AN ANALYSIS OF THE STRATEGIC FACTORS THAT IMPACT ON THE
SUCCESS OF IMPLEMENTING INFORMATION SYSTEM AMONG
STAKEHOLDERS: A CASE STUDY OF BANPU PLC. IN THAILAND AND
INDONESIA

By

VASANA VORAVILAWAN

A Thesis submitted in partial fulfillment
of the requirement for the degree of

Master of Business Administration

Graduate School of Business
Assumption University
Bangkok, Thailand

November 2004

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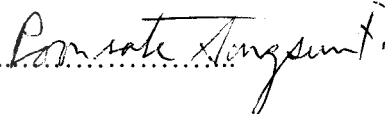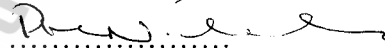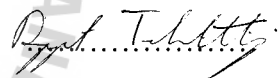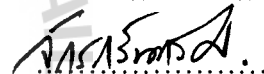
By

YASANA VORAVILAWAN

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Examination Committee :

1.   Dr. Chittipa Ngamkroeckjoti   (Advisor)

2.   Dr. Jakarin Srimoon   (Member)

3.   Dr. Rapeepat Techakittiroj   (Member)

4.   Dr. Philip Nicholls   (Member)

5.   Assoc.Prof. Poonsak Sangsunt   (MOE Representative)

Examined on : 26 November 2004
Approved for Graduation on :

Graduate School of Business
Assumption University
Bangkok, Thailand
November
2004

ABSTRACT

This study examines influential factors toward the success of implementing the Information Systems of Banpu Public Company Limited. The study aims to investigate the relationship of influential factors whether independent variables which consist of support for daily operation, users' hand-on activity, interpersonal communication practice/skill of team members, efficiency of hardware and software, and target of implementation are correlated with dependent variable, success of Information System implementation.

This study focuses on qualitative methodology by in-depth interviews with groups of participants located in Thailand and Indonesia. The participants focused on two top managers in Thailand and Indonesia, six project managers in Thailand and Indonesia and 27 functional users in Indonesia.

The result from discussions and managerial implications of top managers indicates that major independent variables consist of support for daily operation, users' hands-on activity, interpersonal communication practice/skill of team members, efficiency of hardware and software, and target of implementation are correlated with dependent variable, and success of Information System implementation. Besides, there were other influential factors that influenced the implementing Information Systems through top managers, project managers and functional users.

ACKNOWLEDGEMENT

To accomplish this research study is fairly a challenging task for me. In the very first place, I wish to express my profound gratitude towards my beloved parents, sister, brother and sister-in-law, who all have been understanding and givin me moral support throughout my whole life. Despite the hard time randomly encountered, I managed to make it through because of them.

Next, I would like to express my sincere gratitude to my advisor, Dr. Chittipa Ngamkroeckjoti for her knowledge and constant moral support, encouragement, advice and valuable recommendations throughout my study. Furthermore, my thankfulness is extended to the appreciable thesis committee members: Dr. Jakarin Srimoon, Dr Rapeepat Techakittiroj, Dr. Philip Nicholls and other professors in Assumption University for their useful advice.

Indeed, I would like to thank Banpu Public Company Limited, my boss and colleague both in Thailand and Indonesia, who dedicated their time during in-depth my interview period so that I could collect useful and crucial information to complete my study.

Lastly, I heartily reserve my unforgettable appreciable for all my loving friends who always stand by me and listen to my complaints whenever and wherever I feel I needed them. Thank you all.

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CHAPTER 1

GENERALITIES OF STUDY

1.1 Introduction of Research

Currently, new technology plays an important role in every organization. The information from Information Systems is the ultimate result that management needs. They use the information in analyzing and making decision. Whether the information can be used as expected or not, depends on the success of implementing Information Systems. "Successful implementation" does not mean only implementation delivered on time and budget, but it is also used by End Users regularly under Standard Operation Procedure (SOP) for consistency of information. Otherwise the information may lack reliability, accuracy and currency for management's decision making. So implementing Information System will depend on various factors. A factor that is very important in implementing any Information System projects is end user because many steps in implementation will need end users' participation and involvement. Thus, understanding end users' requirement, means more success and will complete the Information System Implementation.

A study by Keil and Robey (2001), found that only 26% of Information System (IS) projects are delivered on time, on budget, and with the promised functionality. Many of these system failures have been blamed on failures of technology, failures in the requirements gathering process, or failures in system design but little attention has been paid to interpersonal conflict between IS developers and clients as a potential source of difficulties.

Barki and Hartwick (2001) first addressed issues of conflict in IS development. They obtained survey data from 265 IS staffs and 272 users who worked on the total 162 IS projects. They found that for conflicts to occur, three dimensions of difficulties, which they called disagreements, interference and negative emotion, must be presented. They also used their data to design a model to represent interpersonal conflict in the IS development and attempted to show how organizations can identify and manage conflicts better.

User participation is frequently cited as a major factor in the Information System Development (ISD) process (Mumford, 1981; 1983). The focus on increasing user participation in the ISD activity resulted mainly from the many failures in Information Systems (IS) that occurred in the late 1960's and 1970's, which were mainly considered from an organizational perspective (Mumford & MacDonald, 1989). To overcome the problems resulting from these failures ISD has become more user orientated and the focus of ISD methodologies has become more social than technical. This shift has led to the evolution of 'participation-centered' ISD methodologies which take into account not only technical factors but also organizational human factors (Mumford, 1981; Mumford & MacDonald, 1989).

To make significant changes to work practices, culture and thinking need to be made if participative principles are to be adopted into ISD activity. For a successful participation, the IS developer needs to acquire group facilitation and social coaching skills while the systems participants need to attain technical knowledge. These requirements are necessary so that developers and participants have the ability and necessary skills to communicate effectively with each other. The incorporation of these participative methods requires increased user involvement in the development process which leads to changes in decision-making responsibilities and thus changes to the distribution of power and responsibility in the organization. Typically, the deployment of participation in ISD practice is fraught with considerable barriers and it gives rise

to further complications and suffers distortion when it is actually implemented (Hirschheim & Newman, 1988; Checklands & Scholes, 1990). Despite these complications researchers have initiated a paradigmatic shift in ISD methodologies, from a technical to a user-orientated focus, in an attempt to overcome past development problems like projects running over time, over budget, not achieving set objectives and encountering considerable user resistance (Mumford & MacDonald, 1989).

User involvement and participation is one of the most cited Critical Success Factors (CSFs) in IS implementation projects (Bingi *et al,.* 1999, Esteves and Pastor 2000, Nah *et al.,* 2001, Kawalek and Wood Harper, 2002). Esteves and Pastor (2000) found that user involvement and participation results in a better fit of user requirements achieving better system quality, use and acceptance. The terms 'user involvement' and 'user participation' have been commonly used interchangeably in the Information System (IS) literature (Barki and Hartwick, 1994), which most accepted model of user involvement, user participation and system use was developed and tested by them.

1.2 Statement of problem

There are various potential causes of implementing Information System leading to success or failure. One of the potential causes of problems among *functional users, Project managers, top managers and* IS developers is the "user-IS relationship" (Hartwick and Barki, 1998)). This process involves some degree of communication clarity, but also some levels of ambiguity. And of course, numerous internal and external variables may influence the effectiveness of the process. IS specialists' communication skills matching with IS users and IS

project managers are essential to succeed in communication. If one's communication skills (or styles) differ from the receiver's, then communication may suffer.

Although many IS studies have argued the importance of the IS developers' communication skills, the differences in levels of communication skills among different IS stakeholders has not been examined in the current IS literature (Keil, M. & Carmel, E., 1995; Hartwick and Barki, 1998).

The technology-centered approach does not consider end user participation as a factor affecting the eventual utilization of an organizational Information System (IS). Because ISs were designed to automate routine, clear-cut manual tasks, new implementation of changes to existing systems were considered "fixes" to localized problems, rather than recognizing the need to improve business processes or the manner in which employees performed their jobs. Zuboff (1988) likened this to automation versus information. She defined the distinction between the two terms as providing "one way to understand how this technology is treated narrowly in its automating function, it perpetuates the logic of the industrial machine".

To resolve the inherent problems with the design and development of ISs, organizations work to establish appropriate practices for dealing with people, systems, project, and organizational change. These practices ultimately shape the jobs of the end users and define the methodologies used in future ISs development projects.

Therefore, the research problem of this study is "What will identify successful performance in implementing IS among *top managers*, *project managers*, and *functional users* between Thailand and Indonesia?"

1.3 Objectives of Research

The purpose of this study is to increase understanding and improve IS implementation processes and procedures and to identify the major significant criteria that influence successful implementation of Information Systems.

(a)   To gather in-depth data of the relationships of issues among *top manager*, *project managers* and *functional users*.

(b)   To recommend top management changes of strategic issues in order to be better aware of

1.4 Scope of Research

Data collection of the target population is concentrated on groups of *top managers*, *project managers* and *functional users* in Thailand and Indonesia. *Functional user* will be categorized into three groups that consist of: -

1. Purchasing – to purchase goods, spare parts or services to requesters and also do receiving goods and services.

2. Warehouse – to receive purchased spare parts, issue spare parts and manage physical count in the warehouse

3. Accounting – to operate daily accounting jobs. For example : to enter transactions into the system and reconcile the data.

This research will be conducted to study application software particularly named Oracle Financials and Oracle Distribution module by Oracle (Thailand) Company Limited.

Table 1.1 Scope of users and their targeted countries

Users	Country	Number of Targeted Users	Total	Cumulative percentage
Top managers	Thailand	1		
Top managers	Indonesia	1		
Total - *top managers*			2	6%
Project managers	Thailand	3		
Project managers	Indonesia	3		
Total - *Project manager*			6	17%
Functional users	Indonesia	27	27	77%
Total			35	100%

Source : Interviewing results

Table 1.1 (p. 6) represents groups of users which are classified as the following: -

1. *Top managers* with the sample of Thailand and Indonesia as all policies in Thailand are transferred to Indonesia.

2. *Project managers* with the sample of Thailand and Indonesia as all policies in Thailand are transferred to Indonesia.

3. *Functional users* with the sample from Indonesia only as implementation of IS occurs there.

1.5 Limitation of Research

Some interview data may be represented which does not generate overall idea of the entire circumstance. For instance, a company may have different applications concerning participants and the group of *top managers*, *project managers* and *functional users* who are

located in various areas, such as Bangkok, Jakarta, four provinces in South Kalimantan and East Kalimantan; thus researcher could not conduct the survey in order to gather data from every user. Furthermore, interview method is time consuming, participant may not be able to dedicate their time to response to questions as much as the researcher had expected.

Some interview datas may show gap of data because of the difference in the point of view for each level of users. For instance, *top managers* may be concerned with strategic datas. *Project managers* may be concerned with an output of the project and project schedules while *functional users* may be concerned with easy daily operations.

Moreover, this research uses qualitative method so it cannot qualify in the numeric or scale.

1.6 Significance of this study

This research is designed to provide value to all participants in the form of a learning experience, an intervention, and as an instigation of positive change. The language of the analysis used in this study is designed to appeal to IS developers, end users, and mangers. It is not an identification of social problems or communication gaps between members of an organization. It is not intended to duplicate the perceived lack of a common language found in the world of IS implementation. The final manuscript reflecting new understandings and insights will be shared with the participants. It is hoped that this research will lead to the instigation of positive change in future IS implementation in the organization studied and also can understand and develop strategy to achieve the objective efficiently and affectively with fast time and budgeted cost.

1.7 Definition of Terms

IS (Information System):   An IS consists of interrelated components that collect, process, store, and disseminate information to support decision-making, control, analysis, and visualization within any organization. (Source: Ruheder, 1995, p.181).

In this study IS means implementing Oracle Financials to subsidiaries companies of Banpu Public Company Limited.

ISD:

(Information System Development)   An IS development is the organizational procedure for replacing, changing, or adding a new IS. (Source: Barki and Hartwick, 1989)

User involvement: End user involvement is a psychological state reflecting the importance and personal relevance of a system to its user. (Source: Barki and Hartwick, 1989, p.53)

User participation: End user participation defines the activities performed by end users during the system development. (Source: Barki and Hartwick, 1989, p. 53)

Top Manager(s):

(in the steering committee   The top level of organization structure or any committees that will give the vision, the mission and/or the strategic

of this project) guideline to lower levels for actions (identified by author specifically for this study)

Project manager(s): The authorized person who is responsible for achieving the project (identified by author specifically for this study)

Functional User(s): The end users utilize organizational IS to attain specific performance goals, complete related work assignments, and/or assist in effective decision making (identified by author specifically for this study)

1.8 List of Abbreviation

Abbreviation	Full Name
IS	Information System
ISD	Information System Development
CSF	Critical Success Factor
SDLC	System Development Life Cycle
IT...	Information Technology
Co., Ltd..	Company Limted

CHAPTER 2

REVIEW OF LITERATURE AND RELATED STUDIES

The following discussions are intended to review and highlight the major concepts and theoretical formulations relevant to the study. Four major areas of literature review are conducted in this chapter. The first part is the review of the end user in relation to: (1) the System Development Life Cycle, (2) types of users, end user participation, (3) system developer(s), and (4) organizational culture. The second part is communication linked to social action. The third part is organizational culture in relation to information systems and the forth part is utilization and participation of end users.

2.1 End Users; Systems

End users are defined as the people who use an Information System (IS) on a daily basis. They typically key data into the system, create output that is used to monitor or analyze data, and depend upon the system to perform routine job functions. End users are most familiar with the "look and feel" of the system and its performance sufficiency. Historically, end users have been given IS to perform the duties of their organizational roles with minimal involvement in the actual creation or development of the IS. The literature reviewed explored some of the conditions behind this organizational practice of "distancing" end user during development of the IS.

In their review of research conducted in the 1970s focusing on end user participation and the successful implementation of an IS, Ives & Olson (1984) cited various types of conditions

which have the potential to affect end user involvement. The first condition their research identified pertains to the type of system being developed. They stated the following: -

"For certain systems end user involvement is more critical than for others. There are also systems for which end user involvement is inappropriate, such as systems which require considerable technical expertise or systems where the product is invisible or unimportant to end user. End user participation is advocated when acceptance is critical or when information required designing the system can only be obtained from end users."

2.1.1 End User and Systems Development Life Cycle

The second condition affecting end user participation is the stage in the development process when the developers seek end user input (Ives & Olson, 1984). The System Development Life Cycle (SDLC) process is an organizational practice whereby ISs are systematically created or changed. The SDLC includes phases such as planning, analysis, design, implementation, and operation and support (Shelly, Cashman & Rosenblatt, 1998). Although there are many variations to the SDLC, the main components are consistent. End user participation generally occurs at the front end of the process—the systems analysis phase—and during the end of the process—the implementation phase. End user participation is considered less important during the preliminary stage of system planning or the intermediate stages of system design and physical development (Ives & Olson, 1984). Organizational planning is not typically found in the job description of end users and they are not trained in systems design.

The rationale of bringing end users in during the systems analysis phase is that they are most knowledgeable about IS. They are most capable of evaluating the current system and identifying its inadequacies. Because the end user works with the system on a daily basis, their

input here is essential for a clear and accurate understanding of needed changes. In addition, their input supports the rationale for subsequent elated resource expenses.

2.1.2 Types of End Users

According to Ives and Olson (1984), a third condition that has an impact on the development of ISs is the type of end user and level of end user participation in the organization. These researchers defined two types of end users: primary users of system out put and secondary users generating system input. An example of the primary type of end user is a department manager who uses the information input by a secondary user to schedule and manage faculty assignments and course offerings. Segregation of end users into types partitions their developmental input and contributes to the mechanization of the process and hard-system thinking by allowing the developers "to decide the extent to which end user participation is useful and permissible"

Compartmentalization of end users ignores "The individuals who will use the eventual system on a day-to-day basis, and in this sense they are the final arbiters about whether a design meets their requirements" (Noyes, Starr, & Frankish, 1996). To contribute adequately and responsibly to the ISs development process, end user participation must occur throughout the developmental continuum. The type of end user may also be a reflection of the respective management personnel.

Dahlbom & Mathiassen (1993) posited if managers are found to be an encumbrance between the end users and developers, higher consideration should be given to more active end user participation. Their research on the implementation of an IS for nursing care found improved quality was not only related to the IS, but more broadly, to the manner in which the IS was implemented and adapted. Greater participation by end users was strongly associated with

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positive ISs outcomes in development projects, producing changed organizations, and the
introduction of new avenues leading to ultimate business success.

2.1.3 End User Participation

The Barki and Hartwick (1994) analyses of the constructs of end user participation and end user involvement suggested that these facets are distinct. A moderate correlation (r = 28) was found between the two. While related, the two constructs clearly differed. Barki and Hartwick also hypothesized that end user participation is one of many antecedents of user involvement and user attitude. End users who participate in the development process were likely to develop positive attitudes surrounding a new IS, espousing it as good, important, and personally relevant. The moderate correlation between end user participation and measures of end user involvement and attitude supported this contention. According to Barki and Hartwick (1994):

"End user participation was found to influence subsequent levels of both involvement and attitude.... there are several reasons why this could occur. Through participation, end users may be able to influence the design of a new system, satisfying their needs. They may develop a better understanding of the ISs and how it can help them in their job."

The Heinbokel *et al.* (1996) study found that end user participation was visible when end users were specialized in project tasks such as defining system requirements or testing the system. A positive attitude toward end users was reported by the developers and only 2% of the developers considered end user orientation to be of low or no importance. End user orientation reflected the determination of developers to the individual value of producing software for the end user and thinking of the end user during the development process.

Heinboket *et al.* (1996) gathers additional data with a focus on overall product quality and project success. These components were measured through the quality of the documentation and the organizational measures of project success.

2.1.4 End User and System Developer Relationship

A common perception among organizations is that one of the responsibilities of the system developer is to learn the function and environments of end users well enough to perform their jobs. This responsibility can be uncomfortable and difficult for developers, manifested by the frequent unwillingness of end users to verbalize information and concerns. Blackler (1992) attributed the reluctance of developers to interact more completely with the end user to a lack of understanding as to how end users perform tasks. He further stated that a common viewpoint is that what developers are "goods at is developing their design from the logic of information [rather than people]." Developers tend to conceive of their work in terms of its performance specifications and build systems because "we have the technology … not following an analysis of users needs."

Hornby and Clegg (1992) concluded their research by stating that "more end user participation in systems development and implementation may be difficult to put into practice." This could be due to the absence of end user criticism, caused by fear of retribution. However, this could also be attributed to the unwillingness of developers to learn more about the jobs held by end users and to the lack of understanding by the end users of the language spoken by the developers, commonly referred to as "techno-talk" or "techno-babble." As the research of Blacker (1992) pointed out, "the priorities of end users are only rarely used to derive the development of new IS." Developers do not "naturally take as their starting point an

understanding of how users engage in tasks, improvise to solve problems, or like to interact with codified data systems."

It is the responsibility of developers to engage end users and encourage their participation in IS projects. According to Kapor (1996).

The most important social evolution within the computing professions would be to create a role for the software designer as a champion of the [end] user experience. ... What is design? ... It's where you stand with a foot in two worlds – the world of technology and the world of people and human purposes—and you try to bring the two together.

This advocated the developer as a champion of the end user. Other research also indicated that the developer was critical in eliciting end user participation: however, this is not a common occurrence.

Noyes *et al.* (1996) supported the described inferences related to end user understanding of ISs developers in their research with end users—pilots' and flight engineers' building of a flight-desk IS. These researchers chose a variety of direct and indirect methods for obtaining the necessary data for building the new IS. They indicated " a need for the developers to demonstrate a working knowledge of [current] operations and systems to ensure sufficient expertise to carry out the work and to maintain credibility with the end user." To prove their knowledge, developers should engage in " a number of familiarization activities: semi-structured interviews with managers and end users; and verification [of knowledge] through direct discussion with a small sub-sample of end users." The cooperation of the end user was of "paramount importance and partly achieved by having senior people from the user population involved in the project." The Noyes *et al.* Research advocated end user involvement and assigned the responsibility to the developer of learning from the end users by soliciting information from them.

2.1.5 End User and Organizational Culture

To understand the interaction between the organizational participants, their types and levels of interaction, the flows of information, and the nature and extent of the influence of one party on another, Hornby and Clegg (1992) suggested reflection on the culture of the respective organization.

Results from the data gathered by Hornby and Clegg (1992) revealed that "the majority of [end] users had some interactions regarding the IS primarily through the project manager, their immediate supervisor, or through the training staff." Nearly half of the end users were dissatisfied with their interactions with the IS project team, but satisfied with their interactions with their supervisor and the training staff. The primary reason for the dissatisfaction with the IS staff was that communication was filtered through the project manager - an unnecessary barrier. When information was communicated by the IS staff, end users reported difficulty in understanding the information due to the 'technical jargon used.' The majority were dissatisfied with the quality and amount of information they received concerning the IS and felt they exerted no influence over the design. The end users felt ill-prepared to contribute to the design of screen layout and did not have a chance to discuss more important matters, such as how the change may affect the way they carry out their day-to-day work. Some end users felt they had low levels of influence over the system design, especially over important concerns such as job design and job security. Some users considered this appropriate because they lacked access to information and tended to view responsibility for design and development ... as role of technologists and managers.

As mentioned earlier, if the managers of end user are the barrier between the end users and the developers, Dahlbom and Mathiassen (1993) suggested that organizations give higher consideration to the active participation of end users in the design process.

In their final analysis, Hornby and Clegg (1992) noted that the practice of participation or lack of participation by end users was an organizational feature---a mechanistic structure. One participant in their study expressed the following view: "It's no one's fault; it's just the way things have always been run here."

A summary of end user part is shown in Table 2.1 – 2.4 (p.17 – 20).

Table 2.1 A summary of the empirical research from above End users; System theories and related studies.

Author and Year	Concept, Focus or Empirical Basic	Results
Ives & Olson (1984)	End user's participation and the successful implementation of IS implementation	Certain systems end user involvement is more critical than others. There are also systems for which end user involvement is inappropriate, such as systems which require considerable technical expertise or systems where the product is invisible or unimportant to end users. End user participation is advocated when acceptance is critical or when information required designing the system can only be obtained from end users.
Ives & Olson (1984)	Type of end user and level of end user participation in the organization.	They defined two types of end users: primary users of system out put and secondary users generating system input. An example of the primary type of end user is a department manager who uses the information input by a secondary user to schedule and manage faculty assignments and course offerings.

Source: Summary implication based on literature reviews during 1984 - 1996

Table 2.2 A summary of the empirical research from above End users; System theories and related studies. (Continued 2)

Author and Year	Concept, Focus or Empirical Basic	Results
Ives & Olson (1984)	End user's participation and IS development process regarding end user input	The development process (SDLC) is an organizational practice whereby ISs are systematically created or changed. End user participation is considered less important during the preliminary stage of system planning or the intermediate stages of system design and physical development but during getting requirement end user participation is very important otherwise the system will not be accepted..
Noyes, Starr, & Frankish, 1996	Users will contribute their effort and time to the system that affects to their daily operation.	The final judge regarding whether a design meets the requirements or not, is end users who will use the system on a day-to-day operation.
Barki and Hartwick (1994)	End user participation is one of many antecedents of user involvement and user attitude.	With involvement and attitude of end users, they influence the design of a new system to satisfy their needs. Through their participation they may develop a better understand of the IS and how it can help them in their jobs.
The Heinbokel et al. (1996)	The concern for the needs of end users was implied through end user participation. At least one end user representative was actually part of the ISs development project through process quality, frequency of decision revision, and team interaction.	End user participation was visible when end users were specialized in project tasks such as defining system requirements or testing the system. End user orientation reflected the determination of developers to the individual value of producing software for the end user and thinking of the end user during the development process.

Source: Summary implication based on literature reviews during 1984 - 1996

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Table 2.3 A summary of the empirical research from above End users; System theories and related studies. (Continued 3)

Author and Year	Concept, Focus or Empirical Basic	Results
Blackler (1992)	End user and system developer	End user and system developer relationship may cause uncomfortable and difficult due to unwillingness of end users to verbalize information and concerns.
Hornby and Clegg (1992)	End user and system developer relationship	End user and system developer relationship can be one of factors in implementing IS. This could be due to the absence of end user criticism, caused by fear of retribution. However, this could also be attributed to the unwillingness of developers to learn more about the jobs held by end users and to the lack of understanding by the end users of the language spoken by the developers, commonly referred to as "techno-talk" or "techno-babble."
Blacker (1992)	End user and system developer relationship	The responsibility of developers is to engage end users and encourage end user participation in IS projects.
Kapor (1996).	End user and system developer relationship	This advocated the developer as a champion of the end user. Other research also indicated that the developer was critical in eliciting end user participation.

Source: Summary implication based on literature reviews during 1984 - 1996

Table 2.4 A summary of the empirical research from above End users; System theories and related studies. (Continued 4)

Author and Year	Concept, Focus or Empirical Basic	Results
Noyes *et al.* (1996)	End user and system developer relationship	End user involvement and assigned the responsibility to the developer of learning from the end users by soliciting information from them.
Hornby and Clegg (1992)	End user and Organization culture	End users prefer to talk with project manager or training staff more than IS people because when information was communicated by the IS staff, end users reported difficulty in understanding the information due to the "technical jargon used".
Dahlbom and Mathiassen (1993)	End user and Organization culture	Organizations give higher consideration to the active participation of end users in the design process.
Hornby and Clegg (1992)	End user and Organization culture	Organization culture influences end users' thinking, attitude and behavior.

Source: Summary implication based on literature reviews during 1984 - 1996

2.2 Communication

One way to facilitate cooperation and collaboration between end users and developers is increased techniques and channels of communication. Keil and Carmel (1995) reported that, in their research, software products and IS improvements originated with the establishment of one or more links between the end user and developer. They visited 17 companies (a convenience sample) and collected data from 31 different IS projects. They sought companies that represented a variation of industries, application areas, and company sizes. At each company, a project or development manager was selected as the primary contact for the study. Their focus was on the

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combination of techniques and communication channels that were used in practice to establish

linkages between customers and developers. They defined link as "techniques and/or channels

that allow end users and developers to exchange information and promote mutual

understanding." Specifically, they referred to the following processes as links: "team meetings,

designation of a management intermediary, a support line, requirements prototyping,

interviewing, use of email, and the establishment of a user group and focus group." Based on the

results from their study, Keil and Carmel recommended that managers promote more

communication links rather than fewer links whenever possible.

In 1998, Hartwick and Barki replicated and extended their earlier study and confirmed

the following four dimensions of participation:

(a) responsibility (activities and assignments reflecting overall leadership or accountability for

the project);

(b) user-IS relationship (development activities reflecting the review, evaluation, and approval

by end users of the work accomplished by the IS staff);

(c) "hands-on" activity (the specific physical design and implementation of tasks); and

(d) communication (the exchange of facts, opinions, and visions or the discussion of

reservations and concerns).

The study began with the recognition that when end uses are communicating with the

developers, the users are participating in the IS development process.

Hartwick and Barki (1998) confirmed that the originally hypothesized four dimensions of

participation were indeed present. The researchers found that the factor labeled "user-IS

relationship" reflected informal communication and information exchange and discussion among

the end users and between the end users and the IS staff. An additional factor reflecting

communication also emerged. This factor comprised informal communication and information

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exchange and discussions between end users and senior management. The communication dimension was significantly correlated with reported influence on the development process; however, it was not significantly related to the other three criteria of responsibility, user-IS relationship, and hands-on activity. These results indicated that end user participation was related to the perceived influence of end users—both in the development process and with IS that was ultimately developed. Through participation, end users saw themselves as achieving influence. The study found communication to be a strong indicator of productive end user participation. Further, communication was characterized as the actual participation and interaction between members of the two organization groups. More definitive statements about these interactions were not a component of their research.

2.2.1 Communication Links and Social Action

Consistent with the Hartwick and Barki (1998) results were the finding of Keil and Carmel (1995). Their research documented that software products and IS improvements originate with the establishment of one or more links between end users and developers. Keil and Carmel identified and verified such links in structured interviews with IS project managers, each consuming two hours and focusing on 15 different user-developer links. The project managers from 17 companies and 31 different IS projects represented a convenience sample and depicted variations in industry, application area, and company size. The researchers asked the project managers to identify recently completed IS projects: a project that was relatively successful, and a project they would define as relatively unsuccessful. This placed the managers in control of the definitions for project success or failure. Managers were selected for the sample rather than end users because of their ability to comment on the full range of customer-development links used during the IS development process.

For purposes related to their research, Keil and Carmel (1995) defined links as "techniques and/or channels that allow end users and developers to exchange information and promote mutual understanding." Specifically they referred to the following processes as links: "team meetings, designation of a management intermediary, a support line, requirements prototyping, interviewing, use of email, and the establishment of a user group and focus group." Keil and Carnel sought to confirm that it was through these numerous links that information was exchanged and end user understanding was best enhanced. The results from their study suggested that managers should err on the side of providing more, rather than fewer, links whenever possible. The interviews uncovered the fact that many of the development managers perceived that problems associated with less successful projects resulted, in part, from an over-reliance on intermediaries or end user surrogates. According to the researchers, "Intermediaries may not have a complete understanding of end user needs."

The perceptions communicated by the participating managers in the Keil and Carmel (1995) study, regarding which links were most effective and the types of links most commonly used, prompted the researchers to speculate "that development managers would do well to consider using links that have evolved outside of their particular environment but which are perceived to be particularly effective." Due to the array of available links, "the issue that developers must grapple with is not whether customers should participate in the process, but how they should participate." The lessons learned from Keil and Carmel suggested not only that managers should encourage more communication between end users and developers, but that these should be direct links, possibly not the traditional ones found within their particular organizational environment.

A summary of communication part is shown in Table 2.5 – 2.7 (p.24 – 26).

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Table 2.5 A summary of the empirical research from above Communication theories and related studies.

Author and Year	Concept, Focus or Empirical Basic	Results
Keil and Carmel (1995)	End user and Communication on combination of technique and communication channels	The focus was on the combination of techniques and communication channels that were used in practice to establish linkages between users and developers. Based on the results from their study, they recommended that managers promote more communication links rather than fewer links whenever possible.
Hartwick and Barki, 1998	Communication	They confirmed the following four dimensions of participation: (e) responsibility (i.e. activities and assignments reflecting overall leadership or accountability for the project); (f) user-IS relationship (i.e. development activities reflecting the review, evaluation, and approval by end users of the work accomplished by the IS staff); (g) "hands-on" activity (i.e., the specific physical design and implementation of tasks); (h) communication (i.e., the exchange of facts, opinions, and visions or the discussion of reservations and concerns). The study began with the recognition that when end uses are communicating with the developers, the users are participating in the IS development process."

Source: Summary implication based on literature reviews during 1995 - 1998

Table 2.6 A summary of the empirical research from above Communication theories and related

studies. (Continued 2)

Author and Year	Concept, Focus or Empirical Basic	Results
Hartwick and Barki (1998)	Communication	The researchers found that the factor labeled "user-IS relationship" reflected informal communication and information exchange and discussion among the end users and between the end users and the IS staff. The study found communication to be a strong indicator of productive end user participation. Further, communication was characterized as the actual participation and interaction between members of the two organization groups. More definitive statements about these interactions were not a component of their research.

Source: Summary implication based on literature reviews during 1995 - 1998

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Table 2.7 A summary of the empirical research from above Communication theories and related studies. (Continued 3)

Author and Year	Concept, Focus or Empirical Basic	Results
Keil and Carmel (1995)	Communication like and Social Action	From their research, they confirm that it was through these numerous links that information was exchanged and end user understanding was best enhanced. The results from their study suggested that managers should err on the side of providing more, rather than fewer, links whenever possible. The interviews uncovered the fact that many of the development managers perceived that problems associated with less successful projects resulted, in part, from an over-reliance on intermediaries or end user surrogates. According to the researchers, "Intermediaries may not have a complete understanding of end user needs".

Source: Summary implication based on literature reviews during 1995 - 1998

2.3 Organizational Culture

Research (Hornby & Clegg, 1992; Ives & Olson, 1984) suggested that organizations sustaining an IS design and development process that supports solutions by a select few have contributed to the high failure rate of new or improved ISs. An IS development process that keeps end users at a distance during the process is an example of an organizational practice supported by its culture.

2.3.1 Culture and Information Systems

Blackler (1992) reviewed research concerning managing the impact of new technologies and proposed a theoretical framework for understanding the difficulties of planning for their organizational outcomes. His research found a reflection of the organizational culture and the intervention strategies fulfilled in the ISs development process. In successful organizations the introduction of an IS is managed and the organizational impact is considered part of the planning process. Although there is recognition that change brought about with a new IS is "a process of organizational intervention," developers frequently lack awareness of this concept. Developers may not consider a change or addition to an IS as contributing to a greater organizational goal or increasing organizational effectiveness and thus do not recognize the extent of the impact.

Research (Hornby & Clegg, 1992; Ives & Olson, 1984) suggested that organizations sustaining an IS design and development process that supports solutions by a select few have contributed to the high failure rate of new or improved ISs. An IS development process that keeps end users at a distance during the process is an example of an organizational practice supported by its culture.

The culture of any organization provides the "glue" that connects end users and developers in the ISs development process. The organizational culture exists before, during, and after the process; consequently, behavior shaped by the culture is evident before these two groups ever converge on a project. The glue is either supportive of cohesion or the two groups never form an alliance. In a collaborative environment, both groups would be involved in finding a mutually satisfying solution in support of the larger organization. If the groups are not in sync with one another, it is difficult for them to unite under a single goal. If the organization advocates independent experts in identifying and creating solutions, the ISs development team

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and the respective project will likely have less success in reaching its full potential---a highly

utilized and valued IS.

A summary of organizational culture part is shown in Table 2.8 (p.28).

Table 2.8 A summary of the empirical research from above Organizational Culture theories and

related studies.

Author and Year	Results
Blackler (1992)	Culture and Information System concerns with managing the impact of new IS and understanding the difficulties of planning for organizational outcome.
Hornby & Clegg, 1992 Ives & Olson, 1984	They suggested that "organizations sustaining an IS design and development process that supports solutions by a select few have contributed to the high failure rate of new or improved ISs. An IS development process that keeps end users at a distance during the process is an example of an organizational practice supported by its culture."

Source: Summary implication based on literature reviews during 1984 - 1992

2.4 IS Utilization and Participation

Although management and development design teams may differ on the role and/or level

of participation, influence, and flow of information afforded the end user in the process, research

over recent decades indicates a growing awareness of the importance of consulting end users

during IS development. End user involvement is linked to "the importance and personal

relevance of a system to its user" (Barki & Hartwick, 1994) and to "improving system quality,

ensuring successful implementation and correlating positively and significantly with system usage and end user information satisfaction"

The relationship between end user participation and satisfaction is weaker according to research conducted by Hartwick and Barki (1998). These researchers found that participation activities were unrelated to the satisfaction of end users with the development process. It is only when end users are given responsibility and control, rather than superficial participation that greater satisfaction will result. Giving responsibility to end users during the IS development process appeared to have a major influence on their perceptions of personal influence on, and satisfaction with, the development process and the ultimate IS. Additionally, end users who were involved in reviewing, evaluating, and accepting the work performed by developers tended to be more satisfied with ISs ultimately developed.

A Summary of Utilization and Participation of end users is shown in Table 2.9 – 2.10 (p.29 - 30).

Table 2.9 A summary of the empirical research from above Utilization and Participation of end users theories and related studies.

Author and Year	Results
Barki & Hartwick, 1994, p. 60	They indicated that end user involvement is linked to "the importance and personal relevance of a system to its user" and to "improving system quality, ensuring successful implementation and correlating positively and significantly with system usage and end user information satisfaction"

Source: Summary implication based on literature reviews during 1994 - 1998

Table 2.10 A summary of the empirical research from above Utilization and Participation of end users theories and related studies. (Continued)

Author and Year	Results
Hartwick and Barki (1998)	These researchers found that participation activities were unrelated to the satisfaction of end users with the development process. It is only when end users are given responsibility and control, rather than superficial participation that greater satisfaction will result. Giving responsibility to end users during the IS development process appeared to have a major influence on their perceptions of personal influence on, and satisfaction with, the development process and the ultimate IS. Additionally, end users who were involved in reviewing, evaluating, and accepting the work performed by developers tended to be more satisfied with ISs ultimately developed

Source: Summary implication based on literature reviews during 1994 - 1998

2.5 Summary

From this study there are other factors affecting to the successful implementation of Information Systems which are shown as follows: -

- Follow up users' utilization regarding the designed procedure work flow in order to maintain standard and reliable information for management.
- Clear management's objective or expectation or clear measurement of success
- Be careful when using consultants because they may have experience in specific industries, comprehensive knowledge about certain modules.
- Hardware and software have to be agreed upon by all concerned parties such as users, IT and management in term of investment.

CHAPTER 3

ENERGY INDUSTRY FOCUSING ON COAL MINING

This chapter presents the growth of Coal Business and the business's trend of Banpu Public Co., Ltd. This leads to the reason why the success of IS implementation increases the importance more and more.

From ASEAN Centre of Energy (Copyright 2004 © ASEAN Centre for Energy)

They stated *coal resource* as: -

Coal is the only fossil fuel with high potential to the remaining global supply of energy for at least 200 years, while oil and natural gas supply will decline in the near future due to resource exhaustion. In 2000, Thailand's coal proven reserves have about 1,372.048 million tons proven reserves consisted of lignite, sub-bituminous, and bituminous. Coal deposits in tertiary basins mainly in northern, and also some in central, southern and northeastern part of Thailand. The Mae Moh mine is the largest lignite basin, located in Lampang province in northern region which has lignite reserve approximately 1,226.748 billion tons. The Mae Moh basin covers an area of 135 square kilometers. Mae Moh mine produce low quality lignite with sulfur content of 2.5 – 4.0 percent and ash content about 25 percent, by weight. The total remaining reserves of lignite to bituminous in northern region are 33.026 million tons, 0.630 million tons in central region and southern region are lignite to su-bituminous 112.038 million tons. Anthracite is found at Loei and Udon Thani in northeastern region but there is no reserve data available at present. Coal development for all activities requirement until the year 2002 was totally 245.836 million tons in details as shown in Table 3.1 (p. 32).

Table 3.1 Coal Production and Consumption in Thailand, 1999-2000

Coal Production and Consumption in Thailand, 1990-2000

(in millions of short tons)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production	13.71	16.22	16.93	17.14	18.86	20.31	23.92	25.84	22.04	20.13	19.61
Anthracite	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Bituminous	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lignite	13.70	16.19	16.90	17.12	18.84	20.31	23.91	25.84	22.04	20.13	19.61
Consumption	14.11	16.63	17.73	18.54	20.52	22.99	27.68	28.61	24.31	24.38	24.86

Source: Copyright 2004 © ASEAN Centre for Energy

Last Updated : July 27, 2004 2:29 PM

According to the BUSINESS-IN-ASIA.COM, they mentioned that

" According to the World Bank in a recent report, East Asia is expected to stage strong cyclical recovery

in 2004 after dipping this year

China, Vietnam, and Thailand will lead the region's forecast average of 5.7 percent gross domestic product growth in 2004. This is up from 5.0 percent this year according to an update released in Singapore recently. East Asia, excluding Japan, grew 5.8 percent in 2002 and 3.5 percent in 2001, according to the Washington-based lender. The Severe Acute Respiratory Syndrome (SARS) epidemic stopped growth in the second quarter of this year but the economic impact of the flu-like disease which hit tourism and related industries has not been as strong as initially expected." (source: Business-in-Asia.com, Asia on Growth Path for 2003, on September 3, 2004)

So from Table 3.2 (p. 33), it shows that Southern Asia will grow from 4.5 in year 2003 to 4.9 in 2004. Thailand will grow 5.8 in 2003 to 6.0 in 2004 while Indonesia will grow 3.5 in 2003 to 4.0 in 2004.

Table 3.2 Asia on Growth path for 2003

		Actual			Forecast	
		2000	2001	2002	2003	2004
▦	East Asia	7.6	3.6	5.8	5.0	5.7
▦	Developing East Asia	7.0	5.6	6.6	6.6	6.5
▦	Southeast Asia	5.4	2.4	4.3	4.5	4.9
	Indonesia	4.9	3.5	3.7	3.5	4.0
	Malaysia	8.5	0.3	4.1	4.6	5.4
	Philippines	4.4	3.0	4.4	4.0	4.2
	Thailand	4.7	1.9	5.3	5.8	6.0
▦	Transition					
	China	8.0	7.5	8.0	7.8	7.4
	Vietnam	5.5	5.0	6.0	7.0	7.3
▦	Small economies	2.8	1.4	1.5	3.7	4.1
	Cambodia	7.7	6.3	5.5	4.8	5.8
	East Timor	-	-	-	-	-
	Lao PDR	5.8	5.7	5.7	5.5	5.9
	Mongolia	1.1	1.1	3.0	5.0	5.3
	Fiji	-3.2	4.0	3.8	5.0	3.0
	Marshall Islands	0.7	2.1	-	-	-
	Micronesia	2.5	1.1	0.8	2.4	2.0
	Papua New Guinea	-1.3	-3.5	-3.1	2.0	2.0
	Solomon Islands	-13.3	-9.0	-4.0	1.0	1.5
	Tonga	6.2	0.5	1.6	1.8	1.8
	Vanuatu	3.7	-1.9	-0.3	2.0	2.0
▦	East Asia NIEs*	8.5	0.6	4.5	2.6	4.6
	Hong Kong	10.2	0.5	2.3	2.1	4.3
	South Korea	9.3	3.0	6.3	3.0	5.1
	Singapore	9.4	-2.4	2.3	1.0	4.7
	Taiwan	5.9	-2.2	3.6	2.7	4.1
▦	Japan	2.8	0.4	0.3	0.6	1.6

Source: World Bank, * Newly industrialzed countries, on September 3, 2004

Table 3.3 Coal Consumption for Energy industry (25 top countries)

Map & Graph: Energy: Coal consumption (Top 25 Countries)

	Country	Description	Amount
1.	China	1.31 billion short tons (2000E)	
2.	United States	1,060 million short tons (2001E)	
3.	India	339 million short tons (2001E)	
4.	Russia	298 million short tons (2000E)	
5.	Germany	265 million short tons (2001E)	
6.	South Africa	170.5 million short tons (domestic sales) (2000E)	
7.	Japan	149.5 million short tons (1999E)	
8.	Australia	144.17 million short tons (2000E)	
9.	Korea, North	103.6 million short tons (2000E)	
10.	Ukraine	97.2 million short tons (2000E)	
11.	Turkey	81.1 million short tons (2001E)	
12.	Korea, South	71.7 million short tons (2000E)	
13.	Greece	70.5 million short tons (2000E)	
14.	Canada	67 million short tons (2000)	
15.	United Kingdom	66.1 million short tons (2000E)	
16.	Taiwan	52.9 million short tons (2001E)	
17.	Spain	45.19 million short tons (2001E)	
18.	**Thailand**	**24.9 million short tons (2000E)**	
19.	Brazil	23.5 million short tons (2000E)	
20.	Italy	22.4 million short tons (2001E)	
21.	France	20.89 million short tons (2001E)	
22.	Mexico	13.41 million short tons (2000E)	
23.	**Indonesia**	**12.0 million short tons (1999E)**	
24.	Philippines	9.5 million short tons (2000E)	
25.	Vietnam	7.3 million short tons (2001E)	

Source: Energy Information Administration, US Department of Energy, on September 3, 2004

Table 3.4 Coal Production for Energy industry (25 top countries)

Map & Graph: Energy: Coal production (Top 25 Countries)

	Country	Description	Amount
1.	China	1393.4million tones	
2.	United States	992.3million tones	
3.		412.8million tones	
4.	India	358.9million tones	
5.	Australia	337.9million tones	
6.	Russia	253.4million tones	
7.	South Africa	224.5million tones	
8.	Germany	207.9million tones	
9.	Poland	161.0million tones	
10.	Indonesia	102.9million tones	
11.	Ukraine	82.9million tones	
12.	Kazakhstan	73.2million tones	
13.	Greece	71.7million tones	
14.	Canada	67.9million tones	
15.	Czech Republic	63.4million tones	
16.	Turkey	54.4million tones	
17.	Colombia	39.5million tones	
18.	Romania	30.5million tones	
19.	United Kingdom	30.0million tones	
20.	Bulgaria	27.0million tones	
21.	Spain	22.4million tones	
22.	Thailand	19.9million tones	
23.	Vietnam	15.0million tones	
24.	Hungary	12.8million tones	
25.	Mexico	12.0million tones	

Source: Energy Information Administration, US Department of Energy, on September 3, 2004

From Table 3.3 (p. 34) and Table 3.4 (p. 35), trends of coal consumption increased while coal production cannot supply accordingly all over the world. So importing coal takes place in every country. Banpu is one of the biggest coal companies in Thailand and the message from CEO stated that "With our goal to become an Asian coal-based energy player,..... Asian

economic growth demands an ever-increasing supply of affordable electric power. And this, in turn, necessitates access to cheap and reliable sources of fuel for power generation. The Asia-pacific region's own abundant reserves of thermal coal are likely to provide the main solution to this requirement. Hence, the company aims to crate growth through growing its production from existing operations and developing new mines in both Republic of Indonesia and the People's Republic of China, together with ....." (Source: Annual Report 2003 of Banpu Public Co., Ltd.)

The above message, implies that more and more IS implementation will take places. So it is the reason that the researcher selects to study success of IS Implementation.

CHAPTER 4

RESEARCH FRAMEWORK

4.1 Introduction

The aim of this chapter is to present a research framework which leads to identify and evaluate the influential factors for implementing IS.

4.2 Research Framework

Research framework is based on both qualitative research plus literature review. Based on research objectives of this study factors that have impacted the success of implementing Information System. Firstly, the researcher will investigate information from various sources - *top managers*, *Project managers* and *Functional Users* - in order to understand their needs or expectation from IS and problems or obstacles when they use IS. From this information, the researcher will analyze the important factors which impact the success of implementing IS. Information will be applied as a toll in order to establish or to develop methodology for IS implementation, which can avoid corporate risk and ensure to have the efficient and affective Information System in the company. Moreover, this information can be used as a guideline to understand how to deal with each particular levels of organization structure of implementation team such as Steering Committee – *top managers*, *Project managers* – implementing formulator or End Users – *Functional users*.

Based on information from the literature review, there are many factors that affect the implementation of IS. The researcher assumes some main factors from literature review as standard criteria to generate conceptual framework. These factors will be a guideline for the

researcher to collect information for analyzing and comparing whether there are any similarities or differences of criteria among each level of participants.

Finally, the research will identify factors that impact the success of implementing Information Systems from all participants.

The conceptual framework can be drawn as shown in Figure 4.1 below (p.38).

4.3 Conceptual Framework

Independent Variables   Dependent Variable

Impact Factors

1. Level of Support for daily operation

2. Level of Users' Hands-on activity

3. Level of Interpersonal communication practice/skill of team members

4. Level of efficiency of hardware and software

5. Level of Target of Implementation

The Success of Information Systems Implementation

Figure 4.1 Conceptual Framework

Remark : Group of independent variables will affect to implementation by groups of participants who are *top managers*, *Project managers* and *Functional Users*. Each group of independent variables consists of many variables that are shown as follows: -

1. Level of Support for daily operation

- After Implementation Services

- Trouble Shooting

- Feedback after trouble shooting

- Post implementation

- Policy or guideline

2. Level of Users' Hands-on activity

- Practical experience

- Staff's competency

- Manual availability

3. Level of Interpersonal communication practice/skill of team members

- Communication and language

- Time frame

- Commitment

- Consultant capability

- Consultant efficiency

4. Level of efficiency of hardware and software

- Appropriate functions availability of software to the organization
- Legal issues concerned
- Capability of software (in terms of inquiry)
- Speed of Communication link between server place and remote sites
- Peak load capacity in term of band-width of communication link when period of

  closing accounting period
- No communication link to some remote site.

5. Level of Target of Implementation

- *top managers*

- *project managers*

- *functional users*

4.4 Research Propositions

Dependent variable is the level of successful IS implementation that is affected by groups of participants – *top managers, project managers* and *functional users*. The dependent variable is influenced by independent variables, the hypotheses are stated as five propositions.

Proposition 1: The greater the perception of Support for daily operation, the greater the success of IS Implementation.

Proposition 2: The greater the perception of Users' Hands-on activity, the greater the success of IS Implementation.

Proposition 3: The greater the perception of Interpersonal communication practice/skill of team members, the greater the success of IS implementation.

Proposition 4: The greater the perception of efficiency of hardware and software, the greater the success of IS Implementation.

Proposition 5: The greater the perception of Target of Implementation, the greater the success of IS Implementation.

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CHAPTER 5

RESEARCH METHODOLOGY

5.1 Qualitative Research

This research will be conducted using qualitative method with an intention to explore a particular area and software, to collect data and to generate ideas. These data are mainly through what is known as inductive reasoning. The benefit of qualitative research, using a selection of data collection methods such as depth interview, should really touch the core of what is going on rather than just skimming the surface.

A study by Liz Spencer, Jane Ritchie, Jane Lewis and Lucy Dillon, 2003) stated that "Qualitative research aims to provide an in-depth understanding of people's experiences, perspectives and histories in the context of their personal circumstances or settings. Among many distinctive features, it is characterized by a concern with exploring phenomena from the perspective of those being studied; with the use of unstructured method which are sensitive to the social context of the study; the capture of data which are detailed, rich and complex; a mainly inductive rather than deductive analytic process; developing explanations at the level of meaning or micro-social processes rather than context-free laws; and answering "what is", "how" and "why" questions."

And they further defined that " Qualitative research is used in evaluation for a range of purposes. For evaluations of programs, services or interventions, these include identifying the factors that contribute to successful or unsuccessful delivery; identifying outcomes (intended or

unintended) and how they occur; examining the nature of requirements of different groups within the target population; exploring the contexts in which policies operate; and exploring organizational aspects of delivery… "

In qualitative research, however, the researcher is not interested in an "on average" view of population. The researcher wants to gain an in depth understanding of the experience of particular group of *top managers*, Project managers and Functional Users. The researcher will therefore deliberately seek out a group relevant to the objectives of this research.

The strengths of qualitative research are shown as follows: -

• Details may not get as much depth in a standardized questionnaire (Loidoenshai, 2003).

• Openness can generate new theories and recognize phenomena ignored by most or all previous researchers and literature questionnaire (Loidoenshai, 2003).

• Helping to see studies based on their categories, rather than imposing categories (Loidoenshai, 2003).

The major purpose of this qualitative research is to understand deeply the experience of particular group of *top managers*, *project managers* and *functional u*sers whether there are any hidden information for their decision in implementing IS. Qualitative research is able to allow participants to tell their stories or ideas. It is to identify the common themes that emerge when participants describe their experiences in their own words. The primary limitation of qualitative research is that the findings are not statistically projected to the population under research. This limitation is created normally by two facts: -

1) Recruiting is rarely completely representative.

2) The very nature of qualitative research necessitates small sample sizes.

5.2 Validity and Reliability

"Validity and Reliability" is another word for truth. These are not confined to qualitative research that sometimes collaborate in the natural sciences which can unexpectedly threaten the credibility of finding. There are some methods to reach validity by overcoming the following weaknesses:

1. Conventional field studies tend to have an anecdotal quality. Researcher reports include a few exemplary instances of the behavior that the researcher has called from field notes (Loidoenshai, 2003).

2. Researcher seldom provide the criteria or grounds for including certain instances and not others. As a result, it is difficult to determine the typicality or representatives of instances and findings generated from them (Loidoenshai, 2003).

3. Research reports presented in tabular form do not preserve the materials upon which the analysis was conducted. As the researcher abstracts data from raw materials to produce summarized findings, the original form of the materials is lost, therefore, it is impossible to entertain alternative interpretations of the same materials (Loidoenshai, 2003).

Researcher attempts to crate more validity and reliability by reducing weaknesses. The major technique to create more validity and reliability is that the researcher has set table of comparison in order to compare result among group of participants. The group of participant consists of *top managers*, *Project managers* and *Functional Users*. This technique provided the researcher an overview of information whether there are any similarities and differences. Once

information was categorized according to similarities and differences, then it can investigate the level of validity and reliability that are acquired from previous information.

5.3 Steps of Research Methodology

This study has used Qualitative methodology. From Figure 5.1(p. 45), the steps of research methodology are as follows: -

1. Interview of 3 groups of populations

    1.1 First group is *top managers*

    This group provides the strategic information for this development of Information System.

    1.2 Second group is *project management*

    This group involves in details of this development of Information System. They provide al information concerning planning, organizing, communicating and roll out the Information System project.

    1.3 Third group is *functional users*

    This group provides information of training and system utilization.

2. Comparison of result interviews by categorizing similarity and difference of individual groups and also combined groups

3. Using literature review to compare with the result from previous steps to find the similarities and differences

4. Conclusion of all results

5. Recommendations

Interview Process Structure

Top managers

Project Managers

Functional users

Comparison Similarity & Difference

Literature Review

Conclusion

Recommendations

Figure 5.1 Step of Research Methodology
Source: Original created by author

5.4 Instrument

This research has used in-depth interviews by interviewing three groups of population. The first group is two *top managers*. This group provided the strategic information for this development of Information System. The second group is six *project managers* who were involved in details of this development of Information System. They provided all information concerning planning, organizing, communicating and roll out the Information System. The third group is 27 *functional users* who provided information of training and system utilization.

All gathered information are compared with each other in order to find individual and common issues. Then recommendations were derived from conclusion of finding information and literature review applicable to solve problems of development of Information System in any organization.

The reasons of applying in-depth interviews are shown as follows: -

- Privacy and sensitivity, depth interviews provide a format in which participants can speak openly about private or sensitive issues that could not be discussed in a group setting.

- Individual attention, in-depth interviews allow a moderator to give individual attention to each participants, probing in depth every thought and opinion relative to their interests.

- Capturing the elusive participants, depth interviews can be extremely helpful if participants live far away from one another as to it can be conducted by phone, so participants can be reached anywhere.

5.5 Sample Selections

Population of interest in this investigation is *top managers*, *project managers* and *functional users* based on Thailand and Indonesia of Oracle Financials and Oracle Distribution (Thailand) Co., Ltd. This is done by using an in-depth interviewing instrument of gathering information then the researcher has designed a scope in selecting participants carefully according to the following reasons:

- Participant is quite a specific one at a specific place who is really involved in implementing IS.

- To conduct interview, the researcher had to process at participant's workplace which was time and cost consuming.

- Asking questions also required an assistant when the participant is not fluent in English.

- Some questions contained confidential information that was probably a drawback for the participant to answer.

Having analyzed the scope in selecting participants, the researcher assigned a significant factor, good relation with participant, as the major criteria to choose participant for conducting an interview.

All sample selections were in coal industry; and they were classified into three groups shown as follows: -

1. Top managers

The researcher selected two persons for *top managers*. One person is *top managers* from Thailand and the other one is *top managers* from Indonesia. The purpose of selecting people

from different countries was because they worked in different environment that could have some different points of views due to culture or limitation.

This level of users provided information in terms of strategic viewpoints that may or may not resemble other groups. But the results provided requirements and/or expectation that other levels had not known yet, or the information may not reach them accordingly.

2. *Project managers*

The researcher selected totally six persons who were really involved in IS implementation. Three persons are Thai and the rest are Indonesian. The purpose is to know their point of views because they are in different environment and culture.

This level of users provided information in terms of output such as reports. And they gave issues during implementation stages because they were involved in every step of IS implementation process except technical process. The result from this level had both strategic issues and daily operation's requirement because they received strategic information from higher level and operational requirement from *functional users*.

3. *Functional users*

The researcher selected totally 27 persons from Indonesia because they are the ones who were involved in the implementation. Ten persons worked in Jakarta (head office) and the rest worked at mine sites (Bontang, Embalut, Tandung Mayang and Jorong). The purpose of selecting only Indonesian users is that they had operated with this software (Oracle Financials & Oracle Distribution) for almost six months, so they became familiar with it and know the functions of the software. They could give their point of views that had an impact on their work.

This level of users provided information in terms of detailed daily operations. They informed every issue that caused them difficulties of operation in daily work.

The results from these three groups have some similar issues and some different issues, so the researcher has used all issues to compare the three groups to find similarities and differences, and then compared them to the literature review to ensure the perception and recommendations.

From Table 5.1 – 5.2 (p. 49 - 50) it is the interview's schedule that shows the detailed schedule of interviews. It is classified into three major groups which consist of *functional users*, *project managers* and *top managers*. The *functional users* are classified into three departments and each department is classified into interviewed sites. *Top managers* and *Project managers* are classified into individual interviews.

Table 5.1 Schedule of Interviews

Group of users	Place	Number of persons	Minutes
1. Functional users			
1.1 Purchasing department			
1.1.1 Head office	Jakarta	5	60
1.1.2 Embalut site	East Kalimantan	2	20
1.1.3 Bontang & Tandung Mayang sites	East Kalimantan	2	20
1.1.4 Jorong site	South kalimantan	2	30
1.2 Warehouse department			
1.2.1 Embalut site	East Kalimantan	1	20
1.2.2 Bontang & Tandung Mayang sites	East Kalimantan	4	30
1.2.3 Jorong site	South kalimantan	1	20
1.3 Accounting department			
1.3.1 Head office	Jakarta	5	60
1.3.2 Embalut site	East Kalimantan	2	45

Source: Interviewing Results

Table 5.2 Schedule of Interview (Continued)

Group of users	Place	Number of persons	Minutes
1.3.3 Bontang & Tandung Mayang sites	East Kalimantan	2	60
1.3.4 Jorong site	South kalimantan	1	15
2. Project managers			
2.1 Accounting manager 1	Bangkok	1	15
2.2 Accounting manager 2	Bangkok	1	15
2.3 Consultant 1	Bangkok	1	10
2.4 Accounting manager 4	Jakarta	1	20
2.5 Accounting manager 5	Jakarta	1	15
2.6 Accounting manager 6	Jakarta	1	15
3. Top managers			
3.1 Vice President 1	Bangkok	1	10
3.2 Vice President 1	Jakarta	1	10
Total		37	

Source: Interviewing Results

CHAPTER 6

PRESENTATION OF DATA ANALYSIS AND CRITICAL DISCUSSION RESULTS

6.1 Introduction

This chapter will present data analysis from in-depth interview. The presentation of discussion results is categorized into two parts that consist of findings from individual interviews and overviews of managerial implication.

6.2 Findings

This part is categorized according to the sample units including *top managers*, *project managers* and *functional users*. The topics discussion results are categorized into five parts as follows: -

6.2.1   Individual and summary of *top managers*

6.2.2   Individual and summary of *project managers*

6.2.3   Individual and summary of *functional users* separated by department which is purchasing, warehouse and accounting department from three mine sites and one head office at Jakarta.

6.2.4   The relationship between *project managers* and *functional users*

6.2.5   The relationship between *top managers* and *functional users*

6.2.6   The relationship between *top managers* and *project managers*

6.2.7   The relationship among *top managers, project managers and functional users*

6.2.1 Individual and summary of *top managers*

This part includes two *top managers*. One works in Thailand and the other one works in Indonesia. The topics are classified according to the relationship between gathered information categorized to match conceptual framework. This part will provide information to understand the experienced issues or factors during implementing ISs. There are six topics shown as follows: -

1. Achievement of company's objective

2. Business processes

3. Users

4. Utilization of the system

5. Policy and guideline

6. Post Implementation

Table 6.1 Comparative influential factors which impact to the implementation by *top managers*

Factors to impact Implementation	Top manager 1	Top manager 2
Similarities	- Achievement of company's objectives - Business processes - Users - Utilization of the system	- Achievement of company's objectives - Business processes - Users - Utilization of the system
Differences		- Policy or guideline - Post implementation

Source : Original implied from interviewing *Top managers*' results

6.2.1.1 Summary of Interviewed results for *top managers*

Table 6.1 (p.52) will present the similarities and differences between *top managers* in Thailand and *project managers* in Indonesia.

1. Achievement of company's objective

The result from both *top managers* are the same - they think that the objective of this implementation is not achieved due to many factors such as acceptance from users and business processes.

2. Business processes

They revealed that it is lack of acceptance from users in terms of designed business processes. Because they perceive that users do not perform as designed processes.

3. Users

They are explicit that they have the same key issue for this implementation which is users. Because the users are acquainted with the old system or processes and do not completely change to a new processes.

4. Utilization of the system

Both *top managers* want to use information that is already in the system thru reports. And they mentioned that it should have a revision in order to produce reports as management requires.

5. Policy and guideline

Top manager from Indonesia would like to encourage users to use the system properly by using clear policy and guideline

6. Post implementation

Top manager from Indonesia mentions that implementation team does not follow up the project after launching the system whether every designed process is continuously done by users or not.

6.2.2   Individual and summary of *project managers*

This part includes of six *project managers*: three accounting managers work in Indonesia; two accounting managers work in Bangkok, Thailand; and the last person is a consultant working in Bangkok, Thailand. The topics are classified according to the relationship between gathered information and categorized to match conceptual framework. This part will provide information to understand the experienced issues or factors during implementing IS. There are 10 topics shown as follows: -

1. Support
2. Hands-on or Training or Manual
3. Communication
4. Language
5. Time frame
6. Commitment
7. Infrastructure or hardware
8. Software limitation
9. Utilization from the system and Output

10. Consultant

Table 6.2 Comparative influential factors which impact to the implementation by *project managers*

Factors to impact Implementation	Thai Project Manager	Indonesian Project manager
Similarities	• Time Frame • Manpower/resources • Communication • Commitment • Language • Hands-on / Training • Manual • Consultant • Output • Software	• Time Frame • Manpower/Resources • Communication • Commitment • Language • Hands-on /Training • Manual • Consultant • Output • Software
Differences		• Support • Infrastructure

Source : Original implications from interviewing *Project Managers'* results

6.2.2.1   Summary of Interviewed results for *top managers*

Table 6.2 (p.55) will present the similarities and differences between *project managers* in Thailand and *project managers* in Indonesia.

1. Support

From the findings, a *project manager* from Indonesia commented that he wanted to have a local supporter who could give them solutions or services as fast as possible. This is different from Thailand because they did not have any comments.

2. Hands-on

There are comments from *project managers* both from Thailand and Indonesia. They confirmed that training is a very important factor that all *functional users* must pay full attention to; if *functional users* understand and are familiar with the system, they will work properly and correctly. They will be able to solve and apply it to the coming business cases, and when there is a new comer, they can transfer knowledge to him with a proper and complete training. And they also mentioned user's manual. They said that user's manual would be used as a reference and if there was a new comer, he/she could use it as well.

3. Communication

All *project managers* agreed that communication must take place at the right time and must be clear enough to ensure that all parties understand the same thing. Moreover, all parties in implementing team must be ones who have the same background of a particular topic and can make decision in order to complete tasks at once.

4. Language

They also mentioned that technical terms should not be used too much during implementation because most users do not understand them.

5. Time frame

All *project managers* state that project time frame is very tight. They have to manage it with pressure, since they have a routine job and other projects with time conflict for this implementation. And they work hard in order to keep time in schedule.

6. Commitment

Both *project managers* from Thailand and Indonesia stated that commitment from users is very important to project implementation because results may be misunderstood due to any changes during implementation if there is no commitment from participants

7. Infrastructure or hardware

Indonesian *project manager* mentions problems of networking which concerns daily work of his staff such as speed, hardware or software availability.

8. Software limitation

Both *project managers* from Thailand and Indonesia agreed that software must be flexible to serve needs and requirements of users. So modification of software must be done in order to strengthen the software's utilization and increase value of output.

9. Utilization from the system and Output

Both Thai and Indonesian *project managers* would like to have more utilization of this software in terms of content for analysis and also improve in terms of output, reconciliation and time.

10. Consultant

Project managers mention that consultants must be ones who know software very well. They have to be able to share or give new and various knowledge and also apply their experience to meet the requirement of management. Consultants must have the same background knowledge to the topics that they must give advice or solution to.

6.2.3   Individual and summary of *functional users* classified by departments: purchasing, warehouse and accounting department from three mine sites and one head office at Jakarta.

This part includes 27 *functional users*. Details are shown as follows: -

1. Five *functional users* from accounting department in Head office – Jakarta

2. Five *functional users* from purchasing and warehouse department in Head office -Jakarta

3. Two *functional users* from purchasing department in Embalut mine site.

4. One *functional users* from warehouse department in Embalut mine site.

5. Two *functional users* from accounting department in Embalut mine site.

6. Two *functional users* from purchasing department in Bontang mine site.

7. Two *functional users* from warehouse department in Bontang mine site.

8. Two *functional users* from accounting department in Bontang mine site.

9. Two *functional users* from warehouse department in Tandung Mayang mine site.

10. Two *functional users* from purchasing department in Jorong mine site.

11. One *functional uses* from warehouse department in Jorong mine site

12. One *functional user* from accounting department in Jorong mine site.

The topics are classified according to the gathered information. This part will provide information to understand the experienced issues or factors during implementing IS. There are 6 main topics shown as follows: -

1. Functionality

    1.1 Appropriate functions availability of software to the organization

    1.2 Legal issues concerned

    1.3 Capability of software (in terms of inquiry)

    1.4 Output efficiency

2. Procedure

    2.1 Manual availability

3. People

    3.1 Practical experience

    3.2 Staff's competency

4. Support

    4.1 After Implementation service

    4.2 Trouble Shooting

    4.3 Feedback after troubleshooting

5. Infrastructure

    5.1 Speed

    5.2 Peak period capacity

6. Consultants

    6.1 Consultant capability

    6.2 Consultant efficiency

Table 6.3 Comparative influential factors which impact the implementation by *functional users* classified by department

Factors to impact Implementation	Purchasing	Warehouse	Accounting	Similarities	Differences
Functionality					
• Appropriate functions availability of software to the organization	X	X	X	X	
• Legal issues Concerned	X	X	X	X	
• Capability of software (in terms of inquiry)	X	X	X	X	
• Output efficiency	X	X	X	X	
Procedure					
• Manual availability	X	X	X	X	
People (staff)					
• Practical experience	X	X	X	X	
• Staff's competency	X	X	X	X	
Support					
• After implementation service	X	X	X	X	
• Trouble Shooting					

Source : Interviewing *Functional users'* results

Table 6.4 Comparative influential factors which impact the implementation by *functional users* classified by department (Continued)

Factors to impact Implementation	Purchasing	Warehouse	Accounting	Similarities	Differences
Infrastructure					
• Speed	X	X	X	X	
• Peak period capacity	X	X	X	X	
Consultants					
• Consultant capability	X	X	X	X	
• Consultant efficiency	X	X	X	X	

Source : Interviewing *Functional users'* results

6.2.3.1 Summary of interviewed results for all *functional users*

Table 6.3 - 6.4 (p. 60-61) presents the similarities and differences of *functional users* in Indonesia.

1. Functionality

1.1 Appropriate functions availability of software to the organization

All *functional users* have the same opinion regarding the available functions in the new system for daily operation that they can operate as usual

1.2 Legal issues concerned

They state that regarding the Legal concern, there is no impact from the new system

1.3 Capability of software (in terms of inquiry)

They state that the new system has inquiry functions which *functional users* are able to inquire any data that they want to find.

1.4 Output efficiency

All *functional users* have the same opinion that they need more reports or modified reports, which are not provided in the system in order to serve daily operation.

2. Procedure

2.1 Manual availability

All *functional users* mention that regarding the Standard of Procedure (SOP), all *functional users* want to have a formal procedure because now they have only a draft or the old version.

3. People

3.1 Practical experience

They state that They want to have a re-training again.

3.2 Staff's competency

Regarding the staff's skills, all mine sites already have capable staff for performing the work.

4. Support

4.1 After Implementation service

Regarding support, all *functional users* are satisfied with the services, but they also need support from local master data team to help them to set up a new necessary data that is used for daily operation such as bank account, suppliers, etc.

4.2 Trouble Shooting

Most *functional users* can accept the problem's evaluation and discussion except some sites that need to improve the service.

4.3 Feedback after troubleshooting

Regarding the speed and level of acceptance to the service provided, all *functional users* are satisfied and accepted the quality of services.

5. Infrastructure

5.1 Speed

All *functional users* accept the communication speed of the new system for their daily operation.

5.2 Peak period capacity

All *functional users* mentioned only the time of closing accounting period that speed is down but they still can accept it because normal time speed is good.

6. Consultants

6.1 Consultant capability

All *functional users* mentioned about ability of transferring knowledge of some consultants that must be improved.

6.2 Consultant efficiency

Functional users can accept consultants' knowledge and their recommendation toward the problem solving

6.2.4   The relationship between *project managers* and *functional users*

This part is finding results of common issues from comparison of interviewing results of *project managers* and *functional users*. The topics are classified according to the above finding of *project managers* and *functional users*, and then match them to the conceptual framework items. This part will provide information to understand the common issues between *project managers* and *functional users*: what are the similar factors that both of these two groups expect or experience? There are 5 main topics shown as follows: -

1.   Support for daily operation

    1.1 After Implementation Services

    1.2 Trouble Shooting

    1.3 Practical experience

2.   Users' Hands-on activity

    2.1 Practical experience

    2.2 Staff's competency

    2.3 Manual availability

3.   Interpersonal communication practice/skill of team members

    3.1 Communication and language

    3.2 Time Frame

    3.3 Commitment

    3.4 Consultant capability

    3.5 Consultant efficiency

4.   Efficiency of hardware and software

    4.1 Appropriate functions availability of software to the organization

    4.2 Legal issues concerned

4.3 Capability of software (in terms of inquiry)

4.4 Speed

4.5 Peak period capacity

5. Target of Implementation

5.1 Output efficiency

Table 6.5 Comparative influential factors which impact the implementation between *functional users* and *project managers*

Factors to impact Implementation	Functional users	Project managers	Similarities	Differences
Support for daily operation				
• After implementation services	X	X	X	
• Trouble shooting	X			X
• Feedback after Trouble shooting	X			X
• Post implementation			-	-
• Policy or guideline			-	-
Users' Hands-on activity				
• Practical experience	X	X	X	
• Staff's competency	X			X
• Manual availability	X			X
Interpersonal communication practice/skill of team members				
• Communication and language		X		X
• Time frame		X		X
• Commitment		X		X
• Consultant capability	X	X	X	
• Consultant efficiency	X	X	X	

Source : Interviewing results

Table 6.6 Comparative influential factors which impact the implementation between *functional users* and *project managers* (Continued)

Factors to impact Implementation	Functional users	Project managers	Similarities	Differences
Efficiency of hardware and software				
• Appropriate functions availability of software to the organization	X	X	X	
• Legal issues concerned	X	X	X	
• Capability of software (in terms of inquiry)	X	X	X	
• Speed	X	X	X	
• Peak period capacity	X	X	X	
Target of implementation				
• Output efficiency	X	X	X	
• Users			-	-
• Business processes			-	-
• Achievement of company's Objective			-	-

Source : Interviewing results

From Table 6.5 – 6.6 (p. 65 – 66), common issues that are gathered from conclusion of both *project managers* and *functional users*, can be presented as follows: -

1. Support for daily operation

Both *Project managers* and *functional users* need to have local support. *Project managers* stated that they want to have a local supporter who can give them solutions or services as fast as possible. While *functional users* also state that they are satisfied with the services but

they also need support from local master data team to help them to set up a new necessary data which is used for daily operation, such as Bank account, and suppliers.

2. Users' Hands-on activity

Both *Project manager* and *functional users* agreed that training is needed. *Project managers* confirmed that training is a very important factor that all *functional users* must give fully attention to the training. Because if *functional users* understand and are familiar with the system, they will work properly and correctly. They will be able to solve and apply it to the coming business cases and when there is a new comer, they can transfer knowledge to him with a proper and complete training. While *functional users* also agree that they want to have re-training for the system again.

3. Interpersonal communication practice/skill of team members

Both *project managers* and *functional users* are concerned with the ability of consultants who must have experience and ability of knowledge transfer. *Project managers* mentioned that consultants must be the ones who know software very well. They have to be able to share or give new and various knowledge and also apply their experience to meet the requirement of management. While all *functional users* mentioned about ability of transferring knowledge of some consultants.

4. Efficiency of hardware and software

Both *project managers* and *functional users* would like to modify some parts of software in order to strengthen the utilization and value of output. They also mentioned the same issue for infrastructure connection speed and printer's problem, because *Project managers* agreed that

software must be flexible to serve needs and requirements of users. So modification of software must be done in order to strengthen the software's utilization and increase value of output. *Project manager* mentioned problems about networking which concerns daily work of his staff such as speed, printer or availability. All *functional users* add that only the time of closing accounting period is when the speed is down but they still can accept it because normal time speed is good.

Moreover, both *project managers* and *functional users* have the same issue for infrastructure that is speed of connecting the system and printer's problem.

5. Target of Implementation

Both *project managers* and *functional users* have a common concerned point, which is improvement of output or reports in order to strengthen software's utilization. Because *project managers* would like to increase utilization of the software in terms of content for analysis and they also want to improve the system in terms of output, reconciliation and time. While all *functional users* have the same opinion that they needs more reports or modified reports which are not provided in the system in order to serve daily operation.

6.2.5 The relationship between *top managers* and *functional users*

This part is finding results of common issues that come from comparison of interviewing results of *top managers* and *functional users*. The topics are classified according to the above finding of *project managers* and *functional users* then match them to the conceptual framework items. This part will provide information to understand the common issues between *top managers* and *functional users*: what are the similar factors that both of these two groups expect or experience? There are 5 main topics shown as follows: -

1. Support for daily operation

    1.1 After Implementation Services

    1.2 Trouble Shooting

    1.3 Practical experience

    1.4 Post implementation

    1.5 Policy or guideline

2. Users' Hands-on activity

    2.1 Practical experience

    2.2 Staff's competency

    2.3 Manual availability

3. Interpersonal communication practice/skill of team members

    3.1 Consultant capability

    3.2 Consultant efficiency

4. Efficiency of hardware and software

    4.1 Appropriate functions availability of software to the organization

    4.2 Legal issues concerned

    4.3 Capability of software (in terms of inquiry)

    4.4 Speed

    4.5 Peak period capacity

5. Target of Implementation

    5.1 Output efficiency

5.2 Users

5.3 Business processes

5.4 Achievement of company's objective

Table 6.7 Comparative influential factors which impact the implementation between *functional*

users and *top managers*

Factors to impact Implementation	Functional users	Top managers	Similarities	Differences
Support for daily operation				
• After implementation services	X			X
• Trouble shooting	X			X
• Feedback after trouble shooting	X			X
• Post implementation		X		X
• Policy or guideline		X		X
Users' Hands-on activity				
• Practical experience	X			X
• Staff's competency	X			X
• Manual availability	X			X
Interpersonal communication practice/skill of team members				
• Communication and language				X
• Time frame				X
• Commitment				X
• Consultant capability	X			X
• Consultant efficiency	X			X

Source : Interviewing results

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Table 6.8 Comparative influential factors which impact the implementation between *functional*

users and *top managers* (Continued)

Factors to impact Implementation	Functional users	Top managers	Similarities	Differences
Efficiency of hardware and software				
• Appropriate functions availability of software to the organization	X			X
• Legal issues concerned	X			X
• Capability of software (in terms of inquiry)	X			X
• Speed	X			X
• Peak period capacity	X			X
Target of implementation				
• Output efficiency	X	X	X	
• Users		X		X
• Business processes		X		X
• Achievement of company's Objective		X		X

Source : Interviewing results

From Table 6.7 – 6.8 (p. 70 – 71), common issues that are gathered from the conclusion

of both *top managers* and *functional users*, can be presented as follows: -

1. Support for daily operation

A *top manager* mentions that implementation team does not follow up the project after

launching the system whether every designed process is continuously done by users or not. And

he also would like to encourage users to use the system properly by using clear policy and

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guideline. While all *functional users* are satisfied with the services but they also need support from local master data team to help them to set up a new necessary data, which is used for daily operation such as Bank account, suppliers, etc.

2. Users' Hands-on activity

Top managers do not mention about this topic. But all *functional users* reveal that training is very important to them as well as Standard Operation Procedure (SOP).

3. Interpersonal communication practice/skill of team members

All *functional users* mentioned about ability of transferring knowledge of some consultants but *top managers* do not mention about this topic.

4. Efficiency of hardware and software

All *functional users* have the same opinion regarding the available functions in the new system that in daily operation they can operate as usual, and they also mention that during closing accounting period that speed is down but they still can accept it because normal time speed is good while *top managers* do not mention about this topic.

5. Target of Implementation

Both *top managers* and *functional users* mention about the reports that they want to utilize them as much as they can. So the modification or creation of reports is necessary. And *top managers* add more regarding users, business processes, and achievement of company's objective.

6.2.6   The relationship between *top managers* and *project managers*

This part is the finding results of common issues that come from comparison of interviewing results of *top managers* and *project managers*. The topics are classified according to the above finding of *top managers* and *project managers* then match the conceptual framework items. This part will provide information to understand the common issues between *top managers* and *project managers* that what are the similar factors that both of these two groups expect or experience? There are 5 main topics shown as follows: -

1. Support for daily operation

    1.1 After Implementation Services

    1.2 Trouble Shooting

    1.3 Practical experience

    1.4 Post implementation

    1.5 Policy or guideline

2 Users' Hands-on activity

    2.1 Practical experience

    2.2 Staff's competency

    2.3 Manual availability

3 Interpersonal communication practice/skill of team members

    3.1 Communication and language

    3.2 Time frame

    3.3 Commitment

    3.4 Consultant capability

    3.5 Consultant efficiency

4 Efficiency of hardware and software

4.1 Appropriate functions availability of software to the organization

4.2 Legal issues concerned

4.3 Capability of software (in terms of inquiry)

4.4 Speed

4.5 Peak period capacity

5   Target of Implementation

5.1 Output efficiency

5.2 Users

5.3 Business processes

5.4 Achievement of company's objective

Table 6.9 Comparative influential factors which impact the implementation between *project managers* and *top managers*

Factors to impact Implementation	Project managers	Top managers	Similarities	Differences
Support for daily operation				
• After implementation services	X			X
• Trouble shooting				X
• Feedback after trouble shooting				X
• Post implementation		X		X
• Policy or guideline		X		X
Users' Hands-on activity				
• Practical experience	X			X
• Staff's competency				X
• Manual availability				X

Source : Interviewing results

Table 6.10 Comparative influential factors which impact the implementation between *project managers* and *top managers* (Continued)

Factors to impact Implementation	Project managers	Top managers	Similarities	Differences
Interpersonal communication practice/skill of team members				
• Communication and language	X			X
• Time frame	X			X
• Commitment	X			X
• Consultant capability	X			X
• Consultant efficiency	X			X
Efficiency of hardware and software				
• Appropriate functions availability of software to the organization	X			X
• Legal issues concerned	X			X
• Capability of software (in terms of inquiry)	X			X
• Speed	X			X
• Peak period capacity	X			X
Target of implementation				
• Output efficiency	X	X	X	
• Users		X		X
• Business processes		X		X
• Achievement of company's objective		X		X

Source : Interviewing results

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From Table 6.9 – 6.10 (p. 74 – 75), common issues that are gathered from the conclusion of both *top managers* and *project managers*, can be presented as follows: -

1. Support for daily operation

Top manager from Indonesia mentions that implementation team does not follow up the project after launching the system whether every design is continuously done by users or not. And he adds that he would like to encourage users to use the system properly by using clear policy and guideline. While *Project managers* would like to have a local supporter who can give them solutions or services as fast as possible.

2. Users' Hands-on activity

Top managers did not mention that this topic is a key factor to the success of implementing Information System. But *project managers* have commented on this factor because they know that it is important for *functional users* for daily operation.

3. Interpersonal communication practice/skill of team members

Project managers mention that it is important during implementation of the project. It is not only regular communication but it is also a commitment from all parties and proper time frame or work schedule. And they also add that consultants also affect the success of implementing Information System. Consultants must be the ones who know software very well. They have to be able to share or give new and various knowledge and also apply their experience to meet the requirement of management. But *top managers* do not mention that this topic is significant as a key to success factor.

4. Efficiency of hardware and software

Project managers agreed that software must be flexible to serve needs and requirements of users. So modification of software must be done in order to strengthen the software's utilization and increase value of output. And they also mention about speed of connection that it should not be slow, otherwise it will be a problem for users. But top managers understand that all required tools are provided to all uses so they do not think that it will be a serious issue in implementation.

5. Target of implementation

Both top managers and project managers would like to utilize the reports from the system. So the modification or creation of reports must be taken who action. Top managers added that it is not only the expected reports, but also users' acceptance and business processes that are designed in order to get standard and best practice for all across the organization.

6.2.7 The relationship among top managers, project managers and functional users

This part is finding results of common issues that come from comparison of interviewing results of top managers, project managers and top managers. The topics are classified according to the above finding of top managers and project managers then match ed them to the conceptual framework items. This part will provide information to understand the common issues between top managers and project managers: what are the similar factors that both of these two groups expect or experience? There are 5 main topics shown as follows: -

    1   Support for daily operation

        1.1 After Implementation Services

        1.2 Trouble Shooting

1.3 Practical experience

1.4 Post implementation

1.5 Policy or guideline

2   Users' Hands-on activity

2.1 Practical experience

2.2 Staff's competency

2.3 Manual availability

3   Interpersonal communication practice/skill of team members

3.1 Communication and language

3.2 Time frame

3.3 Commitment

3.4 Consultant capability

3.5 Consultant efficiency

4   Efficiency of hardware and software

4.1 Appropriate functions availability of software to the organization

4.2 Legal issues concerned

4.3 Capability of software (in terms of inquiry)

4.4 Speed

4.5 Peak period capacity

5   Target of Implementation

5.1 Output efficiency

5.2 Users

5.3 Business processes

5.4 Achievement of company's objective

Table 6.11 Comparative influential factors which impact the implementation between *functional users, project managers* and *top managers*

Factors to impact Implementation	Functional users	Project managers	Top managers	Similarities	Differences
Support for daily operation					
• After implementation services	X	X			X
• Trouble shooting	X				X
• Feedback after Trouble shooting	X				X
• Post Implementation			X		X
• Policy or guideline			X		X
Total for Support items	**3**	**1**	**2**		
Users' Hands-on activity					
• Practical experience	X	X			X
• Staff's competency	X				X
• Manual availability	X				X
Total for Users' Hands-on	**3**	**1**	**0**		
Interpersonal communication practice/skill of team members					
• Communication and Language		X			X
• Time frame		X			X
• Commitment		X			X
• Consultant Capability	X	X			X
• Consultant Efficiency	X	X			X
Total for Communication	**2**	**5**	**0**		

Source : Interviewing results

Table 6.12 Comparative influential factors which impact the implementation between *functional*

users, project managers and *top managers* (Continued)

Factors to impact Implementation	Functional users	Project managers	Top managers	Similarities	Differences
Efficiency of hardware and software					
• Appropriate Functions availability of software to the organization	X	X			X
• Legal issues Concerned	X	X			X
• Capability of software (in terms of inquiry)	X	X			X
• Speed	X	X			X
• Peak period capacity	X	X			X
Total for Efficiency of Hardware and Software	**5**	**5**	**0**		
Target of implementation					
• Output efficiency	X	X	X	X	
• Users			X		X
• Business processes			X		X
• Achievement of company's objective			X		X
Total for Target of Implementation	**1**	**1**	**4**		

Source : Interviewing results

From Table 6.11 – 6.12 (p. 79 – 80), the common issues that are gathered from conclusion of *top manager*, *project managers* and *functional users*, can be presented that *project managers* and *functional users* almost have the same issues that they perceive that they affect to the success of implementing Information System. While *top managers* is vise versa from both *project managers* and *functional users*. There is only one factor that *top managers*, *project managers* and *functional users* perceive the same – the output from the system or reports.

6.3 Managerial Implications

This part provides information that is implied from discussion with *top managers*, *project managers*, and *functional users* in order to understand the degree of relationship among three groups. Topics are categorized according to conceptual framework into five major factors shown as follows: -

1. Support

   1.1 Degree of similarities among *top managers*, *project managers* and *functional users*

   1.2 Degree of differences among *top managers*, *project managers* and *functional users*

2. Users' Hands-on activity

   2.1 Degree of similarities among *top managers*, *project managers* and *functional users*

   2.2 Degree of differences among *top managers*, *project managers* and *functional users*

3. Interpersonal communication practice/skill of team members

3.1 Degree of similarities among *top managers*, *project ma*nagers and *functional users*

3.2 Degree of differences among *top managers*, *project ma*nagers and *functional users*

4   Efficiency of hardware and software

4.1 Degree of similarities among *top managers*, *project ma*nagers and *functional users*

4.2 Degree of differences among *top managers*, *project ma*nagers and *functional users*

5   Target of Implementation

5.1 Degree of similarities among *top managers*, *project ma*nagers and *functional users*

5.2 Degree of differences among *top managers*, *project ma*nagers and *functional users*

From Table 6.13 (p. 82), number of participant are classified in three major groups of users which consist of *Functional users*, *Project managers* and *top managers*. Under the *functional users* there are three departments that participate during in-depth interview.

Table 6.13 Numbers of Participants

Group of users	No. of participants
Functional users	
- Purchasing department	11
- Warehouse department	6
- Accounting department	10
Project managers	6
Top managers	2

Source : Interviewing results

6.3.1 Support

This factor includes all activities, which concern daily support for operation. So the relationship among *top managers*, *project managers*, and *functional users* are classified into two types. First is degree of similarities among *top managers*, *project m*anagers and *functional users*. The second type is degree of differences among *top managers*, *project m*anagers and *functional users*.

6.3.3.1 Degree of similarities and differences among *top managers*, *project m*anagers and *functional users*

Table 6.14 Degree of similarities between *functional users to top managers* and *project managers*

	Project managers (6)	Top managers (2)
Purchasing (11)	⬤ (Strong)	• (Light)
Warehouse (6)	⬤ (Strong)	• (Light)
Accounting (10)	⬤ (Strong)	• (Light)
		Factor: Support

⬤ Strong ● Moderate • Light

Source : Interviewing results

Table 6.15 Degree of differences between *functional users to top managers* and *project managers*

	Project managers (6)	Top managers (2)
Purchasing (11)	• (Light)	⬤ (Strong)
Warehouse (6)	• (Light)	⬤ (Strong)
Accounting (10)	• (Light)	⬤ (Strong)
		Factor: Support

⬤ Strong ● Moderate • Light

Source : Interviewing results

From Table 6.14 – 6.15 (p. 83 – 84), *functional users* in Purchasing department reveal that support is very important to them for daily operation because when they have a problem such as software, hardware, or business cases for, they want to receive fast solution. As their jobs is the beginning of transactions, other departments have to wait for them otherwise they cannot process further. While *project managers* also state that support is important to all users. Owing to problems not being solved fast and clearly, there will be an affect on the output of the system such as mistake or deadline of jobs.

For the warehouse department, they also reveal that support plays an important role in their jobs. When they face a problem in any receipt number and it is in the part of purchasing department, they have to wait for purchasing ยฟพะ. And if the problem occurred in Inventory module, they must solve it, otherwise maintenance people cannot issue that spare part. Or they can give that spare part to maintenance people. They have to record transactions in the system later but there may have error in cost of spare part because they use average cost method. That means entered transactions type (received and issued) must be in order, therefore average cost will be calculated wrongly.

For accounting department they also need fast support because they are the last part of accounting transactions. If any transactions come from other departments and there are errors, they must be able to analyse problems and then send error transactions back to the original department that created the error and wait for the corrected transactions. In the case that they cannot analyse the errors by themselves, they need support from concerned parties to assist them. If they receive the corrected transaction late, they have to speed up their work, otherwise they will be late to submit financial reports to executives.

That is also the same reason for *project managers* who need to utilize the reliable information from the system. In the case of accounting department they are the last sequence of job lines. They will face a serious problem if any problems cannot be solved on time and correctly. As they are the ones who submit the financial reports to management, they seriously need a good support from concerned parties. *Project managers* also have a serious problem if accounting department cannot submit management reports on time.

While *top managers* do not perceive this factor as a serious issue because they understand that there is supporting unit for *functional users,* their point of view is to encourage *functional users* to work properly according to Standard Operation Procedure (SOP).

6.3.2 Users' Hands-on activity

This factor includes all activities, which concerns the user training and user manual. So the relationship among *top managers, project managers,* and *functional users* will be classified into two types. First is degree of similarities among *top managers, project ma*nagers and *functional users.* The second type is degree of differences among *top managers, project ma*nagers and *functional users.*

6.3.2.1 Degree of similarities and differences among *top managers, project ma*nagers and
   functional users

Table 6.16 Degree of similarities between *functional users to top managers* and *project*

managers

	Project managers (6)	Top managers (2)
Purchasing (11)	●	●
Warehouse (6)	●	●
Accounting (10)	●	●
		Factor: Users' Hands-on activity

● Strong   ● Moderate   ● Light

Source : Interviewing results

From Table 6.16 - 6.17 (p. 86 – 87), all *functional users* in purchasing, warehouse and accounting are concerned with the activities of on-hand: training, and clear manual. Reliable information comes from proper data that is input by capable primary users (Ives & Olson, 1984). And capable primary users need good training in order to understand the system sharply. So they will be able to perform tasks efficiently and effectively and they can ensure their work by using manual.

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Table 6.17 Degree of differences between *functional users to top managers* and *project managers*

	Project managers (6)	Top managers (2)
Purchasing (11)	●	●
Warehouse (6)	●	●
Accounting (10)	●	●
		Factor: Users' Hands-on activity

● Strong   ● Moderate   ● Light

Source : Interviewing results

Project managers also have strong comment to this factor. If there is more efficiency in entering data or applying business cases, it means that they have faster and more accurate information. Both of them have the same level of concern to this factor. All of them realized that they must be more involved more in this activity in order to be able to operate their work efficiently.

While *top managers'* point of view differs from that of the *project managers* and *functional users* as they do not mention that this factor is a key issue because it fulfills anytime as routine work. Staffs have to keep updating their knowledge and all concerned parties will support their necessary requests. So they do not think that it is a key issue for the implementation.

6.3.3 Interpersonal communication practice/skill of team members

This factor includes all activities, which concerns communication, commitment, time frame and consultant capability. So the relationship among *top managers*, *project managers*, and *functional users* is classified into two types. First is degree of similarities among *top managers*, *project managers* and *functional users*. The second type is degree of differences among *top managers*, *project managers* and *functional users*.

6.3.3.1 Degree of similarities and differences among *top managers*, *project managers* and *functional users*

Table 6.18 Degree of similarities between *functional users* to *top managers* and *project managers*

	Project managers (6)	Top managers (2)
Purchasing (11)	●	●
Warehouse (6)	●	●
Accounting (10)	●	●
Factor: Interpersonal communication practice/skill of team members		

● Strong   ● Moderate   ● Light

Source : Interviewing results

Table 6.19 Degree of differences between *functional users to top managers* and *project*

managers

	Project managers (6)	Top managers (2)
Purchasing (11)	●	●
Warehouse (6)	●	●
Accounting (10)	●	●
Factor: Interpersonal communication practice/skill of team members		

● Strong   ● Moderate   ● Light

Source : Interviewing results

From Table 6.18 - 6.19 (p. 88 – 89), all *functional users* in purchasing, warehouse, accounting department and also *project managers* are concerned with this factor during implementation. So effective communication should not use technical language but should use a common language and personal ability to cope successfully with problems (Schein, 1985). *Project managers* realize that communication is very important to implement this project because they have to discuss and also convince all parties to make the implementation smooth and efficient. Otherwise misunderstanding and problems will lead to difficulty in further step of implementation. While *top managers* do not perceive that it is the issue because they give clear direction to *project managers.*

6.3.4 Efficiency of hardware and software

This factor includes all activities, which concerns software and hardware. So the relationship among *top managers*, *project managers*, and *functional users* is classified into two types. First is degree of similarities among *top managers*, *project managers* and *functional users*. The second type is degree of differences among *top managers*, *project managers* and *functional users*.

6.2.4.1 Degree of similarities and differences among *top managers*, *project managers* and *functional users*

Table 6.20 Degree of similarities between *functional users to top managers* and *project managers*

	Project managers (6)	Top managers (2)
Purchasing (11)	⬤	●
Warehouse (6)	⬤	●
Accounting (10)	⬤	●
Factor: Efficiency of hardware and software		

⬤ Strong   ⬤ Moderate   ● Light

Source : Interviewing results

From Table 6.20 – 6.21 (p.90 – 91), all *functional users* in Purchasing, warehouse and accounting are more concerned with the efficiency of hardware because they face slow speed

during closing accounting period. For example, they can finish two purchasing order numbers in five minutes, but during closing period they will take eight to ten minutes. Moreover, the available infrastructure and the system are also important to them. For example, a warehouse in one mine site would like to have network for connecting the system in their area instead of going out to enter data at office's place.

Table 6.21 Degree of differences between *functional users to top managers* and *project managers*

	Project managers (6)	Top managers (2)
Purchasing (11)	⬤	◑
Warehouse (6)	⬤	◐
Accounting (10)	⬤	◐
Factor: Efficiency of hardware and software		

⬤ Strong   ⬤ Moderate   ● Light

Source : Interviewing results

Project managers realize that efficiency of hardware and software is important to the success of implementing ISs, as hardware and software is a tool for users to operate their daily jobs. If there is more efficiency of hardware and software, there will be more efficient work results. For *top managers* understand that they can provide all necessary hardware and software that is required by users so the gap is rather bigger than others.

6.3.5 Target of Implementation

This factor includes all activities, which concerns expected results or any factors related to achieve expected result. So the relationship among *top managers*, *project managers*, and *functional users* is classified into two types. First is degree of similarities among *top managers*, *project managers* and *functional users*. The second type is degree of differences among *top managers*, *project managers* and *functional users*.

6.3.5.1 Degree of similarities and differences among *top managers*, *project managers* and *functional users*

Table 6.22 Degree of similarities between functional users to top managers and project managers

	Project managers (6)	Top managers (2)
Purchasing (11)	⬤	⬤
Warehouse (6)	⬤	⬤
Accounting (10)	⬤	⬤
		Factor: Target of Implementation

⬤ Strong ⬤ Moderate ● Light

Source : Interviewing results

From Table 6.22 – 6.23 (p. 92 – 93), all *functional users* in purchasing, warehouse and accounting departments are seriously concerned with this factor, especially the output of the system because they use reports from the system for reconciliation and give the answers to

others. Accounting department is the one who use reports much more than others as they must prepare financial or management reports for management and external parties. *Project managers* and *top managers* also concentrate on the output as the reports from this implementation.

Table 6.23 Degree of differences between *functional users to top managers* and *project managers*

	Project managers (6)	Top managers (2)
Purchasing (11)	●	◖
Warehouse (6)	●	◖
Accounting (10)	●	◖
	Factor: Target of Implementation	

● Strong   ● Moderate   ● Light

Source : Interviewing results

So there are very few differences among *functional users*, *project managers* and *top managers* to this factor. Only *top managers* expect more than other groups regarding designed business processes. They want to ensure that every process is performed accordingly.

6.3.6 Summary

According to the interview results, it represents the perception that each group of users (*functional users*, *project managers* and *top managers*) understand each factors from different

point of views. Some are the same among groups but some are different. It will depend on individual concerns. The summary of influential factors is presented in Figure 6.1 and 6.2.

Figure 6.1 and 6.2 (p. 94 – 95), shows the degree of similarities and differences. The results come from summary of major influential factors from Table 6.11 – 6.12 (p. 79 – 80). It explicitly can show the level of interesting factors as follows: -

- Support

Major group that is interested in this factor is *functional users* and the next group that also pay attention to it, is *top managers*. The last group is *project managers* who also has concerned with this factor. *Functional users* perceive that this factor is very important to them because they have to work very closely with this system and when they have problems or

Chart for Comparison of Similarity of Influential Factors

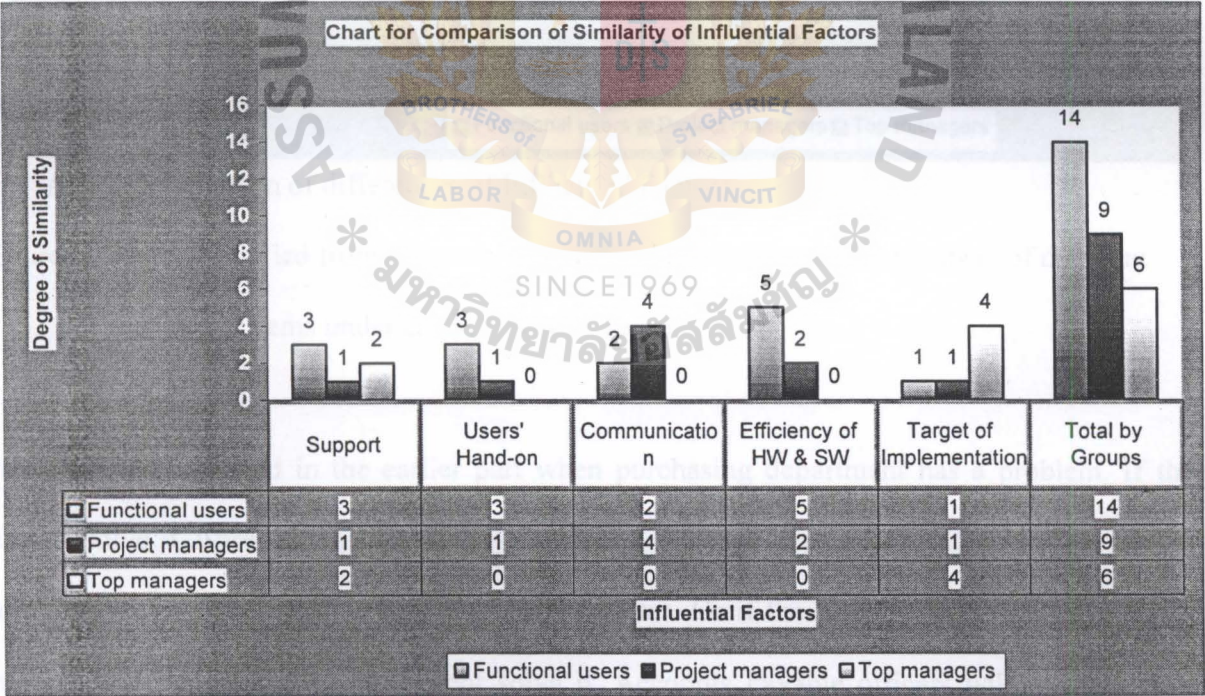| Influential Factors	Support	Users' Hand-on	Communication	Efficiency of HW & SW	Target of Implementation	Total by Groups
Functional users	3	3	2	5	1	14
Project managers	1	1	4	2	1	9
Top managers	2	0	0	0	4	6

Figure 6.1 Comparison of Similarities of Influential Factors

Source : Original implied from summary of major influential factors by numbers of similar

interesting items under each influential factor

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advice, they need the solution as fast as possible. If they cannot continue working, other

department who wait for their data, will not be able to further process the job. As the researcher

Figure 6.2 Comparison of differences of Influential Factors

Source : Original implied from summary of major influential factors by numbers of different

interesting items under each influential factor

has already mentioned in the earlier part when purchasing department has a problem. If they

cannot solve it, warehouse people will not be able to receive transactions into Inventory module

and that spare part cannot be issued to the requester. Or if the problem occurred in Inventory

module and warehouse people cannot solve it, Accounts Payable officers will not be able to

settle the supplier's invoice because the transaction is not received into the system so there is no

data to further process in Accounts Payable module. Or if the problem occurred in accounting

part, financial reports will be able to produce for management's decision-making and/or external auditors, etc.

For *top managers*, they also focused on the part of maintaining the system. They want the system to be operated as designed through guideline, policy or manual. A document that will encourage all users to follow the procedure in order to avoid misunderstanding. and set standard across the organization. They want one of *project managers* to follow up it to ensure that every process and report is operated by users accordingly.

For *project managers*, they focus on after implementation service because they realize that users will need support after the system is launched and all users are not familiar with the system yet. So they think that the support is important for implementing Information Systems.

- Users' Hands-on activity

Functional users are the group who most concentrate on this factor, as they have to know how to use the system such as enter, edit, delete, reconcile, print reports, etc. Otherwise they cannot operate the system. So that means they need training and good manual. Regarding training, the purpose is to increase knowledge of available functions in the system by re-training or to know how to work effectively by understand mistakes and solutions for future use. For good manual, if there is a clear and easy manual, this will help users and a new comer to understand and be able to work fast. But that means the manual must be updated timely and well categorized and organized by knowledgeable people.

Project managers also pay their attention to this factor because they know the result of the system that if users cannot enter data or operate the system, the implementation will fail. While *top managers* do not concentrate on it because they know that their staff will perform the best for the organization.

- Interpersonal communication practice/skill of team members

The major group that has concern to this factor is *project managers* as their mission is the implementation of Information Systems, has to communicate to all parties. They have to co-ordinate, facilitate, convince and market to users. All activities they have to perform must use communication.

Functional users also have concern in this factor but they mostly communicate with consultants and supporting units. Regarding communication with this group, every supporting unit has to be careful in using too much technical language. While *top managers* do not concentrate on this factor.

This factor is very important to all concerned parties. They have to be careful in using this factor, otherwise it will lead to misunderstanding, different expectation and conflict among each other.

- Efficiency of hardware and software

This factor is tools of Information Technology (IT) and it is most interesting for *functional users* because they are the ones who utilize these tools every day. So it is a direct concern to them to have efficient tools. And *project managers* also perceived that it is a concern to them in terms of availability and efficiency of this factor. While *top managers* do not concentrate on it because they realized that all necessary tools will be provided to reasonable requests.

- Target of Implementation

Actually this factor is interested by all groups of users in terms of output from the system or reports. But *top managers* are the ones who mostly pay attention to this factor because they want to have an improvement in the organization in terms of business process and information.

CHAPTER 7

CONCLUSIONS AND RECROMMENDATIONS

7.1 Introduction

The conclusions and recommendations are related to analyzed relationship among *top managers*, *project managers*, and *functional users*. It will help us to understand expectations and problems of each level of users, and also understand the common problems or expectations that can be used for further implementing Information Systems.

7.2 Conclusions of *top managers*, *project managers*, and *functional users* in Thailand and Indonesia

Based on managerial implication from Table 16.11 – 16.12 (p. 79 – 80), the researcher can draw the conclusion of the relationship among *top managers*, *project managers*, and *functional users* as shown on Figure 7.1

Figure 7.1 Relationship among *top managers*, *project managers*, and *functional users*

Source: Originally created by author

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Figure 7.1(p.98) is applied to identify the relationship among three levels of users in implementing Information Systems. There are many factors that can influence the success of implementing Information Systems. The relationship between *functional users* and *project managers* (X) shows stronger degree of relationship than that of *functional users* and *top managers* (Y) or relationship of *project managers* and *top managers* (Z). While the relationship between *functional users* and *top managers* is also strong but still less than that of *functional users* and *project managers* (X) because the distance of line authority and communication. The relationship between *project managers* and *top managers*(Z) has also partially same opinion but it is less when compared to the other two relationships against *functional users*.
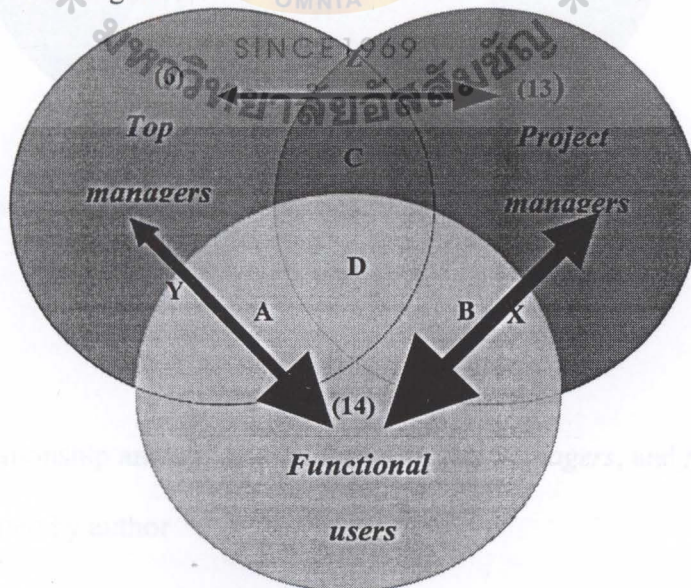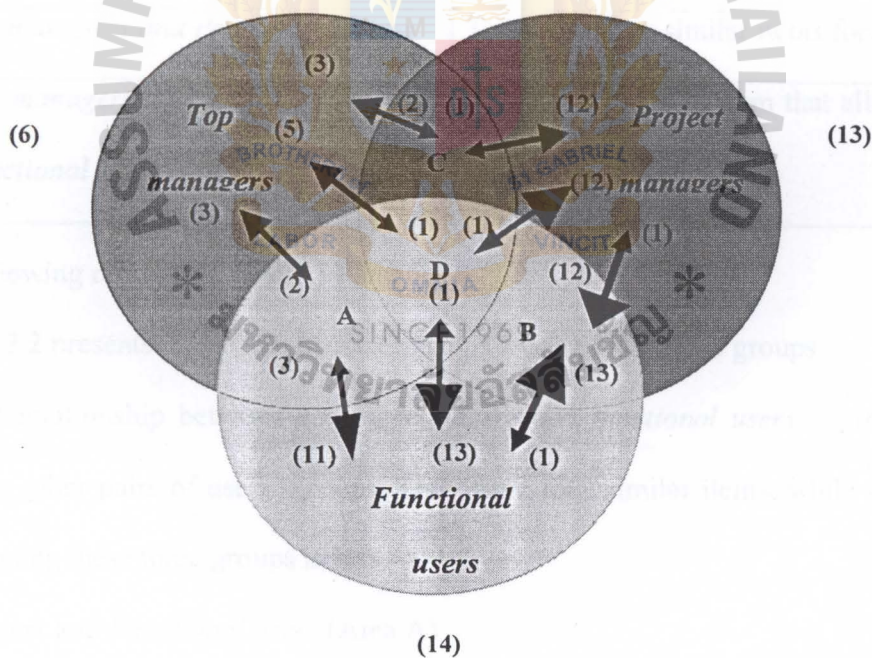

Figure 7.2 Detailed relationship among *top managers*, *project managers*, and *functional users*
Source: Originally created by author

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Figure 7.2 (p. 99) represents the relationship of common areas between groups of users. It is shown in Table 7.1 (p. 100) by using Table 16.11 – 16.12 (p. 79 – 80) from managerial implication.

Table 7.1 Relationship of common areas among *Top managers, Project managers and Functional users*

Areas	Groups of users	Relationship
A	*Top managers and Functional users*	There are five similar items for both of them.
B	*Project managers and Functional users*	There are 25 similar items from these two groups
C	*Top managers and Project managers*	There are three similar items for both of them
D	*Top managers, Project managers and Functional users*	There are 3 similar item that all groups have the same opinion

Source: Interviewing results in Table 6.11 and 6.12

Figure 7.2 presents the degree of relationships among these three groups.

The degree of relationship between *project managers* and *functional users* is strongest when compare to the other pairs of users' groups. They have four similar items, while the degree of relationship among these three groups is less

1. *Top managers* and *Functional users* (Area A)

There are five similar items that they have same opinion on and the concerned factor is support for daily operation. They are 1) after implementation services, 2) trouble shooting, 3) feedback after trouble shooting, 4) post implementation, and 5) policy or guideline.

2. *Project managers* and *Functional users* (Area B)

There are 25 similar items that they have same opinion on and the factors that they are concerned, with are all factors which consist of Support for daily operation, Users' Hands-on activity, Interpersonal communication practice/skill of team members, and Efficiency of hardware and software. The list of items is 1). After implementation services(2), 2) trouble shooting, 3) feedback after trouble shooting, 4) practical experience(2), 5) staff's competency, 6) manual availability, 7) communication and language, 8) time frame, 9) commitment, 10) consultant capability(2), 11) consultant efficiency(2), 12) appropriate functions availability of software to the organization(2), 13) legal issues concerned(2), 14) capability of software in term of inquiry(2), 15) speed(2), and 16) peak period capacity(2).

3. *Top managers and Project managers* (Area C)

There are three similar items that they have same opinion on and only one factor that they have same concern is Support for daily operation which are 1) after implementation services, 2) post implementation, and 3) policy or guideline.

4. *Top managers, Project managers and Functional users* (Area D)

There are three similar items that all groups have the same opinion on and only one factor that they have same concern is Target of implementation. That item is output efficiency(3).

The next part shows the results of common factors between Interviewing Results and Literature Review

Table 7.2 – 7.3 (p. 101-102) shows that the major differences between interviewing results and literature reviews are both daily support from technical hardware, software and business processes and also a tools, which is Information Technology such as hardware, communication and software.

Table 7.2 Comparative influential factors based on Interviewing Results and Literature Reviews

Influential factors	Interviewing Results	Literature Reviews
Support for daily operation	• Policy or guideline • After implementation services • Trouble shooting • Feedback after trouble shooting • Post Implementation	• Users' thinking and behavior
Interpersonal communication practice/skill of team members	• Communication and language	• Communication regarding technical talk
Users' Hands-on activity	• Users' Hands-on activity • Staff's competency • Practical experience • Manual availability • Consultant capability • Time frame • Commitment • Consultant efficiency	• Hands-on / training • Capability of getting knowledge and transfer knowledge • Communication on exchange of facts/background/knowledge
Efficiency of hardware and software	• Appropriate functions availability of software to the organization • Legal issues concerned • Capability of software (in terms of inquiry) • Speed • Peak period capacity	• Acceptance the system

Source : Originally implied from interviewing results and literature review

Table 7.3 Comparative influential factors based on Interviewing Reresults and Literature

Reviews (Continued)

Influential factors	Interviewing Results	Literature Reviews
Target of Implementation	• Output efficiency	• System usage and users' satisfaction • Difficulties of planning for organizational outcome
	• Users	• Involvement and attitudes of end users
	• Achievement of company's objective	• Difficulties of planning for organizational outcome
	• Business processes	

Source : Originally implied from interviewing results and literature review

7.3 Conclusion of influenced factors on implementing Information Systems

A. Support for daily operation

Generally *functional users* are the ones who handle the system. They will face many problems such as hardware problem, software problem, new business cases, requested reports from other parties, etc. So they seriously need fast and proper solution from supporting units. If implementing team understands this factor, the success of implementation can be certainly achieved.

B. Users' Hands-on activity

This factor is very important to everyone who has to operate the system. They have to understand both how to enter data properly and what the impact is if they do not follow the work procedure. It is not only staff who are responsible for entering data into the system but

also supervisors or managers who approve the correctness of each step. They also have to understand and process their jobs otherwise the next process cannot finish that work though they can see the data but cannot process further because the transaction is not complete yet. Actually this factor totally depends on users' participation during user training stage and system test stage in development process.

C. Interpersonal communication practice/skill of team members

According to interviewing results, communication skills of implementation team also affects the progress of the implementing project because if consultants or developers use many technical words, users will feel uncomfortable as they do not understand. And skill of knowledge transfer must be essential ability the implementation team must have in order to make users understand and get them more and more involved.

D. Efficiency of hardware and software

Generally when starting a project, hardware or infrastructure and software will be considered before any tasks begin. Infrastructure has to do sizing in order to estimate capacity of all components such as memory, hard disk, number of personal computers to be used, number of software license, node of connection, and speed for daily operation. When production system is launched, there may be other supporting units to modify or tune the system again. So this factor may affect the success of implementing Information Systems if users cannot operate their work smoothly.

E. Target of Implementation

According to interviewing results, *top managers* would like to achieve the company's objective. They want to standardize accounting system required in Thailand: to reduce redundant work, and to produce fast financial and management reports. This will concern

software, users' participation, policy or guideline to encourage users to use the system. While *project managers* and *functional users* would like to have required reports.

7.4 Conclusion of interviewing Results with Research Proposition

The researcher stated proposition based on dependent variable success of IS implementation. Dependent variable was assumed to be influenced groups of participants who were *top managers*, *project managers* and *functional users*. The proposition was stated as follows: -

Proposition 1: The greater the perception of Support for daily operation, the greater the success of IS Implementation.

Proposition 2: The greater the perception of Users' Hands-on activity, the greater the success of IS Implementation.

Proposition 3: The greater the perception of Interpersonal communication practice/skill of team members, the greater the success of IS implementation.

Proposition 4: The greater the perception of efficiency of hardware and software, the greater the success of IS Implementation.

Proposition 5: The greater the perception of Target of Implementation, the greater the success of IS Implementation.

Based on interviewing result, it is shown that independent variables consisted of support for daily operation, users' Hands-on activity, interpersonal communication practice/skill of team members, efficiency of hardware and software and target of implementation are correlated with the success of Information System Implementation shown in table 7.2 – 7.3 (p.101-102).

7.5 Recommendations

In the Figure 7.3 presents the recommended figure that will be the most proper picture. Because ISs implementation will achieve major requirements in every level. So the researcher would like to recommend that top management be aware of any new implementing Information Systems. The recommendation is categorized into three parts: recommendation for *top manager*, recommendation for *project managers* and recommendation for *functional users*. The researcher's recommendations are based on managerial implications in order to achieve the result as Figure 7.3. Moreover this recommendation will reduce the risk of failure in budget, time and target of implementation as well.
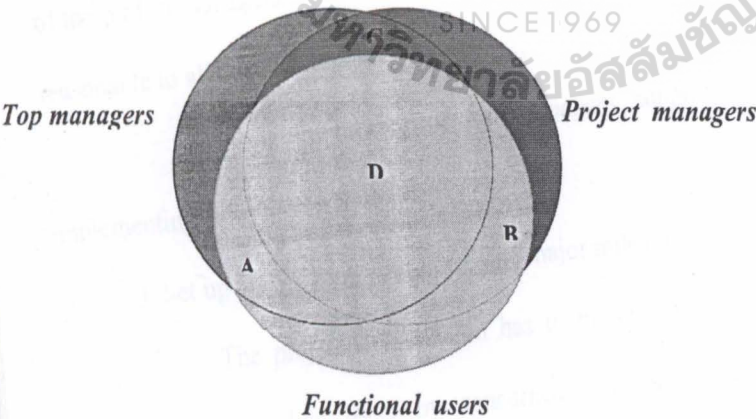

Figure 7.3 Recommended relationship among *top managers*, *project managers*, and *functional users*

Source: Originally created by author

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7.5.1 Recommendation for *Top managers*

1. Clear objectives and deliverables from the system

With reference to the managerial implication, company's objective is not fully achieved due to many factors. So top managers have to verify whether the objectives are stated clearly, or the expectation is interpreted into various degrees of perception and situation or time frame. To avoid this situation, all expected results should be defined in written documents and attached them as a part of deliverables from the system. Thus, implementation team has to submit them before launching the production system.

2. Exhibit strong commitment to the success of the project

Top managers have to exhibit strong commitments to the successful introduction of Information System Implementation and also communicate the corporate IT strategy to all employees in order to reduce ambiguity or confusion. Moreover, there must be a project owner for each Information Systems implementation. And the owner has to be a project manager or one of the project managers. In the researcher's experience this strategy is very important, useful and reasonable to all concerned parties.

So the importance of *top managers* support is instrumental for successful implementing Information Systems.

3. Set up the Steering committee and major milestones for monitoring purpose.

The project organization has to be set up. It should have steering committee, *project managers*, key users by concerned functions, and IT staff. Together with this organization, a draft implementation plan with major milestones is also set up to obtain acknowledgement, involvement and commitment from each party. But the important part that

has to be in the organization is project owner. Normally this project owner will be represented by a department. And *project managers* will be a representative of that department.

4. Arrange the follow-up team for maintaining the system

Finally when the system is utilized, *top managers* have to set up a team to follow up and maintain the system to ensure that designed system is utilized in proper designed procedure. If there is any malfunctional process irrelevant to the designed procedure, it must be reported to the supervisors in order to maintain and standardize the system across the organization.

7.5.2   Recommendation for *Project managers*

1. Marketing the project to all concerned users for their commitment

As *Project managers'* responsibility is to make the implementation successful in terms of budget, time and project objective, they always communicate with all parties in order to be able process tasks pertinent to the designed processes. Actually when any Information Systems start, *project managers* have to call concerned parties to commit to the agreed work schedule. This plan needs to be confirmed by all concerned parties in order to get commitment and participation. Normally it will be adjusted timely due to users' routine jobs and other obstacles that may occur during implementation. But it will not change the major milestones of the implementation.

2. Using progress reports and meetings as a strategic tool

For efficient communication, implementation team meeting should be settled weekly to update the progress for steering committee every month in order to avoid unexpected

events. *Project managers* have to ensure that after a new Information System is launched, supporting team has to be ready and available at all times for any problems because functional users may encounter it especially during due date of each job. Moreover, *project managers* have to communicate to all users timely. For example they should have a meeting every week to issue a monthly progress report meeting to steering committee.

3. *Project managers* should know technology, business as well as organizational context

Project managers should be able to communicate not only with end users but also with IT and consultants. They can see the whole picture of the project. Then they can control, monitor the project and predict the risk throughout the implementation.

4. Arrange supporting team after the production is started

Once the system is started, it does not mean that the project is complete. So implementation team should still be available whenever there is any problem that needs to be discussed and find the solution for the users. The solution should be clearly explain step by step to the users to understand and solve it.

7.5.3   Recommendation for *Functional users*

1. Fully involved in the implementation particularly getting users' requirements

Functional users have to participate in the implementing IS project starting from contributing their requirements to the implementation team in order to complete all requirements for designing a new system which they have to use every day.

2. Fully involved in training and the system test

As a new system is utilized every day, they have to concentrate on how to utilize the system efficiently and affectively with minimum mistake. That means they have to fully

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involve in user training and system test because these two activities will make them clearly understand to a new system. And if there are any problems or business cases or any concern to their daily operation, they will know how to solve them. Moreover, if any process has some questions, they can ask and clear all of them before the system is launched.

7.6 Recommendations for Further Study

The major purpose of this qualitative research is to understand deeply the experience of three groups of users, which are *top managers*, *project managers* and *functional users* whether there are any hidden information concerning the implementation of Information System. The result of this research shows only the factors that impact the success of implementing Information Systems but it does not indicate the most important factors that impact success of implementing Information Systems. The researcher would rather recommend further study using quantitative method in order to identify the most important factors affecting the success of implementing Information Systems.

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APPENDIX A: Questions for Top manager

<u>This Information System implementation achieve company's goal and objective</u>

To understand a perception and awareness of participants toward current situation

- Please kindly describe the achievement of company's goal and objective from this implementation

<u>Problems toward achievement of company's goal and objective</u>

To ask participants concerned about their serious problems which are the root causes of problems.

- Please kindly describe any factors that impact to the implementation

<u>Utilization of the system</u>

To understand the target or expectation from implementation

- Please kindly describe the expectation from the system after the system is launched

APPENDIX B: Questions for Project manager

Success of implementation Information System

To understand a perception and awareness of participants toward current situation

- Please kindly describe your opinion about how the software implementation is successful implemented

Influential factors that impact on success of implementing Information System

To investigate and understand a perception and awareness of participants toward current situation

- Please kindly descript the influential factors from your point of view that you think they impact to the success of implementation

Utilization of the system

To understand the target or expectation from implementation

- Please kindly describe the expectation from the system after the system is launched

APPENDIX C: Questions for Functional users

Functionality of software

To investigate whether the implemented system provide sufficient functions for their daily operation

- Please kindly describe that appropriate functions in the software are available for daily operation

- Please kindly ensure that software is complied to legal concerned.

- Please kindly describe that you can find required data from the system

- Please kindly describe your expectation or output from the system

Procedure

To investigate and ensure that designed system is performed by users

- Please kindly identify necessary required document or manual for your daily operation such as Standard Operation Procedure (SOP) or user's manual.

People

To investigate required knowledge or man power from each department

- Please kindly identify practical experience that your staff need in order to operate the system efficiently and affectively such as training or existing staff's competency.

Support

To investigate and ensure that support from concerned parties is sufficient and efficient to their daily operation

- Please kindly describe that after implementation service is sufficient for your work

- Please kindly identify that service of troubleshooting can be accepted by you or need more service from which concerned parties.

- Please kindly describe the feedback after troubleshooting that you can accept it or not.

Infrastructure

To find out that the efficiency of infrastructure is acceptable for users or they need more service.

- Please kindly identify the efficiency of connection speed at normal work hours

- Please kindly describe the environment of using the system during peak period such as closing accounting period. For example: it is slower than normal working hours significantly.

Consultant

To investigate both local and international consultants' capability and efficiency

- Please kindly describe the consultants' skill and knowledge toward the software such as knowledge transferring skill.

- Please kindly describe the consultants' efficiency in term of business case solution.

APPENDIX D: Results from Individual Top manager

Company: Banpu Public Co., Ltd.

Date : October 7, 2004

Participants:

One Vice President officer in Thailand.

Achievement of company's objective

He starts with the acquisition companies in Indonesia. He states that he accessed all systems there and found that there was no accounting system. So we will not have data for consolidation to accounting system in Thailand. That was the starting point of this implementation. He states that "We use Bangkok as a prototype for this implementation. Most of the processes and procedures are similar to Bangkok. You may ask if Bangkok's processes and procedures are good and proper or not. We have to analyze again because the objective is not achieved completely. Or data in the system is not effective enough. It needs to improve some processes and input procedures. One more thing is old data that are converted. It must be reviewed and managed in a proper way. Because now the data is incomplete in terms of utilization."

Business processes

He states that "As I already mentioned before we used Bangkok as a prototype for this implementation. So the result should be OK and within the same format as Bangkok. But it is not as expected." He further states that "I think that the main factor, will be processes. For example, entering data processes for fixed assets. We have to find the best practice for each

process in order to have an effective and efficient result." And he adds that "I think that the issue should be framework or prototype that covers all requirements and if it is proper processes or not. We reviewed only a few processes."

Users

He states that "Then the factor... it may be users and their background. They are used to acquaint with the old system. We try hard to convince them to change but it is not 100 percents. That means we have to review and adjust processes again."

Utilization of the system

He states that "I think that the issue is reports that are generated from the system. There is no one to review and mange financial reports in order to make effective and efficient for usage, and use this reporting system to support top management. More over, consolidation is also our goal that we want to achieve in order to standardize the system. So it needs to improve and manage the utilization of data for management."

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Company: PT. Jorong Barutama Greston

Date : September 17, 2004

Participants:

One Vice President officer in Indonesia.

Achievement of company's objective

He starts his involvement with the implement in Oracle Financials in Thailand 10 years ago. He states that "I think that it will support the users though it will not be easy to change quickly according to the fast change in our business. But it is fine. Regardless if the implementation at Indonesia, works or not – I also investigated and had a chance to see the details of implementation. I think that we will not fully succeed in this implementation. It is not the problem of software or hardware or features that we design. But it comes from users."

He said that "As I see from outside, the issues that lead to 'not use' by the users are: -

1. They are used to the old system which is stand-alone package and it is easy to change or edit the data.

2. After training and launching the system, we did not follow up and examine their operations that they do it the proper procedure or not. This creates misunderstanding for management, that is why even though the system is already launched but they cannot get the result. So it needs to be reviewed again."

Users

He states that "The key issue should be the users. They do not accept the design such as process or structure."

Policy or guideline

He mentions that "The second one is the policy or guideline that management must strongly support the processes or procedures must be done – no accuse."

Utilization

He states that "There are a lot of information that we can use for analyzing and management. But now I think that we use less than 50 percents. We can analyze regarding cost by processing but we never use it for management. Or we cannot convince them to use the system as we designed so we do not have such data. We have to review processes and pending problems and confirm all again to make it possible to use it by users with their understanding."

APPENDIX E: Results from Individual Project manager

Company : PT. Indominco Mandiri

Date : November 18, 2003

Participants:

One person from Accounting Head Office in Indonesia

Time Frame

He mentioned "The customers who need the output from Oracle, in my opinion they emphasize only on deadline. I do not think that it starts properly and adjusted to the schedule. It does not make problems but it makes the implementation a little bit harder."

He also stated "We can see it from members. You can see that their commitment is fully and they really want to have the module of their own to run by themselves and their commitment to be on time."

Resource allocation

From his opinion, he said "In term of resources we have the project organization and it seems quite suitable, clear responsibility, some of them may be. But some of them are not clear enough. By function, he thinks that is clear. Some are in general. Some need development for the background that is not functioning."

Communication

He stated "the communication of this project roughly is enough. There are weekly, monthly meeting. I think that it is enough."

<u>Output</u>

He mentioned "I can see only the time. But quality is not determined clearly. It may be that it is not clearly designed. It is clear only in task. In term of analysis, in term of final output it should be in a frame. The output is in a frame. In term of date we can say that it is better by 20-30%. In term of content it does not have much effect. Until now we do not utilize software well but we are in the learning curve to use it more. And he wants to optimize the utilization of the software."

Company : PT. Kitadin

Date : November 18, 2003

Participants:

One person from Accounting Head Office in Indonesia

Infrastructure

He commented "We need Network without problem to interrupt where entering data to the system or every mine sites should not be faced with communication network structure to support them such as speed, printer or availability."

Language

He mentioned "Whether the trainee and the trainer could be able to communicate well. It does not means only the language but also the topic that we talk about. I mean if you come from IT and we come from accounting department, we will talk in different language. We should understand the same terminology about Oracle. Like you understand both IT and accounting but we lack knowledge about computer. We have to understand the topics therefore we cannot give jive the way you are suggested."

Time frame

He mentioned "If we have your time frame that means we have a lot of effort 24 hrs a day, 7 days a week – may be it will make us concentrate less on what we should do. I think we should have or set the right time frame and put attention on the gap that can make time frame that cannot be done, like holidays in your timeframe but my time frame does not have or

something like we have something to do in the accounting department but we should do it accordingly to Oracle's time. So we should set the time frame very well."

Hands-on /Training

He mentioned that "also the Hands-on system is very important too. Because Hands-on in Oracle is not enough in one time and two times is not enough also. I remember that last time we had Hands-on until May – from January until May. Because we faced a lot of problems that came form our system. That is no system in perfect in the world. So we say about the problem, we have to say about the Hands-on to solve this problem. We have Hands-on in order to have implementation solved. Because it does not mean that implementation means we use the system and that's it. We have to run it very well and maintain it. And maintaining the system it means that it should have someone like you or a team to support the implementation after implanted and/or master data team. Because when the time changes, we may have other problems or other cases that need to change the data and put the data in the system or any setup in the system. And moreover, master data team must work together with the users. I mean they can create their own ideas and put it in the system – like user friendly or customization some parts. Ok, they know what is in the system but the users want to put something in the system also."

Support

He mentioned "I remember about the printer when we had problem with the network printer. Right now, the condition is that we have to talk to BKK first and BKK will help to solve it. Why do we do this? Because if we have someone in Indonesia and he can solve it in Indonesi, it will help you or it will be easier and faster. If the printer has a problem and we have to wait –

may be one hour or two hours or the next day, we do not want to talk to someone who is far away from us. This is also one factor that may effect system a lot."

Company : PT. Jorong Barutama Greston

Date : November 20, 2003

Participants:

One person from Accounting Head Office in Indonesia

Software

He mentioned "One of the most important point is the modification of software to the needs and specific conditions of the company or department that it is going to use it. So in my experience, not only experience that I have but also my past experience with different kinds of software – Modification is one of important thing and one of the important factor in making those changes to modify into the needs of the users. The understanding of the implementer of that need, I think that is important also and of course there will be factors like the training program and then continuous support maintenance. I think like that. But I believe that any software itself has its own weakness."

Time Frame

He commented "Time frame should be given to the implementer and users to setup their own time frame. The danger in this area is it might be people outside the implementer and the users would like for other reasons or strategic reasons say time frame should be like this because we have to present it at the end of it. That is a factor that would make unfair variable affect to the project. I think that it should be left to the implementer and the users."

Hands-on / Training

He mentioned "… It is important but I think the importance of Hands-on is to make user practice and be familiar with the software."

And he also stated "...I think that training is very important at the first time but also the organization is not going to stay the same so I always ask what is the contingency plan if we have new persons going to work in the position that had already been there before. What is the best way to training a person? Our practice so far is OK, for the people who have already been there before should be the one who train her/him. I think or at least in my experience in the project, the weakness of that one is we cannot guarantee whether the person or the peer or myself is the one competent enough to give the new person the training. So I am always asking that question what is the best method for continuity of training because organizations are always going to be changed."

He added "We probably need some re-training or some simple manual that says this is what you should do one, two, tree, four, five. While one hundred items in the module, you are probably going to use only 7 in a month, every month.. every month. It may be more focus. The thing is you or trainer or implementer should know which is been used in each area. We have to provide you with that information like Mr. A or Ms. B what is he/she doing?"

Communication

He commented "We talk in different language, is one factor definitely. The other thing that I would like to suggest is that the implementer should have, I mean the consultant or outside implementers of the software should have, somebody who has the same background with the users. So it is becoming a problem or increasing the problem of communication when you are talking accounting and taxation term with the people who has limited knowledge of accounting and taxation and if you remember in this implementation we have a lot of communication problem regarding the localization reports. It goes back and fort, back and fort. Somebody says

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or interpret like this while somebody interprets like that. So the communication itself is not going to say as the communication term of language but also in term of understanding knowledge."

Company : Ice Consulting Company

Date : January 28, 2004

Participants:

One person from Consulting company.

Communication

     She mentioned "... Some projects that I used to implement before, has problem in communication among users in their team si it effected the project because consultant must wait and find the agreed solution which cannot satisfy all. But in this project I do not see any problem in communication so much since every meeting will have solution."

Time Frame

     She commented "Yes. As I said before that any project wants commitment from the team. Sometime users cannot give us their commitment. It may occur because of their routine work. Consultants understand that and we try hard to avoid inconvenient time of the users. And I think that we can accept time frame and commitment from users."

     She also mentioned "There are many things that can effect the progress or success of the project such as commitment of the team and involvement of team. Because consultants will provide all set up of the software and business procedure to the company but it must be accepted by users. So users' involvement is very important in implementing any project. If they can bee involved in a meeting but they do not commit to submit a response in time frame, the project will be postponed time after time and it will lead to project failure at last or benefit of the project may be changed due to prolong time and members may be changed."

Company : Banpu Public Co., Ltd.

Date : December 23, 2003

Participants:

One person from Management accounting Head Office in Thailand

Communication

She mentioned "For my point of view, consultants and users who have to work together, to ask question, to answer the question, to give information – they are the factor. Both parties must clearly understand and answer the questions because the outcome is based on them."

Consultant

She commented "Consultants who come to work with us, should have much more experience in setting up the system from other customers. So they can share or give new and various knowledge to us. After they understand our business and requirement, they must apply their experience to meet our requirement. If we have experienced consultants, we can take advantage from them and select some of their experience to implement our project completely and efficiently."

Man Power / Resources allocation

She stated "For users side, ones who are selected to be involved in the project, should be the one who have clear company vision and can give or explain it to the working team very clearly – not specific picture because it will limit to configuration of the system. From my experience, mostly, I am concerned more about human resources."

Time Frame

She mentioned ".... I myself think that it should not have any problem because they agree on it. But in real situation it has a problem about it. But I understand the situation also. Users – they have their own daily jobs. They have to manage time for both daily jobs and project. But unfortunately they cannot manage it well due to their lack of experiences. But they try their best. For example, a training schedule which is one of the most important factor in any system implementation because it will prove that users can operate system or not when system are launched."

Training

She mentioned "For training – they – I mean users, they think that training is not important at the time being if compared to their daily jobs. So during training they will go out to work or their bosses will call them to work. That means they loose some knowledge that may lead to inefficient work or human error. To solve this problem – their bosses must understand the importance of training and should support training by not call them during training time."

Language

She commented "We have to communicate with the same language. I want to separate the word of "language" into two meanings. First I mean the knowledge language. It is true that people have not same level of knowledge then we have to talk to each other very clearly using technical term as little as possible. Some sentence or paragraph needs to have response to make sure that speaker and audiences understand the same things. Many times that speaker wants to explain "apple" but audiences understand that he/she talks about "orange". Speaker or consultant must use simple words and explain in more details. Second meaning is national language. This

one will be worse if explanation is not clear enough. Although consultants are very good in English but all audiences are not good in English. Some are OK but some are weak. Moreover the preparation of consultants is also important especially in other countries. They always said that they already do good preparation but I see that it is not good enough because there are many obstacles during implementation. And implementation method such as training must have technique to make trainees/users understand or not to feel boring."

Utilization from the system

She mentioned "In overall picture we certainly hope that we get something better in terms of output, reconciliation and time when we decide to implement this new system. In the beginning we cannot see the improvement because users are not familiar to the system. It will have much error but after 3-6 month we will see that checking data. to analyze data or to produce reports – it is easier than the old system. And it is standardized because implementing a new company and requirement for reports can be set easily by various method ands the important thing is – no manual work."

Company : Banpu Public Co., Ltd.

Date : December 23, 2003

Participants:

One person from Accounting Head Office in Thailand

Software Limitation

She mentioned "…..And software itself must have flexibility. This is also the main point. Because when we make decision, we think that it can serve our needs but during implementation we found that software has limitation. This is the factor that affect implementation and also the daily operation. Another thing is when we do implementation of accounting software, we also expect to interface this accounting software to the other software that will help us to produce reports we want. But we found that it still have other system limitation."

She also stated that "In my point of view, if we select a software which is not suitable for our business requirement, the percentage of unsuccessfulness will be very high – may reach to 60%. By the way executives must co-operate by giving the very clear requirement and consultants must clearly understand our needs to help us in implementing the system and users must prepare themselves to attend and ready to accept the new system or practice while they have a training."

And she also added "In my point of view if we select unsuitable software for our business requirement, it will have very high percentage of unsuccessful implementation for management has to involve or give clear requirements. This will help in implementation and also the consultant must clearly understand our requirement and also our business in order to set system relevant to business. Last users have to attend the training and give time for this implementation."

Time Frame

She mentioned "…when we implement a new software system, we must spend time to study and involve the project while we do daily work on the old system. We must close accounting period in time by using old system. So in my point of view is, time frame is a very important factor to any implementation. Time management also has limitation too. It can be software itself that has problem or schedule that need to be adjusted. Because if we postpone or adjust schedule for one week – let say that, it will affect to closing period. So we should keep to schedule as much as we can. But we also understand that sometimes software has problem such as bug or other things and it may affect the schedule. From my experience, if the schedule is postponed, it will affect time – it may be a month."

Communication

She mentioned "I think that we do not have much problem about it will have affect to the project if we talked in different languages or consultant – who are familiar to the software so they will know and understand function or limitation of it while users do not know about that. So it makes us understand or expect in different views or expectation."
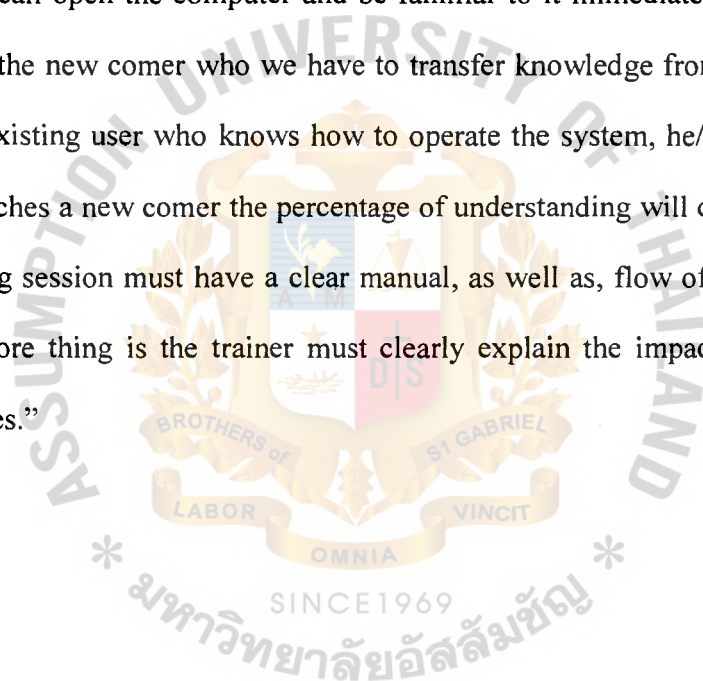
Training

She commented "Training is one of the most important factors of implementation. Firstly we hire consultant to train our users. Because when we talk about training, it means that our user/trainees must understand very well and can work properly in their own responsible modules after training. At the beginning users will know only what they have to do and how to do it but

they will not really understand the impact of their part or function that may affect to the other parts. So when the system is launched, it will have some problems."

Manual

She commented "Another part is user manual that are written by consultants. If manual is not clear enough, user will have problems when they refer back to it. This will have consequential affect to the real daily operation. Because it does not mean that when the system is launched , user can open the computer and be familiar to it immediately. And this will have a consequence to the new comer who we have to transfer knowledge from one person to another person. As an existing user who knows how to operate the system, he/she knows only 70% so when he/she teaches a new comer the percentage of understanding will decrease more and more. Thus the training session must have a clear manual, as well as, flow of work to use in training session. One more thing is the trainer must clearly explain the impact or importance of that topics or modules."

APPENDIX F: Results from Individual Functional users

Company : PT. Kitadin

Date : August 11, 2003

Participants:

Two people from purchasing department in Indonesia

Functionality

They stated that the software provides sufficient functions for daily work and their jobs do not concern legal issue. But they request many reports which is necessary for daily work. They added that they want more reports to serve their needs because the standard reports from the system are not enough for them and some information is separated to the other report so they are inconvenient to use the report.

Procedure

They stated that they do not have formal Standard Operation Procedure (SOP) but they only have software users' manual

People (staff)

They said that they do not need training but they needs tips or how to view faster and easier (if any)

Support

They stated that on overall they can accept quality from concerned parties but they think that some problems take too long a time to give the solution.

Infrastructure

They mentioned that some time speed of connection is slow but overall they can accept it.

Consultant

They said that it is acceptable for consultants' capability and efficiency.

Company : PT. Indominco Mandiri

Date : August 12, 2003

Participants:

Two people from Purchasing department in Indonesia

Functionality

They stated that there is no problem for the available functions of the software and their jobs are not concerned to legal issue. They added that they can inquire data from the system. But they request some more reports.

Procedure

They stated that they use the draft Standard Operation Procedure (SOP) and they already have software users' manual.

People (staff)

They stated that they need more training, support, and consult from concerned persons.

Support

They said that it is acceptable but they will have better performance if they have more services from master data team and hardware support such as adding a new printer.

Infrastructure

They said that it is acceptable for speed and peak load capacity

<u>Consultant</u>

They mentioned that they can accept only some of local consultants in term of capability and efficiency. Because they cannot give solutions promptly. They have to wait for Bangkok consultants and IT developer

Company : PT. Jorong Barutama Greston

Date : August 14, 2003

Participants:

Two people from purchasing department in Indonesia

Functionality

They stated that available functions are sufficient for daily work and their jobs are not concerned with to legal issues. They added that they have to wait for price from supplier to key-in purchase requisition so when requester asks for the progress, there is no data in the system. And they also request more reports.

Procedure

They stated that there is no final Standard Operation Procedure (SOP) so they use the existing one.

People (staff)

They mentioned that there is a new staff who they want to send to training and also existing staff want to re-training too.

Support

They mentioned that Service from Head office is not enough to support both contact person and service at mine site.

Infrastructure

They said that they can accept connection's speed during normal time and peak period capacity.

Consultant

They stated that they can accept consultants' capability and efficiency.

Company : PT. Jorong Barutama Greston,

PT. Kitadin,

PT. Indominco mandiri

Date : August 18, 2003

Participants:

Five people from purchasing department in Indonesia

Functionality

They stated that available functions in the software are sufficient for daily work and their jobs are not concerned with legal issues. And they also request more reports.

Procedure

They mentioned that they will use the procedure in International Standard Organization (ISO) to socialize to all concerned parties.

People (staff)

They said that they do not require any training. But due to mine sites requiring re-training they will send someone from Head office to mine sites in order to transfer knowledge and problem solving.

Support

They stated that they can accept service both after implementation service and troubleshooting because it is reasonable and short cut to the process.

Infrastructure

They stated that almost speed at Jakarta is acceptable except sometimes the speed is slow.

Consultant

They said that they can accept theiry services because consultants can give the solution quite fast. And they added that they can accept their recommendation and understand steps to be performed.

Company : PT. Kitadin

Date : August 11, 2003

Participants:

One person from warehouse department in Indonesia

Functionality

He stated that the existing functions in the software are sufficient for daily work and his jobs does not concern legal issue. But he would like to have more reports that can be used for reconciliation and checking data by using one report instead of two or three reports together to check one data.

Procedure

He said that he does not receive final Standard Operation Procedure (SOP) and also monthly closing period schedule.

People (staff)

He stated that he needs more training especially physical count, min/max planning, etc. He added that his staff are capable of handlin this system.

Support

He stated that existing support is sufficient for his daily operation because all problems have a solution even though it is not so fast but it is not too slow for his work.

Infrastructure

He mentioned that regarding the speed of connection, it should be faster than now because when he enters data, he has to wait for each character to appear on the screen then he can type the next character or process next steps. He added that from his experience until now he thinks that he can accept it but in the future he cannot confirm it.

Consultant

He mentioned that he can accept the software's capability of consultants but the way they transfer knowledge is not workable or not good enough.

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Company : PT. Indominco Mandiri

Date : August 12, 2003

Participants:

Four people from warehouse department in Indonesia

Functionality

They stated that there is no problem for the available functions of the software and their jobs are not concerned with legal issues. They added that they can inquire data from the system. But they request some more reports for reconciliation.

Procedure

They stated that they use existing Standard Operation Procedure (SOP), which they have it on-hand, and they already have software users' manual. They added that they do not want to print a report for each receipt and attach it to invoice because all information is in the system.

People (staff)

They revealed that they need more training and coaching from Head office and master data team. And they also said that their staff can work with the existing job effectively and efficiently.
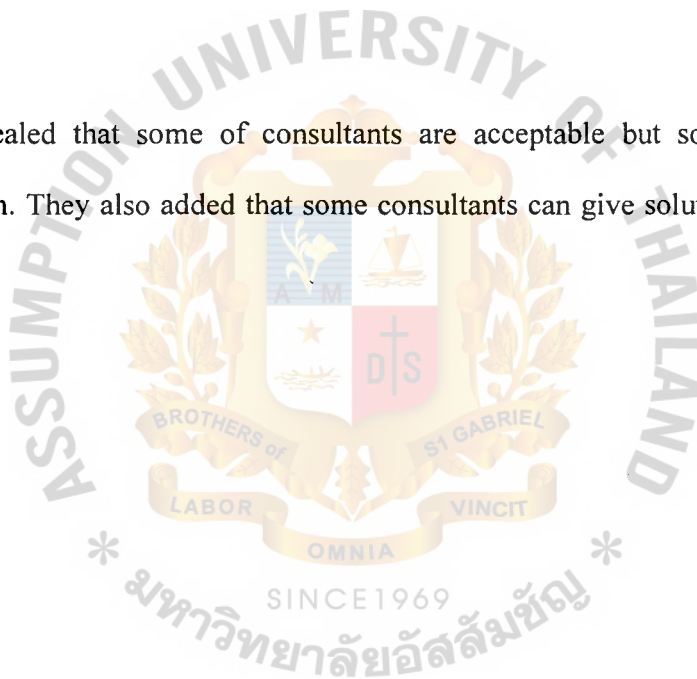
Support

They said that it is adequate for given solutions and it will be better if master data team helps them more than before. They added that for troubleshooting, they can accept the service though sometime is slow but on average it is acceptable.

Infrastructure

Warehouse people in Tandung Mayang site mentioned that they needed additional communication line to Tandung Maryang site in order to be able to operate Oracle at the site. Because now they can access Oracle at operation plant but it is quite slow and also need one more printer for the site. They also mentioned that during closing period they have to spend two to three hours or sometime five hours.

Consultant

They revealed that some of consultants are acceptable but some cannot accept the capability of them. They also added that some consultants can give solution clearly while some are average.

Company : PT. Jorong Barutama Greston

Date : August 14, 2003

Participants:

One person from warehouse department in Indonesia

Functionality

He stated that available functions are sufficient for daily work and his jobs does not concerned legal issue. He added that he would like to have user's manual for the part of standard reports in order to know format of each report and use it properly.

Procedure

He stated that there is no final Standard Operation Procedure (SOP) so he used the existing one. And he thinks that it is fine for him because up until now there has been no problem that comes from procedure workflow.

People (staff)

He mentioned that he needs more training because he cannot follow the trainer at the first time. And he also added that the routine work is done by existing staff without problems.

Support

He mentioned that he is satisfied enough for support from Thailand but Service from Jakarta is not enough to support mine site (Both Contact person and service). He added that service at mine site must be improved same as speed of connection the system.

Infrastructure

He said that he can accept connection's speed during normal time and peak period capacity.

Consultant

He said that some consultants may have capability but it takes time to explain to them. It seems that they do not understand the questions or do not know the solution so they come to repeat the question to him again.

Company : PT. Jorong Barutama Greston,

        PT. Kitadin,

        PT. Indominco mandiri

Date : August 18, 2003

Participants:

Five people from accounting department in Indonesia

Functionality

They confirmed that available functions in the system are sufficient for their work and use the function of inquiry to give answer to other departments. Regarding legal issue they said that they do not use Tax report from the software. Tax documents are provided by using local programs. They added that they want to add more columns of data for some reports in order to get the result from one report and also want to have some new reports for supporting both internal auditor and external auditor.

Procedure

They stated that final Standard Operation Procedure (SOP) for accounting is not launched yet. So accounting in Indonesia will discuss with Corporate accounting later and will distribute it to all concerned parties.

People (staff)

They stated that they need re-training about writing report in General Ledger module. Regarding the staff's competency they mentioned that for head office they do not have any

problem with capability of staff. And they also added that if there is any problem even inventory problem, head office will give first support. If any, it will be supporedt by Bangkok.

Support

They mentioned that they are setting up Master Data team in order to solve problems for users and they want their master data team to be able to handle by themselves if possible. They revealed that they are satisfied with support from concerned parties.

Infrastructure

They stated that speed is acceptable. But they still face a problem of computer hanging. They want to have a new computer. They added that existing computers are rather old. They want to purpose to change all computers. They also stated that they do not have any problem during peak load of work.

Consultant

They stated that consultants in Jakarta are acceptable but at mine site, they heard that some can be acceptable but some cannot be acceptable. They added that they can accept consultants' recommendation and solutions because some suggestions takes shorter processes.

Company : PT. Kitadin

Date : August 11, 2003

Participants:

Two people from accounting department in Indonesia

Functionality

They stated that available functions in the software are sufficient but they want to set automatic posting for some specific journals because there are many transactions to be posted. And they also stated that they can use inquiry feature to give answer to other parties. Regarding the legal issue they stated that mine site does not have concerned part because Tax and Withholding Tax is submitted by Head office. They also mentioned that they want to modify some reports. For example they have to use 2 reports at the same time in order to get a result because one report contains columns that the second report does not have it or the report style such as Landscape to be Portrait.

Procedure

They stated that they use the existing procedure manual and do not receive any closing period schedule from Head office

People (staff)

They said that they need re-training, especially Fixed Assets module. Due to staff's competency they stated that their existing staff have sufficient knowledge for their work.

Support

They mentioned that support from Thailand is enough but they want support from master data team to help them in general requirement such as set up new data. They added that they are satisfied with the solution provided.

Infrastructure

They mentioned that in the past the speed of connection was slow but now it is acceptable but if it is possible and not costly, they want to work with faster connection. Especially during closing period, they have to finish on time which is speed of connection is very important. If it is slow, they cannot speed up to finish it as schedule at normal working hours.

Consultant

They stated that they can accept consultants' service. But sometimes consultants explain too much technical term so they do not understand it clearly. But they stated that consultants' solutions are acceptable and reasonable to use them.

Company : PT. Indominco Mandiri

Date : August 12, 2003

<u>Participants:</u>

Two people from Accounting department in Indonesia

<u>Functionality</u>

They stated that they use the inquiry feature to answer the questions from other department . And they also mentioned that they want to protect some account combination code in order to reduce human error. But for Accounts Receivable module, where there will be a new code combination, every month due to shipment or customer will be the issues that need to be discussed. Regarding legal issue, they stated that mine site does not have concerned part because Tax and Withholding tax is submitted by Head office. For output efficiency they mentioned that they want the description of entry line in General Ledger report which come from subsystem. If it is Accounts Payable, it should be an invoice number or payment description. If it comes from Inventory, it should be transaction description or Account Receivable module it should be description of that receipt. And they also want to add more columns of data for some reports in order to get the result from one report.

<u>Procedure</u>

They said that they have it but they need to discuss again with Head office whether it is the correct version or not.

<u>People (staff)</u>

They stated that they are in the process of learning and optimizing the system. Training may be requested further. And they also said that they have capability to deliver and use the system.

Support

They said that they need problem solver or master data team. They should be Indonesian and have some visited support by concerned person monthly. They added to the troubleshooting that given solution from support party is acceptable although sometimes it is slow.

Infrastructure

They mentioned that they get problems with a new printer. It is ready to use but cannot print the report out. And they added that they need connection speed faster than now. It may expand bandwidth or increase PC memory. And they said that it is inconvenient when they get problems during closing period. For example a Printer jam, so they have to contact to IT at Jakarta. So Level of service must be considered therefore it must be delegated to mine site.

Consultant

They mentioned that some consultants are acceptable but the others are average. They added consultants cannot deliver knowledge efficiently. There is too much technical term. They do not understand what consultants' means or want them to do the solution.

Company : PT. Jorong Barutama Greston

Date : August 14, 2003

Participants:

One person from accounting department in Indonesia

Functionality

She said that available functions are sufficient for daily work and she and her staff use inquiry feature to give answers to other departments when they request information in the system. Regarding legal issue she stated that mine site does not have concerned part because Tax and Withholding tax is submitted by Head office. She also mentioned that some transactions, which have withholding tax and is not approved yet. Those transactions cannot edit anything while if there are no withholding tax, her staff can edit information. She also added that her staff also want to add more columns of data for some reports in order to get the result from one report.

Procedure

She stated that she does not receive any procedure manual or user manual so she and her staffs do it as routine work without any reference manual.

People (staff)

She said that her staff need more training, especially Accounts Receivable and Fixed Assets module. For staff 's competency she stated that her staff can work efficiently and effectively.

Support

She mentioned that support from IT is acceptable but it should be improved more for mine site. She added that IT at mine site should be able to solve some problems. So IT at mine site should be trained by IT Thailand or go to learn somewhere in order to be able to give solution to them.

Infrastructure

She said that speed of connection for Oracle is acceptable. Only problem of printers that often hang and they must call IT at head office or Thailand to fix it. So she would like to fix this problem permanently.

Consultant

She said that consultants' service is acceptable. Only sometimes consultants do not teach or explain to them. But consultants correct the mistake by themselves. So she is afraid that if this case is happened again, they do not know how to fix it by themselves.