company D does not have audit mechanisms to examine whether the employees assimilate knowledge from classes, company D provides another way to confirm and accelerate assimilation. Company D establishes different projects to enable the employees to implement the technology or knowledge in a practical way. For example, recently, they developed a project called "business intelligence (BI)" to exploit what they have learned, and to give pilot tests for implementation. As the CIO of company D said, if the company wants to retain good employees, challenges and achievements must be provided, in addition to monetary rewards. Thus, they encourage employees to experiment.

In addition to the above obtainment and assimilation of knowledge, company D also makes use of consultants to assist in implementing new applications of ERP systems. They take the opportunity to learn what the methods are adopted by consultants, how to implement the systems, and why a particular method is adopted. They attempt to learn much as possible a from the consultants. Even after projects are finished, they review and discuss the knowledge and technology the consultants introduced and then identified areas where their knowledge is poor. They then attempt to strengthen areas where they feel they are lacking.

- *High Realized ACAP of ERP systems implementation and use*

After implementing ERP systems, company D continues improving processes to fit user needs and organizational strategy changes. For example, company D expanded from a local firm to a global firm, adding and removing businesses, as well as undergoing business process reengineering. Thus, the processes embedded in ERP systems and organizational processes need to continue being changed. Company D does not change merely the processes of the ERP systems or the organizational processes to adapt the changes. They attempt to locate the most efficient alignment between ERP systems processes and organizational processes. In other words, they try to strike a balance between the different processes and pursue process optimization, all at the same time.

Not only does Company D manage its processes well, but it also brings the ERP systems almost entirely into full play.

- Company D integrates ERP systems, e-procurement and EDI, into upstream processes between the suppliers and the company and further, obtains real time information to forecast and react to the dynamic environment.
  For example, Company D extends ERP systems by integrating the supply chain management platform to communicate with their suppliers. All transactions would be recorded and processed by the platform and then company D can know the latest information about the manufacturing and delivering plans of suppliers. The information of suppliers and internal manufacturing information would then be gathered and scheduled by the ERP systems and optimized manufacturing and purchasing plans sequentially produced.

- Obtain high quality information from ERP systems.
  Company D extracts information about transaction records of customers and suppliers to analyze and stimulate the tendencies and patterns of different customers and suppliers, such as purchase forecasting. Company D also studies industry and product trends from the customer orders over time, and then strengthens their business for replying to the oncoming changes.

- They improve the reports of ERP systems to support decision making.

Company D obtains and analyzes information from ERP systems and transforms it into high quality information. Further, it provides the right information for "right" persons to support decision making. The managers of company D are able to obtain a wide variety of reports to meet their needs. The CIO of company D says that if they (managers) do not like a particular report, another and another will be provided, until they nod and smile.

■ Needed functions may be added to extend the ERP systems.
Company D adds functions because its processes change, making ERP systems more powerful. For example, it has added an "advanced production schedule" (APS) in the ERP systems integrated with the supply chain management platform for gathering information and then scheduling product manufacturing. It also implements an HRMs (human resource management system) module embedded in the ERP system to manage employee personnel files.

■ Company D increases the utilization of adopted modules/functions by modifying the functions and stimulating users.
In the beginning, the utilization of the quality control (QC) module and capital assets module were low. But after the IT department improved use to meet user needs and encouraged employees to exploit the modules, the capital assets module became the fundamental vehicle of financial analysis.

■ Company D regularly upgrades ERP systems based on vendor's advice.
Company D continues to gain new functions and upgraded versions of its ERP systems by upgrading to catch up with the rapidly changing business environment. It optimizes its ERP systems for maximum efficiency.

● *High Benefits of ERP systems use*

The benefits created in the exploitation of ERP systems may be seen in their use by company D. Since company D uses its ERP systems well, the benefits obtained are great. ERP systems can *reduce labor, inventory, and management costs,* since all processes are automatic and ERP systems provide real time, accurate inventory information to reduce management costs. After implementation of the ERP systems, *each employee can deal with a greater number of customers and their orders.* In addition to obtaining great operational benefits, company D also experiences other benefits from its ERP systems, outlined below.

■ Improved decision making.
Company D extracts high quality information from ERP systems and adjusts and improves reporting to meet managers' needs. In addition to passively supporting decision making from managers' requests, they also actively make informal surveys of managers' use to understand the requirements of managers. Thus, they can find

the right information for the right persons.

- Link well with different global suppliers and distributors to allocate inventory properly.

  Building an entire network centered on the ERP system enables automation of supply chain processes, internal processes, and downstream customer transaction processes. Thus, through information from the entire transaction chain, company D can allocate resources properly and handle exceptions in a timely fashion.

- Support company growth.

  ERP systems can support processes as they change from local to global and the complexity of the network increases.

- Increases employee satisfaction.

  In additional to supporting decision making, ERP systems enable employees to work easily and quickly. For example, after company D implemented the HRMS in the ERP, the employees of the HR department did not need to maintain multiple databases. They manage the data more easily and can still maintain the security of employee information.

- Increase IT infrastructure capability.

  ERP systems can build business flexibility for current and future changes. Over the last ten years, through extension, deletion, and adjustment of the functions of the ERP system, the needs of the company can be satisfactorily met. The CIO of company D is confident that current ERP systems can cope with the next round of changes.

In sum, company D provides an open and abundant resource environment to stimulate employees to learn more and to exploit acquired knowledge to the extent possible. Consequently, they obtain great benefits from ERP use. Thus, this study believes proposition 1a is supported by company D.

4.1.2 Propostion1b *Higher potential ACAP with Lower realized ACAP leads to Lower benefits*

Zahra and George (2002) argued that potential ACAP is useful for organizations that compete in a changing environment, but that benefits cannot be realized without transformation and exploitation of it. Thus, organizations should employ the accumulated potential knowledge/skills properly, or the potential resource will remain "potential".

Our analysis shows that company C is the case of higher potential ACAP with lower realized

ACAP, leading to lower benefits gained. Therefore, proposition 1b is accepted.

- *High Potential ACAP of ERP systems implementation and use*

In company C, ERP systems have been implemented over five years and significant resources have been invested in training and in other classes to learn ERP system knowledge and skills.

Company C provides documentation and on-line help to support users. Users can login into the FAQ to learn about the system.

Company C employees attend conferences to learn how other enterprises exploit their ERP systems and obtain the latest information about ERP systems. Company C also studies the future extent of ERP systems and integration with new concepts and technologies, such as SOA applications and supply chain management. Employees who attended ERP conferences need to discuss them with their CIO and share their findings with other employees. Then, the CIO may identify what new knowledge and technology the employees need to further study. If the CIO identifies knowledge and technology the employees want to learn on their own, the CIO will organize study groups to gather related books, papers, and websites. If the knowledge and technology they want to learn cannot be easily learned, the employees will be offered classes.

After attending classes such as database applying of ERP systems provided by IT partners and process management, the employees present what they learned in the classes to other employees. However, that is insufficient to ensure that the employees indeed assimilate the knowledge.

Managers closely evaluate the training quality.

Whether in study groups or in internal classes in which the employees teach what they have learned from conferences and classes, senior managers from company C, including the CIO and sometimes the CEO, would be present to ask questions and evaluate attendees' assimilation. Thus, the employees try their best to learn the new knowledge and be prepared for unexpected questions. In this way, the "teachers" and "students" of the internal classes and members of the study groups pay close attention to their classes and are motivated to absorb the knowledge they need.

Company C emphasizes leader involvement. Managers want employees to feel that the classes and study groups are important and that the managers value their employees. The employees are not only cared for in their learning, but are also given pressure to assimilate the required knowledge.

Company C also provides a knowledge platform to discuss and share knowledge, including knowledge about ERP systems. In the beginning, it provides everyday living information and entertainment information to stimulate employees to post their opinions and experiences. After employees became used to using the platform, the company started to encourage

employees to put their knowledge in the platform for sharing. Employees were motivated to exploit the platform by use of the click rate as a performance measurement. Thus, use of the knowledge platform grew.

- *Low Realized ACAP of ERP systems implementation and use*

After implementing ERP systems, company C improved organizational processes and customized certain processes embedded in the ERP systems to fit user needs and operational needs. But now that several years have passed, they seldom make process improvements. Only rarely do they set out to discover which processes need improvement or what improvements can make operations more effective. They ignore the benefits that process optimization can create.

Company C integrates its ERP systems with B2B transaction systems via Rosetta net, but targets only customers, not suppliers, in this integration. The transactions are automatic and all recorded in ERP systems. Although company C obtains customer and transaction information more easily and in greater detail, it rarely employs the data to forecast upcoming seasonal demand and rarely analyzes customer information to learn valuable information, such as the preferences of different customers.

In company C the focus of the ERP system is on decision making for managers. Company C integrates ERP systems with an executive information system (EIS) to provide daily, weekly, and monthly reports for different level managers. The CEO requires that all managers study the daily report, which includes such items as inventory changes, the amount of sales for each product, and amount of purchases for each item.

Company C added necessary functions such as financial systems (Licence) to its ERP system, raising usage, since that function is necessary for operations. However, usage of some functions such as customer relationship management and human resource management is low, but company C has not done anything to improve the use of those functions, as users resist, and managers believe those functions are unnecessary.

- *Why C cannot realize its ERP potential*

Company C is a special case in our study, since it is facing a transformation. Company C was sold to another conglomerate and is currently integrating its systems and processes with another company. At present, the turnover rate is high and exceptional employees are transferring to the parent company. Further, the CEO of company C stated that the quality of their IT professionals is unstable and unusually low after the merger. Thus, this study infers that the potential ACAP cannot be realized because of the quality of human resources, and the high turnover rate.

Unless and until company C adjusts and reorganizes its IT human capital, it will not be able to make full use of its ERP systems and garner all the benefits they offer.

- *Low Benefits of ERP systems use*

Since the company C does not fully use its ERP system, it cannot obtain a robust set of benefits from the system. Below this study outlines the benefits it has obtained.

■ The operational benefits are high.

Company C has reduced inventory costs from NT$2.5 billion to NT$0.5 billions and also decreased its labor costs. Additionally, inventory time has decreased from 2.5 months to about 0.9 months. Productivity per employee, especially for operational employees, has also risen. The company estimates that the revenue per employee has jumped from NT$10 million to NT$75 millions. Further, the error rate has fallen.

■ Support for managerial decision making

Company C focuses on manager decision making support by its ERP systems, and has strengthened this module. Company C extracts information such as inventory changes and sales volume for each product to assist in decision making. It combines the EIS and ERP systems to provide customized reports for different managers. Users report high satisfaction with the decision making systems.

■ Increased IT infrastructure capability

Company C has reduced labor costs (IT employees) and investment in unrelated systems, but it needs more investment in the application of ERP systems. The modularized systems within the ERP system can be easily adapted to future needs.

Although company C provides an extensive training program for its employees and implements audit mechanisms to evaluate their assimilation of new knowledge, company C does not have the realized capability to bring potential into the full play. Thus, they cannot fully reap the benefits from their ERP systems implementation and use. After analysis of this case, this study finds that proposition 1b is supported.

4.1.3 Propostion1c *Lower potential ACAP with higher realized ACAP leads to Lower benefits*

Lower assimilation with higher exploitation may mean that the exploitation is based on imperfectly or partially transformed knowledge (Zahra and George 2002) or on imitation of others. Different organizations exploit their ERP systems differently (Shang and Seddon, 2002). Thus, in our proposition, the benefits obtained by company C over the long term

appear to be low.

However, our analysis shows that company B offers the case of higher potential ACAP with lower realized ACAP, leading to *higher* benefits gained. Although company B has low potential ACAP, the parent company gives instruction on how to extend and exploit ERP systems. Further, the parent company has assigned several IT professionals and consultants to support ERP systems implementation and exploitation. For this reason, the benefits company B reaps from ERP systems is high. Therefore, proposition1c is *not* completely accepted.

- *Low Potential ACAP of ERP systems implementation and use*

Company B has implemented ERP systems for five years. It did not invest much in training or in classes, but it still enjoys high exploitation.

Company B provides documentation for ERP systems use and updates them irregularly in each division of company. For example, the marketing department proposes modification of the processes, and IT employees then convene a meeting of the relevant employees from other divisions to discuss and evaluate the processes that need changed. After reaching consensus, the processes are modified and the changed recorded in the documentation for future reference.

Company B attends seminars once in a while to obtain new knowledge about its ERP systems, sometimes at the behest of the parent company. Though the parent company recommends useful seminars and classes, company B rarely attends them, believing that the classes and seminars are unnecessary, and because of budget limitations.

Instead, company B gains the necessary knowledge largely from business papers, books, and websites. IT employees search for knowledge on their own and then discuss with other employees to further understand and share the new knowledge. They call this kind of learning "spontaneous learning".

The most common way company B obtains external knowledge is to acquire experienced professionals as IT employees to support ERP systems implementation and exploitation. In this way, company B lowers training costs.

Since company B rarely attends ERP system classes, they do not have mechanisms to ensure the assimilation of new knowledge by employees. They also do not have a formal platform for knowledge sharing among IT employees. Thus, this study can infer that the knowledge diffusion between IT employees is uncommon.

- *High Realized ACAP of ERP systems implementation and use*

Even though company B has low potential ACAP, they can still realize the benefits of ERP systems since their exploitation of ERP systems is implemented primarily by headquarters.

Company B rarely attends global meetings held by the parent firm, but it still obtains the latest information on ERP systems from the suggestions of the parent firm. After the headquarters of the parent firm hands down a resolution on ERP system use, the headquarters assigns professionals and consultants to direct and support implementation. Of course, such professionals and consultants may modify the applications differently in the different subsidiary companies. After implementation, headquarters will know whether the changes are successful from process efficiency data and reports. Thus, company B has a high exploitation of ERP systems and enjoys substantial ERP systems benefits.

Company B attempts to align its own systems with the best practices embedded in the ERP system, instead of substantially customizing their ERP systems. Company B seldom changes system functions and reports because it is required to use a unified form in reporting to the parent company. It also continuously improves organizational processes and lightly modifies system processes to achieve processes optimization. In addition to changes in its processes, company B must also manage changes including human resource relocation, process balancing, and cultural issues, to reduce resistance. For example, it holds meetings to convince users that changes are good for the employees and the company. This enables them to implement applications without major difficulties. The important ERP system characteristics of company B are given below.

- It adds needed modules/ functions to support the changing needs of the company.

Each division can propose process changes. After arriving at a consensus on the proposed changes, the IT employees add functions or applications to meet user needs or strategy changes. For example, they added a customer relationship management (CRM) application to th ERP systems to gather customer information, such as transaction history and purchase preferences, and to analyze information to support marketing strategy and product design.

- It extracts correct and consistent information from ERP systems.

Company B transforms data extracted from the ERP systems into high quality customized information for decision making using a function developed in-house. Different division managers can obtain decision making reports tailored to their needs. Therefore, managers in company B have high satisfaction with their ERP systems for decision support.

- It integrates supply chain management systems (SCM) with ERP systems and customer relationship management (CRM) systems.

They integrate different suppliers' processes with their ERP systems and then deal with orders in the electronic platform to accelerate transaction efficiency and keep the order information to track easily and further analyze. Even, they are going to adapt the application of ERP systems called "advanced SCM". The "advanced SCM" is directed

against the global enterprises to manage/coordinate different subsidiaries' purchases, manufacture and the most important issue, inventory, to increase price negotiation and decrease inventory incongruity.

- IT regularly upgrades ERP systems based on vendor advice.

Company B obtains new functions and modified versions of its ERP system by upgrading to keep up with the rapidly changing business environment. It optimizes its ERP systems for efficient use.

- *High Benefits of ERP systems use*

Benefits accruing to Company B include operational benefits such as reduced labor, inventory, and management costs, and improved productivity. After implementation of the ERP system, *each employee can deal with a greater number of customer orders*. Bellows are given the other benefits of the ERP systems use of company B.

- Improved decision making.

  The ERP system provides drill-down information and customized graphs/forms to support managerial decision making and performance control. Company B uses an application developed in-house to extract real-time and consistent information from ERP systems and analyze it from different dimensions for different managers. Managers can customize the reports based on their needs. Thus, the reports closely reflect managerial requirements.

- Link with global suppliers and distributors to allocate inventory properly.

  Company B adapts an advanced SCM to allocate its global resources to balance demand and supply. It knows the inventory conditions of suppliers and distributors and then organizes purchase plans and allocates distributor inventory accordingly.

- Increased employee satisfaction.

  ERP systems operate many processes and check order information automatically. Employees can thus direct their effort to more important affairs. Further, managers can obtain the exact reports they want. After implementation of the ERP system and the in-house development of the decision making application, managers can easily obtain information to support their decision making.

- Increased IT infrastructure capability.

  ERP systems can build business flexibility for current and future changes. The CIO of company B said that they can easily add modules/functions and extend systems in conjunction with other systems such as CRM and SCM to make full use of their ERP systems.

Although company B does not have a strong capability of knowledge acquisition and knowledge assimilation in-house, it can exploit its ERP systems based on suggestions and commands from its parent firm. Professionals at the parent headquarters evaluate the environment and the future development of ERP systems, and then draw up ERP system plans for the entire company. After modifying systems and needs based on different regions, such plans can streamline global processes and facilitate resource utilization. Thus, company B can reap benefits from ERP systems implementation and use.

After analyzing the case, this study found that company B has assistance from its parent company. They both follow instructions from above and localize ERP system use to meet internal needs. ***If the strategies provided by headquarters are good for company B and company B can also modify the suggestions depending on its local needs, the benefits company B can gain may be not limited to the short term.*** Therefore, based on our analysis of company B, this study does ***not*** completely agree with proposition 1c.

4.1.4 Propostion1d *Lower potential ACAP with Lower realized ACAP leads to Lower benefits*

According to the research review, lower potential ACAP with lower realized ACAP cannot lead to greater benefits. The results of our research show that company A is a case of lower potential ACAP with lower realized ACAP, leading to lower benefits gained. Therefore, proposition1d is accepted.

● *Low Potential ACAP of ERP systems implementation and use*

Company A has implemented ERP systems for ten years. It did not invest much in training or classes, and thus it is not surprising that it experiences low exploitation and low benefits.

Sine the role of the IT department is still a supporting one, and a cost center in company A, the budgets for IT are low and limited. Company A rarely attends seminars and classes to find out the latest information. It organizes internal training for operational employees, but ignores training for IT professionals that might improve their knowledge and skills. The classes they attend are primarily concerned with database management and application.

Company A provides a knowledge platform to share knowledge related ERP systems use, but the utilization is low, even though it has adopted the click-rate as a performance measurement. The CIO observed that his IT employees are busy dealing with user problems and thus they have no time to perform "additional tasks". This study can thus infer that knowledge diffusion in company A is low.

● *Low Realized ACAP of ERP systems implementation and use*

Company A improved its processes during the initial phases of ERP implementation, but since then has seldom improved process efficiency and or performed optimization. The ERP systems use of company A is relatively more conservative and passive, since the company only rarely takes in new knowledge. Company A's ERP system usage is outlined below.

- Company A integrates ERP systems with supplier systems to automatically accomplish transactions but outside the bloc of their business they deal with transactions by using emails.

- Adds needed modules to the ERP systems.
  Company A adds functions and modules, such as salary modules, to its ERP systems to meet the needs of its users and business.

- Company A extracts correct, consistent information from its ERP systems for managers, but its output and the analysis tools are kept in Excel as that us what is users are accustomed to.

- *Low Benefits of ERP systems use*

The main benefits company A can get from ERP systems use are operational benefits. For example, ERP systems can reduce labor, inventory, and management costs while increasing employee productivity to twice the level of pre-ERP implementation.

Company A also regularly reviews error rate reports and improves logistics quality constantly.

ERP systems use of company A supports decision making. Managers are satisfied with the current information analysis tools and format of reports.

Company A does not actively acquire new knowledge about ERP systems use and naturally it does not have sufficient potential resource to realize into great benefits. Essentially, company A believes that ERP systems do not offer great advantage. It treats ERP systems as mere internal enterprise systems. After analyzing the case, this study believes that proposition 1d is supported by company A.

4.1.5 Proposition 2 *The higher the potential capacity of the ERP knowledge, the higher the realized capacity of the ERP knowledge*

According to Zahra and George (2002), potential ACAP and realized ACAP are separate but complementary. This implies that talent cannot be brought into full play without each one playing a role. Good absorption is necessary before exploiting knowledge. Similarly, good

usage after assimilation can realize the benefits that enterprises expected. The relationship between the two appears to be one of cause and effect. Thus, this study initially inferred that higher potential capacity of ERP knowledge can lead to higher realized capacity of ERP knowledge.

But our results show that they do not have a cause and effect relationship. Higher potential capacity dose not always lead to higher realized capacity. For example, company C invests in training and encourages employees to learn and share what they have learned, but company C does not obtain all the benefits of such activities. It focuses on potential capacity, and ignores the capability to exploit the ERP system. It absorbs and assimilates knowledge to the extent possible, but takes no steps to ensure that employees put into practice what they have learned. Thus, company C does not appear to benefit from the ERP knowledge it absorbs.

This means that potential ACAP cannot automatically be transformed into realized ACAP. In other words, companies that have high potential capacity for ERP knowledge cannot expect that they can directly benefit from potential capacity. They must emphasize both potential capacity and realized capacity to take full advantage of ERP systems.

Higher realized capacity does not always come from higher potential capacity

Company B has high realized ACAP and gains extensive benefits from its ERP systems, but does not have high potential ACAP. Instead, it takes advantage of knowledge and support from its parent firm. IT professionals and consultants at the headquarters provide suggestions and guidance on using ERP systems to meet environmental changes. Company B needs merely to modify and localize ERP system changes. The high realized capacity of company B stems from good external knowledge and practical external support.

Therefore, company B shows that higher realized capacity does not always come from higher potential capacity.

After analyzing companies B and C, this study concludes that higher realized capacity of ERP knowledge does not always lead to higher realized capacity of ERP knowledge. In company C, though potential capacity is high, it does not translate into great benefits. Company C takes it for granted that well-trained IT employees would naturally understand how to exploit assimilated knowledge. But to date, company C has not reaped great benefits from their investment in ERP systems and training.

By contrast, company B has fewer training sessions and classes to support IT employees in assimilating knowledge, but they have a mighty resource, the headquarters of the parent firm, that provides suggestions and assistance in use of their ERP systems. Thus, they benefit from ERP system use.

Based on the analysis of companies B and C, this study thus rejects the proposition that higher realized capacity comes from higher potential capacity. In some cases higher realized

capacity is consonant with low potential capacity, while in others, potential capacity never manages to become fully realized.

4.1.6 Brief summary

Table 4.4 gives a summary of our results and conclusions. This study accepts propositions 1a, 1b, and 1d, but rejects propositions 1c and 2.

Table 4.4 Summary of result

	Proposition1a	**Proposition1b**	**Proposition1c**	**Proposition1d**	**Proposition2**
Potential ACAP	H	H	L	L	H
Realized ACAP	H	L	H	L	H
Benefit	H	L	L	L	
	Accept	*Accept*	*Reject*	*Accept*	*Reject*
Supported case	**Company D**	**Company C**	**Company B**	**Company A**	**Company B &C**
Brief Description	Provides good environments and mechanisms to develop potential and realized ACAP. Thus, gains high benefits.	Only provides good environment and mechanisms to develop potential ACAP, but ignores mechanisms that facilitate realized ACAP. Now faces transformation and HR shortages, and realization are low.	It Has low potential ACAP but gains support and suggestions from parent firm professionals and consultants. Thus, it has high realized ACAP and high benefits.	Views IT department as cost center and views ERP systems as merely internal management systems. Thus, the IT budget is limited, and potential ACAP and realized ACAP are low.	Having high potential capacity does not mean having realized capacity. Companies need to learn how to exploit and realize potential capacity instead of expecting exploitation to occur automatically.