



IT Service Level Management for ABC Insurance Ltd.

by

Mr. Prasit Lodarbchai

A Final Report of the Three-Credit Course  
CE 6998 Project

Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Master of Science  
in Computer and Engineering Management  
Assumption University

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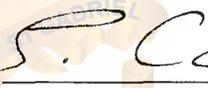
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Academic Year        November 2006

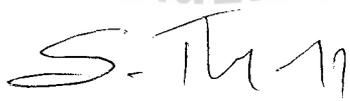
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The Graduate School of Assumption University has approved this final report of the three-credit course, CE 6998 PROJECT, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer and Engineering Management.

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## ABSTRACT

This project is the study of the IT resources planning and allocate by an insurance company that is measured by user service level agreement which brings up to the company's business success factor by means of:

- Responsiveness: By means of responsiveness, we could find improved outcome from the service level agreement presented in chart, type and percentage analysis.
- Efficiency: This is precisely the cost controlling on IT support to meet responsiveness. By means of efficiency, we could find a saving outcome around 2.8 million baht for the IT support spending cost in 3 years which measures with net present value(NPV).

This insurance company has been utilizing the in-house resources as all internal IT staffs to support the users' IT operations for years and they have turned to a partial outsource services to an IT services company. The outsource or IT services company has to start from the IT assets and inventory management to IT support processes which could be justified the cost of investment to ABC Insurance Limited from this partial outsourcing in the view of in-house staffs efforts and cost comparison.

Cost justification on net present value (NPV) is used as a key index to justify ABC Insurance IT management decision in term of successful cost allocation. Maintaining or better service level agreement to ABC's users is the key indicator in term of IT support management effectiveness.

The success of this partial outsourcing for ABC insurance limited may also be a tendency on cost awareness to effectiveness on service level agreement to ABC Insurance Limited and possibly be deployed throughout its whole operation.

## ACKNOWLEDGEMENTS

This project has been made with the support of many people. I would like to acknowledge their efforts and thank them for their contributions.

I would like to thank Dr. Chamnong Jungthirapanich, my project advisor, for his valuable advice for the project preparation.

In addition, I would like to thank all the management team of ABC Insurance Limited who provided me the useful information for the project study.

Finally, I would like to express my deepest gratitude and thanks to my family for their continuous support, encouragement, and heartfelt joy all throughout the course work.

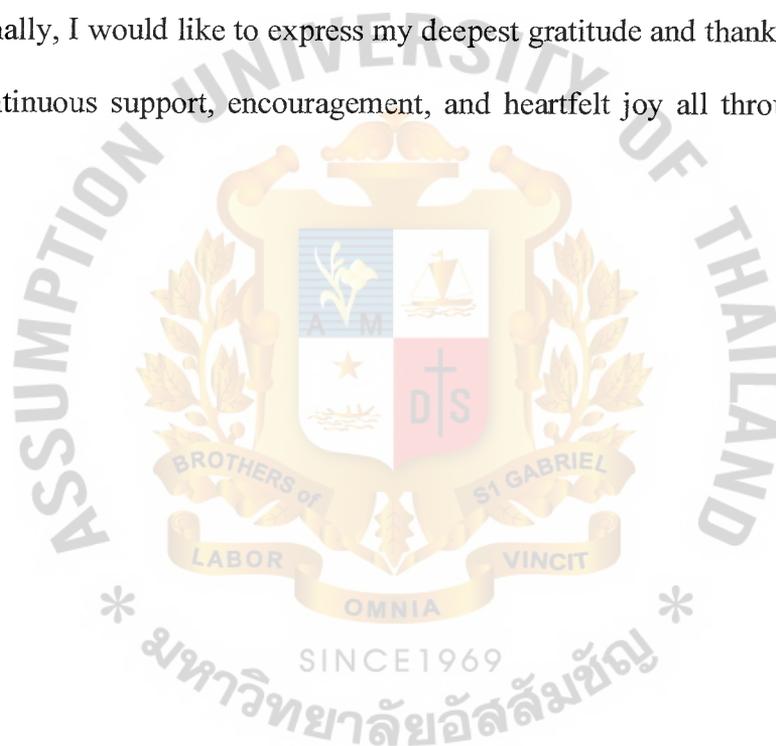


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# I. INTRODUCTION

## 1.1 Background of the Project

In the past decade, the modern business organizations would be the only private sectors which could afford to invest in the Information Technology. Nowadays, Information Technology is no longer limited acquiring to only the Government Agencies or wealthy people, but span to almost all people in our societies. Business operations acquire information technology as a competitive resource to fulfill almost in every area of the organization operations and processes.

Investing in IT assets and implementing the business solutions from the planning stage to the end users operations is not the end of IT life cycle. To keep IT operate as plan and justify return on investment(ROI) needs a group of IT support people to facilitate every user from the physical environment as hardware(computers, printers, etc.) to the logical factors as business applications and IT security.

In this project, a study of IT management in the IT operations for ABC Insurance has investigated on the cost conscious between ABC's in-house maintenance and partial outsourcing to an IT outsource services company.

## 1.2 Objectives of the project

To study and investigate the resources planning and allocate by ABC Insurance Ltd. that is measured by user service level agreement which brings up to the company's business success factor by means of:

- (1) Responsiveness: Immediate response to insurance policy holders or customers.
- (2) Efficiency: Cost controlling on IT support to meet responsiveness.

### 1.3 Scope of the project:

- (1) To study/analyze the existing systems and resources that provide to end users.
- (2) To present the alternative cost allocation that maintaining the service level agreement
- (3) To present the outcome of the designed support resources, analyze on the trend and propose on the feasible improvement plan.



## **II. LITERATURE REVIEW**

IT life cycle involves several parties in the organizations to participate from the acquisition stages to the maintaining and revolving to the new systems or technology. This project is focused on a multinational company and its support structure.

### **2.1 Introduction to Multinational Business and IT**

Organizations in modern business types inevitably empower the usage of Information Systems throughout the organization to ensure company's competitive advantage. Any business organizations that need to deploy Information Systems and its technology has to firstly define if the set-up plan reflects the business needs or not. The IT environment, the front end and the back end systems for each industry is not identical, setting up I.S. for Telecommunication and Banking industry, though using I.S. as a core business flow, infrastructure, in term of network bandwidth, front counter clients, self service equipments. Banking needs self service like passbook update and applications developed behind that, while telecom needs kiosk to display variety of services and electronic air time or prepaid buying, refill credit.

As above things to concern on business needs, each organization needs different hardware, software performance. Infrastructure like network bandwidth for a small business scale would not consider the 2-gigabit fiber channel of network speed which would fit the Telecom Giant. Considering only physical assets like IT hardware and overlooking the application and user interface layer would make no mean to IT support. Application and user interface layer be defined as the applications or custom codes developed for a specific organization. What applications to be deployed, which types of applications needed? Database, messaging, workflow, etc.

Users are the key that empowers the use of IT in the organization. IT manager has to consider the users' level of access, authentication and security process to serve the users and concern security at the same time.

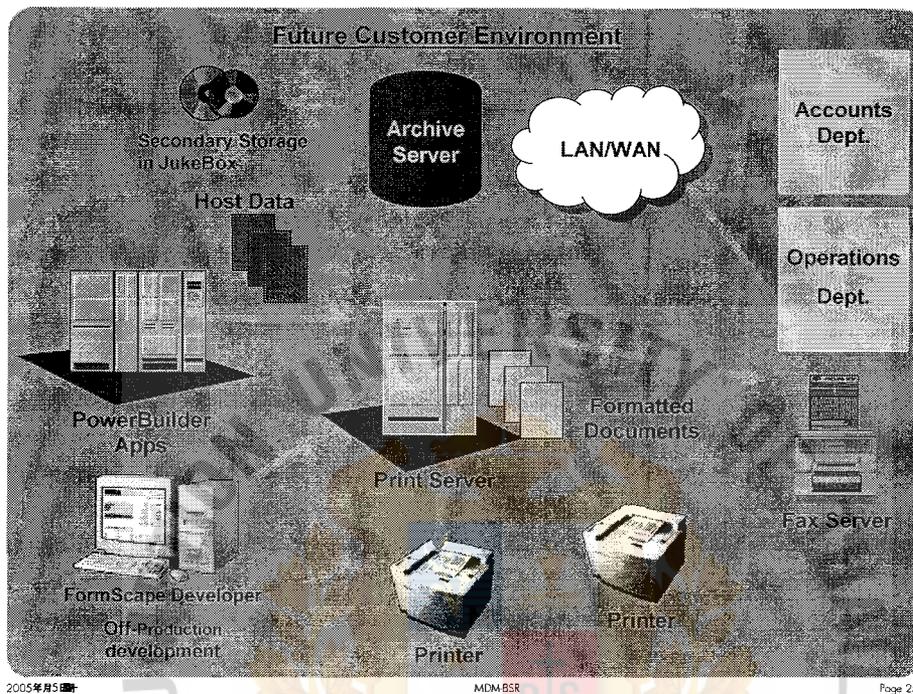


Figure 2.1 Future Customer Environment

Faced with the challenges mentioned above and assuming that the critical assets are being well managed, what major issues do IS leaders and their business manager partners need to deal with in designing a successful IT management system? What are the areas that most need attention? Many areas of attention seems to be common across most organizations when designing a successful management system for IT

### **Agreeing Upon the role of the IS organization**

The IS organization's role is changing, and it will likely change even more. How IT is best managed depending on how the senior management of the organization sees

information and IT as a part of the overall business vision. What mission or role the IS organization takes on, how it performs these duties, and how it organizes to get its job done will vary from organization to organization. This challenge means that senior business leadership expects the IS unit to align its activities closely with the overall business activities and direction. IS must exercise leadership in providing IT solutions that will help the business in the future while also providing systems that solve today's problems. More specifically, these expectations mean:

- Demonstrating and understanding the business through an awareness of business plans and strategies.
- Responding quickly with systems to meet changing business conditions
- Helping to reengineer business processes to be more responsive to customers
- Ensuring that the business can participate, and may be lead, in the growing development of e-commerce
- Keeping the final customer, not just internal operations, in mind
- Building systems that provide direct and identifiable benefits to the final customer, thus building stronger customer relationships
- Helping business managers make better decisions with information
- Using IT for sustainable competitive advantage and increased market share
- Helping the business to integrate IT into every appropriate part of business.

### **Selecting effective IS Leadership**

The second key factor in determining the success of the IT management system and the IS function is, not unsurprisingly, the leader. In most organizations someone can be identified as the executive to whom all centralized IT management activities report. Some organizations created the role of chief information officer (CIO) to lead IT management. A true CIO is part of the organization's officer team and is one of those

executives responsible for making the strategic decisions for the whole organization, knowing the business. Learn and master every aspect of IT-net income, EPS, EBITDA, its management, its products, its vendor, its sales channels, its customers, its competition. Hire the best people to delegate. The CIO belongs in the executive room working with the chairman, the CEO, and other executives in understanding and influencing the business strategy, as well as in identifying opportunities where IT can be a competitive advantage for the enterprise.

### **Creating an active Partnership with Business Managers**

It is essential for the IS leader to build strong working relationships with other top managers. This result cannot be achieved unless the senior IS person is a peer in authority and responsibility, the IS department's mission and vision are clearly communicated, and other business managers view IT as an area that cannot be delegated to lower-level personnel.

Partnership is a critical strategy for IS management. It is based on sustaining a long-term relationship between IS and business management. Partners share key common goals. Partners seek benefits not possible to each party individually. Partnership is based on mutual trust as well as shared benefits, responsibilities, and risks. Its goal is to achieve a greater contribution for IT to the benefit of the organization. Although working IS and business partnerships can be implemented in several ways, by far the most frequent is the steering committee for IS management. An IS steering committee, issue forum, or advisory board can be used to ensure frequent interaction, such groups can be used effectively to

- Set priorities for systems development and IS direction
- Check progress against an established direction
- Allocate scarce resources, especially IS staff, to achieve business objectives

- Communicate concerns, issues, and possible remedies
- Provide education and the development of shared mind-sets
- Develop shared responsibility and ownership of actions

## 2.2 Managing the global corporation

### Considering an outsourcing strategy

Outsourcing allows a company with greatly fluctuating computer processing demands to pay only for what it uses, rather than building a data center for peak load and letting it sit underutilized during other periods. Some firms have chosen to outsource IS operations because it is difficult to keep pace with technological change. The decision to outsource must be viewed as both a remedy for service failures or cost issues and as a strategic choice. Likewise, outsourcing must be done selectively.

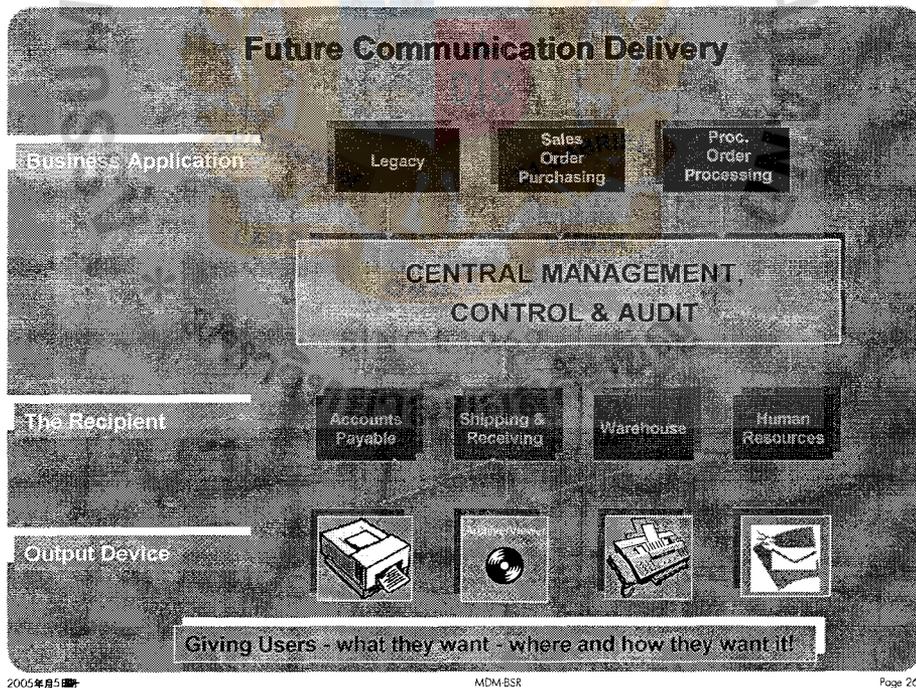


Figure 2.2 Future Communication Delivery

### The driving forces behind outsourcing

Outsourcing descended on IS departments as a follow-on to the merger and acquisition activities in the 1980s, said Bergstein. In the 1960s, only 10 percent of the U.S. economy had global competition. In the 1970s, that rose to 70 percent. In response, companies had to focus on core businesses in the 1980s, which led to the huge amount of merger and acquisition activity. Companies were priced based on their shareholder value, that is, their discounted cash flow.

These two drivers – focus and value are still leading companies to restructure and focus on core businesses by asking themselves, where the area that really adds value. So outsourcing is part of the drive for focus and value, and it is not solely an information system issue, it is a business issue. Traditionally, IS departments have bought professional services, such as planning or consulting, building or maintaining applications, building or maintaining networks, and training staffs. With the increasing use of package and the need to integrate components to create client/server systems, companies have contracted with a systems integrator, who generally handles the entire life cycle – planning, development, maintenance, and training for major system projects.

#### **Trend in IT Outsourcing**

Outsourcing is not only an accepted practice, it is now seen as a way for companies to improve their competitive positions, often as part of major restructuring activities. This is the strategic view of outsourcing, and it often results in mega deals and full-service outsourcing. The driving force is lack of skills and the desire to offload non-core-competency areas to providers. One of the latest changes has been outsourcing applications. Previously, companies felt that their applications were their competitive edge, so they would not outsource them. Now, however, they have decided it is wiser to get the applications built fast and in use. In the near term, the companies

will use a “one-stop shopping” approach to outsourcing when they outsource infrastructure functions (LAN operation, desktop, mainframes) and a “best of breed” approach when they outsource applications. In the longer term, the companies will “best of breed” partnering, which one vendor acting as the prime contractor. In such cases, the client and prime contractor will strive more for a partnering relationship rather than a simple customer/supplier relationship.

### **Trend in Network Management**

The following are four trends on network management:

- Integrated network management has become a major goal

The term integration has several meanings in the world of network management. One obvious meaning is being able to manage an enterprise-wide network, from LANs through WANs. Another meaning is the ability of network management products from different vendors to work together and appear as a single system to a network manager.

- Management of distributed applications is coming

A new view of network management is cropping up: allowing network managers to also manage distributed client/server applications. Lotus, for example, has embedded network management information to a network management system. A network manager can use these statistics and alarms to monitor how well Notes is performing across a network, to see whether any of the Notes servers are running out of disk space, and so forth.

- Automation of network operations will increase

Nowadays, network management software can be proactive, where the tools listen to the network’s wire conditions and send an alarm when a threshold has been exceeded.

- Outsourcing of network management will increase

Due to the crucial role of networks in today's businesses and the increasing complexity of these networks, more companies will outsource network management. This appears especially true of multi-country and intercontinental networks, which are so complex and expensive to build and operate. Finding telecommunications talent in many countries is a difficult task in itself, a task that might best be left to an international telecommunications provider. These then are four trends in the network management world while we do not mention about network security and the secure internet access which would be in too depth detail for this study.

### **Recommendations to Management**

Outsourcing is like a marriage, said Bergstein, so the decision is not trivial. According to Bergstein, the decision to outsource data center operations, PC support, application development, network management, help desks, application maintenance, or other systems activities should hinge on the companies' business objectives, but there are four activities that management should not outsource, warns Bergstein. These are their strategy, the architecture of the system (including the network), the decision about when to introduce IT into the organization, and managing the vendor. Although management can outsource the development and operation of IT, it should never outsource its policy role. When the systems department is well managed, and where IT is a core competency, outsourcing should not be an option.

### III. THE EXISTING IT SUPPORT

#### 3.1 Background of the Organization

ABC Group is the conglomerate multinational company operating in insurance and financial services, leading international insurance organization with operations in more than 130 countries and jurisdictions. ABC companies serve commercial, institutional and individual customers through the most extensive worldwide property-casualty and life insurance networks of any insurer. In addition, ABC companies are leading providers of retirement services, financial services and asset management around the world. ABC's common stock is listed in the U.S. on the New York Stock Exchange as well as the stock exchanges in London, Paris, Switzerland and Tokyo.

ABC Insurance Ltd. is a wholly-owned subsidiary of ABC Group, Inc. the leading U.S. based international insurance organization and the largest underwriter of commercial and industrial insurance in the U.S. ABC Thailand was established in 1938 as a representative of ABC Group, it is the fourth office after Malaysia, Hong Kong and Shanghai. In 1942 World War II, American and Western companies were driven out of Asia, this also affected ABC Group to close down its offices in all Asian countries. After World War II ended in 1946, ABC Insurance Ltd. was back to found its office and pay for all claims regarding loss of life insurance holders during that period. Starting its business to serve life insurers in Thailand then expanding to travel, health, personal accident and home insurance. With more than half a century of its experience in insurance business, ABC penetrates its business and expand extremely successful in Thailand. ABC markets a full line of life insurance products through an extensive agency force of over 100,000 agents in the region. Its ability to design new, innovative products to meet the changing needs of the market has put it ahead of the competition.

As the leading life insurance organization in Southeast Asia, ABC has an extensive network of branch offices and affiliates worldwide.

Starting from around a thousand insurance policy holders in the beginning becoming more than 1,000,000 policy holders(one insurer may hold more than a policy) signing its several services. With a financially strong status and excessive reserves, it has expanded offices and agencies nationwide by a debt free investment from its own reserves. The company has no financial risks and holds a very strong credit rating. Rated by Standard & Poor's under AAA level, this is the highest credit rating level achievable. ABC's business operations has acquired computerized system to serve all the customers be capable of accessing its services as well as enabling an online insurance policy payment by a secured web-based service.

To serve all the customers and operate smoothly, IT department is a key that drives behind the scenes. Several parties are involved in this service cycles described as below:

### 3.1.1 Insurance Policy Holders

Insurance business offers intangible goods to customers. Customers are the insurance holders who pay for the policies they prefer to get coverage of. Some of them come to ABC office directly to contact and get advisory services from ABC staffs for a decision making, some bought their policies from ABC agents who get the commissions from their selling efforts, some access ABC online services and buy the services transferring money by a web-based, but is still a very rare case at the moment. Since this project study the scope of IT department that supports internal process of ABC insurance Ltd., we would focus mainly on the customers who physically buys the insurance policies and take no concern on the web-based side. The customer would follow the activity flows as below:

- Contact ABC's agent to buy insurance policy or direct contact at ABC's offices
- Choosing policy, coverage limits, age limits, return options
- Make payment and hold insurance policy that choose
- Revolving periodically payment to validate the policy coverage per monthly/yearly basis
- Get amount claim if loss or damage occurs and cover by the policy held

### 3.1.2 Represent Agents and Front Office Staffs

Front office staffs are those who take care of the customers walking into the office to buy the insurance policy directly. The roles of front office staffs are to advise the customers on the policy that fit their personal needs and/or their limitations in terms of age limit, coverage limit, physical conditions limit.

The activities list of the front office staffs are listed below:

- Greeting customers
- Provide information or advise on company's offerings
- Register customer's detail when placing insurance policy
- Submit insurance policy and cash receipt with handbook to customer

### 3.1.3 Back Office Staffs

Owning more than 63,000 million baht of Assets, we could imagine a huge transactions being handled by the back office staffs. This includes internal communications, back-end process to support the business/operation flows as per daily basis. IT is fully deployed in almost all aspects of the operation processes to ensure accurate and fast work flows. In this project, only the scope of IT department who support all users in the company will be focused and measure their roles between self-starter IT support and partial outsource services to service providers.

### 3.2 Current Problems

With more than 500 staffs using on-line services in the network of ABC Insurance Ltd., there are problems existing in many areas.

#### (1) Users Readiness

No effective Information Systems being used and optimized if the users' readiness are not in place. Transition period from a paper work flow to an automated computer workflow needs to educate and take over the barriers of reluctance to change of users. ABC has overview training for all users in the company; it is running under orientation program for half-day period which is to get the users who involve with IT to know the resources, access, security policy of the company. Later on users need to practice by on-the-job training basis. From ABC support yearly report, users support require more than half of the IT department working hours in each day to handle. This causes IT department being stunned with routine support and can't be free to initiate IT project development in the organization.

#### (2) IT Team Readiness

To support users efficiently, IT team readiness is a key. Sufficient number of staffs and tools with skills to support is a key to ensure always-on environment to the users. To overcome both constraints checklists and training to users and IT team and a well-planned transition period is the key concern to optimize IT benefit.

Some of IT Team are hierarchical map as shown below:

CIO : Head of IT Department looks in term of IT policy

IT Manager : Head of IT field operation, ensuring plan

IT Supervisor : Supervising IT operation staffs as plan

IT Staffs : Operate on-going support to users

One of the big issue that ABC IT department facing is losing IT support staffs. IT people are gaining more skills by years of services and many are eyed by the head-hunter companies to pull these resources across the IT industry which cause ABC to re-fill and re-train the IT staffs to replace those who left to join other organizations and also regularly training to ensure staffs' efficiencies are the fringe benefit that ABC is using to maintain the qualified staffs with them other than pay raise, this seems to be not satisfactorily successful when considering turn over rate of the staffs.

### (3) Hardware and Network Equipments

Managing IT assets and maintaining them is not an easy task, a so-called IT lifecycle has been introduced that described the capability of IT assets of a company that handle tasks properly. ABC bought all IT assets and book under operating assets, they are not yet planned for leasing or rental. A big challenge that ABC encountering is some out-to-date PCs and Servers, software and patches which need to upgrade, but they are not unsure in what kind of things that need to upgrade e.g. what is the storage capacity needs to cope with 1-5 year growth plan, etc. This causes downtime for some times for the systems that are overloaded or information flood in the network as well as connection lost and drop in overall performance.

To cope with above current problems, management committee is considering to build up a partnership with a trusted IT vendor to be a working partner in IT operation and maintenance that could free their staffs to focus heavily on new project initiative as well as solving the problems on losing/retraining staffs to outside. ABC staff has an existing working process for IT support to all users in Bangkok and upcountry. However, it seems not be taken seriously from time to time and users demand for support is increasing pressure the IT support group for service level commitment which in turn face a limited budget.

### **3.3 Users Demand**

In house support by ABC staffs leave not much choices in users' views to make improvement for support. Users demand many areas that need IT support to improve, but are not yet be able to fulfill those needs from the support team. Many users complain doubt IT support capabilities and resources are insufficient to cope with the current growing IT environment in its size. Listed below are what we have from interviewing with some users for IT support demand and changes.

#### **(1) Service Level Agreement**

Users demand IT support to commit the service level when system is collapsed. This means that IT support has to commit the system with the users since users have nothing to ensure when the system would bring back when they lost connections in the network for whatever reasons, but performance drops reflecting to users, especially those who are in the marketing team who needs to access the CRM systems and get contact with the customers regularly. If they are unable to access to the network, it almost means loss of income for the period that they can't connect because insurance policy is needed to chase potential customers as well as maintain relationship with current policy holders.

#### **(2) System Upgrade**

Many users are annoyed with a weak performance of their IT systems. No matter the root cause is from, users are increasing unacceptable to this poor system performance. This kind of the demand for the problem is second to the system disruption that system is still running but facing a very slow transactional output. Actually, poor system performance is not only just upgrade hardware, in fact, O/S patch update, cleaning of some unused resident programs and/or temporary files those are automatically saved by the system after opening some attached documents which are

not really in need for the users working requirements are the combinations, not limit only to hardware upgrade could increase the system performance. When users face a slow access or performance drop in their systems, most of the time, a new buying computer or hardware is requested while the root causes as above described are not fixed. ABC management has served this kind of the demand by refreshing all the systems every three years in the past decade that the spread between cost and margin is high enough and company is very financially strong, but cost conscious is a challenge towards all organizations and it is not affordable to set budget for all request as the past.

### (3) Increase Hot Line or Expand Support Channels

Users feel that IT support line is always busy when they need to call for incident needed support. In the view of IT support team that provide 2 hotline numbers for inside callers should be enough to every user. This is just an estimation from IT support team, but users' feeling is different. Users request if IT support would increase hot line numbers and expand support channels via email or fax, especially those branches in the regional offices facing phone network down for sometime and can't be able to call for an incident. Some users in the regional offices use a kind of the offline support by calling to IT support team personally; this is limited to the relationship between the staffs and not a formal calling process.

Other than the current IT support process, we have done an interview and work out on the existing IT support process. After evaluating all inputs, we have set up the working team and draw out the support diagram with feedback from the interviewed group to review. Below is what demand by most of the users after we collect from interviewing with sampling size of 10% of IT users, it is the final process that we propose to IT team for the support structure which being drawn a diagram and approved like below.

CUSTOMER FEEDBACK SYSTEM (C.F.S) AND SERVICE RECOVERY

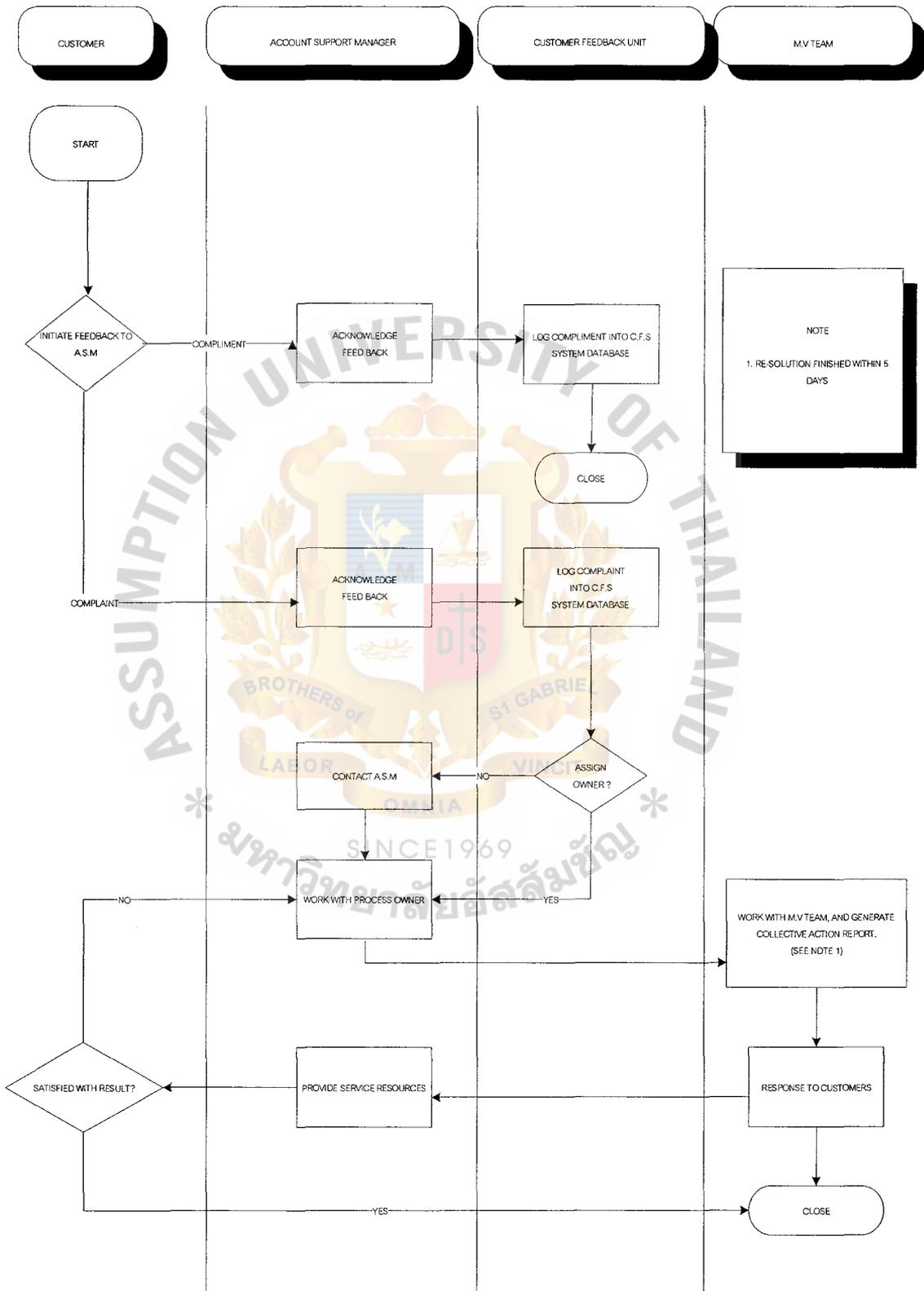


Figure 3.3 User's demand Support Model

IT support committees set up a working team to improve the service level in the organization to cope with all the problems that cause system down-time and reflect in loss of income to the company. After many rounds of meeting forum, the IT support committees agree to outsource the IT support to an IT service providers to handle this task. Below here is the request for proposal that launch to invite the vendors to hand on a bid submission for IT support hiring.

The fundamental requirements are categorized into 3 areas as follows:

(1) Service (Technical Support) Maintenance

The Service (Technical Support) Maintenance shall consist of the following elements:

1.1 Helpdesk

This service enables ABC personnel to be contact supplier for all kinds of operation and maintenance request includes the consultation to fix any network problems and also improve network performance. These shall at least include:

- Full support during office hours Monday – Friday 8:30 – 17:30
- Supplier shall provide fixed telephone and fax number as hotline contact point with personal assistance.
- All the request from ABC shall be prioritized with mutual agreement between ABC and supplier and response according to time 1.1.4 Supplier shall provide Solution, Recommendation, Technical information, Product information (e.g. Feature description, Technical Description, parameter configuration) on critical configuration and operation and maintenance issues within 3 working days.
- Supplier shall support ABC for preventive and corrective maintenance activities.
- Supplier shall support ABC for Operational activities.

- The request shall only be considered “closed” when ABC has accepted the action/solution.

- If the hotline phone number is to be changed, Supplier shall notify ABC in a written form at least 1 week ahead of time.

## 1.2 Emergency Service

This service provides any solutions or recommendations for ABC personnel to fix any Critical and/or Emergency situation. A Critical/Emergency situation can be generally interpreted as one that affects customer or service availability, and consequently commercial and economic impact if the problem is not solved within a reasonable time.

- Supplier shall fully support 24 hours a day, 365 days per year.
- Supplier shall provide emergency contact – assigned telephone number and dedicated personal- as a single contact.
- Emergency Service shall restore the operation of affected system or system unit as quickly as possible.

In Emergency Handling, a number of tasks shall be performed including communication links that should be consisted of telephone support, remote through network connection support and onsite support.

Telephone support:

This service provides to ensure that ABC personnel can request service/assistance from Supplier personnel for Fault Clearance purpose. Supplier’s System Expert shall contact ABC personnel within 15 minutes after request notification. Supplier shall provide/supply solution and recommendation for fault clearing. The telephone support can be escalated to Remote Problem Solving and On Site Support at anytime.

Remote Problem Solving:

To ensure that the problem is tackled by system expertise as fast as possible, in a situation when telephone support/phone diagnosis can not resolve the problem, Supplier personnel can remotely work on the problem in ABC's only. Throughout the procedure, ABC shall have the prerogative to monitor activities and restrict access to specific areas and times, and only named and approved Supplier personnel shall be permitted access. Supplier shall at all times exercise care and caution to ensure that no harm or damage is caused to ABC's system.

Supplier shall comply with the security procedure agreed to with ABC.

For the Emergency where the network elements cannot be accessed by the NMS (Network Management System), remote dial-in connection is permitted after consent has been obtained from ABC Regional Engineering Manager. Throughout the procedure, ABC shall have the prerogative to monitor all the activities and restrict access to specific areas and times, and only named and approved Supplier personnel are permitted to access. Supplier will exercise all cares and cautions to ensure that no harm or damage is caused to ABC's system. Supplier shall comply with the security procedure agreed to with ABC

On Site Support:

In the event that the problem cannot be solved by remotely, Supplier representative (engineer expertise with rich experience) shall be required by ABC to be on-site by ABC's personnel.

Emergency On-Site shall be considered completed when an agreed solution to the Emergency situation is reached, or when the Emergency situation no longer exists. Emergency requests shall be taken care of outside the basic request handling routine, to ensure a quick restoration of ABC's equipment in the event of an Emergency situation.

### 1.3 Report

### 1.3.1 Emergency report

When the Emergency case is solved, the supplier shall generate a report indicating:

- The kind of fault which occurred, with all details including root cause analysis.

- What corrective actions have been taken.

- What further action that must still be executed either by ABC and/or Supplier.

- Restoration or preventive action that can solve the problem

- Request report

All prioritized requests from ABC have to be registered for follow up reason. A document report shall be submitted to ABC to provide the answer and closure to the request.

### 1.4 Technical meeting and report

- Supplier shall provide monthly technical meeting in each region, to discuss technical issues concerning the maintenance execution and agreement, with ABC.

- Supplier shall provide monthly Helpdesk, Emergency, Request and Maintenance Support Service Performance to ABC.

### 1.5 Online Service

The Supplier shall enable ABC to electronically access

- Technical Notes/Specifications.

- Generic Trouble(Failure) Report

- Training & Product information

(2) Software Update

Supplier shall continuously provide ABC with various Software Updates or corrections approved by the design function that will improve network performance, functions/features of existing software release and fixing software bugs that are not traffic-affecting. These packages include all preventive corrections that will improve the reliability of the System e.g. Microsoft Hotfix, Windows patch and viruses detection update/upgrade and in-house application patches upgrade/update as request by ABC which would scope for a quarterly basis only. The supplier also be committed to share the best practice of the industry standard for area of improvement to ABC. This is also measured as a scorecard for extending contract award to the supplier.

(3) Hardware Maintenance

To ensure system availability, vendor needs to support ABC's users with below practice.

Swap Replacement Service :

Supplier shall provide the requested compatible replacement part within 10 working days delivered at all ABC Maintenance Centers. The service shall include shipping, handling and custom duties for the delivery of replacement part to ABC Regional Maintenance Center location and the shipment of defective units from ABC Regional Maintenance Center to Supplier authorized repair centers.

Supplier shall analyze all faulty units, identify root cause of major failure and submit ABC the corrective/preventive action in monthly basis.

Supplier shall submit to ABC regional maintenance center managers and ABC spare part manager in Headquarter office a monthly report summarizing all hardware replacement issues undertaken in a particular month.

Repair Service: Supplier shall provide repair service for obsolescence or market unavailable parts which have no more than 8 weeks turn-around time. The warrantee for

repaired parts shall be at least 12 months. The service includes the shipping, handling and custom duties for the delivery of replacement part to ABC Regional Maintenance Center location and the shipment of defective units from ABC Regional Maintenance Center to Supplier authorized repair centers.

Supplier shall submit to ABC the list of obsolescence or market unavailable parts for approval. Parts those not specified in the list shall be considered as covered by Swap Replacement Service.

Supplier shall submit to ABC regional maintenance center managers and ABC spare part manager in Head quarter office a monthly report summarizing all hardware repair issues undertaken in a particular month.

Statement of Non Compliance:

On those requirements that cannot be met either partially or fully, Supplier shall submit a statement of non-compliance to ABC together with its proposal, providing details of the non-compliance. The supplier shall propose alternative solutions for ABC consideration. It is a mutual agreement between ABC and the supplier to settle any non-compliance if exists. The supplier must submit the non-compliance item in the written form within 14 days after it is recognized by either party. ABC will mutually set up a committee with the supplier in case of any non-compliance issues exit to solve with those cases. Actions taken would be set up to scope and limit any undesirable effect of those non compliance issues. The committee will consider if the effect causes a minimal concern to ABC's business or operation, then record and/or report on those issues will be taken for future plan. If the effect causes a serious concern to ABC's business or operation, the committee will be in action and consider an agreeable value or tasks that will be measurable in value from the supplier to return to ABC for that kind of serious effects considered by the committee.

**System Impact:**

Service Level is defined to system uptime measured in two elements.

Table 3.2 Service Level Requirement

Impact	Descriptions
<b>Emergency</b>	<ul style="list-style-type: none"><li>• Core System or File server is totally out of service by hardware failure, the supplier has to bring up the system back to accessible status within 12-hour from the time that ABC has called for the service case</li><li>• Loss of network connection from system host to hub or network switch that causes a disruption in connectivity from workstations to host</li></ul>
<b>Low Impact</b>	<ul style="list-style-type: none"><li>• Individual workstations are lost of network connections, but connection lost is not caused by disruption in network connectivity or hardware failure(LAN Card, error from network wiring) or any system down that cause failure to an individual workstation. The supplier has to bring up the system back to accessible status within 48-hour from the time that ABC has called for the service case</li><li>• Generic advisory request from individual users, the suppliers should consider to respond to each advisory request upon the resources available, there is no service level to measure on this request</li></ul>

The supplier is presumed to follow above term of requests and deliver its best resource and effort.

## IV. THE PROPOSED IT SUPPORT SOLUTIONS

### 4.1 IT Support Procedures

Refer to the previous section, we found that ABC Insurance Ltd. target to improve its IT support quality as well as signifying on a cost conscious issue. ABC has upgraded all its IT assets for front office and back office. In the support procedures that plan to improve, we are focusing on the front office assets that is used to serve the customers.

#### IT Assets Management

IT assets management is the means to convert uncollected IT inventory into true IT asset management, and to proactively plan for future needs. Tracking IT assets is tough. Just reporting on hardware is challenging enough in increasingly mobile, remote, and dispersed enterprises. As software now typically has three times the value of the hardware it's installed on, it's time to also get control of, and effectively manage software assets.

To make IT inventory tracking truly useful, these are criteria to be considered:

- A true zero-touch inventory method to snapshot hardware and software assets without visiting desks or rolling out client-side agents, to use (for example) in mergers and divestments, or before an OS upgrade
- Comprehensive asset discovery that can find even those computers hidden behind routers and other network barriers
- Detailed and configurable reporting that can collect everything down to serial numbers, or quickly tell us the last user and subnet connection of a missing notebook

- On-going dynamic inventory reporting that can alert us when unauthorized change occurs, or provide an audit trail of authorized changes

The IT Assets Management encompasses five main activities:

1. Planning – creating a plan for configuration management over the coming 3 to 6 months. This plan details the strategy and policy, tools, and other resource requirements.
2. Identification – selecting and naming all Configuration Items, ownership, relationships to versions, and identifiers.
3. Control – ensuring that only authorized systems are accepted for use. This ensures that appropriate documentation (such as a “Request for Change,” is available for any computer or IT assets that is modified, added, removed, or replaced in the IT assets database.
4. Status Accounting – rather than referring to traditional financial accounting, this means reporting up-to-date and historical data for all systems throughout their lifetime. This makes it possible to track state changes for any systems under control.
5. Verification and Audit – conducting reviews that assert that system actually exists, and checking that these IT assets are correctly detailed in the company’s database.

All of above are the activities for IT assets management that is a starting point of our support processes which could be an input for us to know the current status and align with the users’ pain points: lack of service level commitment, system upgrade and increase support channels to contact. IT assets collection displayed as below:

Table 4.1 A) ABC HQ Front Counter IT Assets Checklist

ABC HQ Checklist				
<b>ABC HQ</b> _____			<b>Date of Checklist</b> : ____ / ____ / ____	
<b>Address :</b> _____				
<b>Contact Person 1 :</b> _____			<b>Contact Person 2</b> : _____	
<b>Description</b>	Front 1	Front 2	Front 3	Front 4
<b>Computer Name</b>	TH01FSHQ01	TH01WIHQ02	TH01WIHQ03	TH01WIHQ04
Model	Compaq ML310	Compaq D510S	Compaq D510S	Compaq D510S
Memory	1 GB	512 MB	512 MB	512 MB
Hard Disk	72 GB	40 GB	40 GB	40 GB
CD-Rom/Speed				
S/N	BJ2CKR76C001	7248KN9Z0720	7248KN9Z0742	7248KN9Z0726
IP Address	172.31.134.65	172.31.134.70	172.31.134.71	172.31.134.72
<b>ABC Asset No.</b>				
Barcode S/N	M55RN6	M62KP6	M62KN6	M61MH6
<b>Monitor Model</b>	Compaq7550	IBM T860	IBM T860	IBM T860
S/N	249CP26ZA620	66K5537	66K5477	66K5479
<b>ABC Asset No.</b>				
<b>Description</b>	Front 5	Front 6	Front 7	Demo and Self Service
<b>Computer Name</b>	TH01WIHQ05	TH01WIHQ06	TH01WIHQ07	TH01WIHQDM
Model	Compaq D510S	Compaq D510S	Compaq D510S	Compaq D510S
Memory	512 MB	512 MB	512 MB	512 MB
Hard Disk	40 GB	40 GB	40 GB	40 GB
CD-Rom/Speed				
S/N	7248KN9Z0740	7248KN9Z0743	7248KN9Z0711	7248KN9Z0719
IP Address	172.31.134.75	172.31.134.76	172.31.134.73	172.31.134.69
<b>ABC Asset No.</b>				
Barcode S/N	-	-	M61MG5	M62KP1
<b>Monitor Model</b>	Samsung 171S	Samsung 171S	IBM T860	IBM T860
S/N	GH4KTB00189W	GH4KTB00186H	66K580	66K5467
<b>ABC Asset No.</b>				
<b>Printer</b>	Lase 1	Laser 2	Summary	
Printer Name	LJPRNHPHQ01	LJPRNHPHQ02		
Model/Type	HP LJ 2200DTN	HP LJ 2200DTN		
S/N	SGKGR04315	SGKGR12731		
<b>ABC Asset No.</b>				
JetDirect S/N	Internal	Internal		

Table 4.1 B) ABC Central Counter IT Assets Checklist

ABC Central Checklist				
ABC Central _____		Date of Checklist : ____ / ____ / ____		
Address : _____				
Contact Person 1: _____		Contact Person 2 : _____		
Description	Front 1	Front 2	Front 3	Front 4
<b>Computer Name</b>	TH01FSCE01	TH01WICE02	TH01WICE03	TH01WICE04
<b>Model</b>	Compaq ML310	EVO D510S	EVO D510S	EVO D510S
<b>Memory</b>	1.0 GB	512 MB	512 MB	512 MB
<b>Hard Disk</b>	72.8 GB *2	40GB	40GB	40GB
<b>CD-Rom/Speed</b>				
<b>S/N</b>	8J2CKR76C03	7248 KN9Z 0745	7248 KN9Z 0739	7248 KN9Z 0727
<b>IP Address</b>	172.31.135.61	172.31.135.62	172.31.135.63	172.31.135.64
<b>ABC Asset No.</b>	03-CHW-0004-7001	03-CHW--0008-7001	03-CHW-0009-7001	03-CHW-0010-7001
<b>Barcode S/N</b>	M61MG7	-	M55PC9	M61MG8
<b>Monitor Model</b>	Compaq 7550	IBM T860	IBM T860	IBM T860
<b>S/N</b>	248CP26ZA21 2	6601011	6601012	6601019
<b>ABC Asset No.</b>	-	-	-	-
<b>Description</b>	Front 5	Front 6	Demo and Self Service	Back-up Unit
<b>Computer Name</b>	TH01WICE05	TH01WICE06	TH01WICEDM	TH01WIBU
<b>Model</b>	EVO D510S	EVO D510S	EVO D510S	EVO D510S
<b>Memory</b>	512 MB	512 MB	512 MB	512 MB
<b>Hard Disk</b>	40GB	40GB	40GB	40GB
<b>S/N</b>	7248 KN9Z 0748	7248 KN9Z 0744	7248 KN9Z 0266	7248 KN9Z 0736
<b>IP Address</b>	172.31.135.65	172.31.135.66	172.31.135.67	172.31.135.68
<b>ABC Asset No.</b>	-	-	-	-
<b>Monitor Model</b>	Samsung 171S	Samsung 171S	Samsung 171S	IBM T860
<b>S/N</b>	GH17H4KTB 00187	GH17H4KTB0018 4	GH17H4KTB0017 2	66E0705
<b>ABC Asset No.</b>	-	-	-	-
<b>Printer</b>	Lase 1	Laser 2	Summary	
<b>Printer Name</b>	LJPRNHPC1E1	LJPRNHPC1E2		
<b>Model/Type</b>	HP LJ 2200 DTN	HP LJ 2200 DTN		
<b>S/N</b>	SGKGR04319	SGKGR04322		
<b>ABC Asset No.</b>	03-CHW-20-7	03-CHW-0021-7		
			1	HP ML310
			7	HP D510S
			2	HP LaserJet 2200 DTN

Table 4.1 C) ABC North Counter IT Assets Checklist

ABC North Checklist				
ABC North _____		Date of Checklist : ____ / ____ / ____		
Address : _____				
Contact Person 1: _____		Contact Person 2 : _____		
Description	Front 1	Front 2	Front 3	Front 4
<b>Computer Name</b>	TH01FSN01	TH01WIN02	TH01WIN03	TH01WIN04
Model	Compaq ML310	EVO D510S	EVO D510S	EVO D510S
Memory	1.0 GB	512 MB	512 MB	512 MB
Hard Disk	72.8 GB *2	40GB	40GB	40GB
CD-Rom/Speed				
S/N	8J2CJH76C03	7248 SQ9Z 0711	7248OP8M0744	7248MMEZ0001
IP Address	172.31.149.31	172.31.149.32	172.31.149.33	172.31.149.34
<b>ABC Asset No.</b>	-	-	-	-
Barcode S/N	M61MG7	-	M55PC9	M61MG8
<b>Monitor Model</b>	Compaq 7550	IBM T860	IBM T860	IBM T860
	249CP26ZA63			
S/N	0	66-K5533	66-K5541	66-K5539
<b>ABC Asset No.</b>	-	-	-	-
Description	Front 5	Front 6	Demo and Self Service	Back-up Unit
<b>Computer Name</b>	TH01WIN05	TH01WIN06	TH01WINDM	TH01WINBU
Model	EVO D510S	EVO D510S	EVO D510S	EVO D510S
Memory	512 MB	512 MB	512 MB	512 MB
Hard Disk	40GB	40GB	40GB	40GB
S/N	7248 KN9Z 0716	7248 KN9Z 0713	7248 KN9Z 0723	7248 KN9Z 4018
IP Address	172.31.149.35	172.31.149.36	172.31.149.37	172.31.149.38
<b>ABC Asset No.</b>	-	-	-	M61MF2
<b>Monitor Model</b>	Samsung 171S	Samsung 171S	Samsung 171S	IBM T860
S/N	GH17H4KTB 00187	GH17H4KTB0018 4	GH17H4KTB0017 2	66E07345
<b>ABC Asset No.</b>	-	-	-	-
Printer	Lase 1	Laser 2	Summary	
Printer Name	LJPRNHPNO 01	LJPRNHPNO02		
Model/Type	HP LJ 2200 DTN	HP LJ 2200 DTN		
S/N	SGKGR04320	SGKGR04329		
<b>ABC Asset No.</b>	-	-		
			1	HP ML310
			7	HP D510S
			2	HP LaserJet 2200 DTN

Table 4.1 D) ABC South Counter IT Assets Checklist

ABC South Checklist				
ABC South _____		Date of Checklist : ____ / ____ / ____		
Address : _____				
Contact Person 1: _____		Contact Person 2 : _____		
Description	Front 1	Front 2	Front 3	Front 4
<b>Computer Name</b>	TH01FSSO1	TH01WISO02	TH01WISO03	TH01WISO04
Model	Compaq ML310	EVO D510S	EVO D510S	EVO D510S
Memory	1.0 GB	512 MB	512 MB	512 MB
Hard Disk	72.8 GB *2	40GB	40GB	40GB
CD-Rom/Speed				
S/N	8J2CHR6S087	7248KN9Z 07MW	7248JN9Z 07CS	7310MZ9Z 1221
IP Address	172.31.153.22	172.31.153.23	172.31.153.24	172.31.153.25
ABC Asset No.	-	-	-	-
Barcode S/N	M61MG7	-	M55PC9	M61MG8
<b>Monitor Model</b>	Compaq 7550	IBM T860	IBM T860	IBM T860
	249CP26ZA63			
S/N	0	66-K5533	66-K5541	66-K5539
ABC Asset No.	-	-	-	-
Description	Front 5	Front 6	Demo and Self Service	Back-up Unit
<b>Computer Name</b>	TH01WISO05	TH01WISO06	TH01WISODM	TH01WISOBU
Model	EVO D510S	EVO D510S	EVO D510S	EVO D510S
Memory	512 MB	512 MB	512 MB	512 MB
Hard Disk	40GB	40GB	40GB	40GB
S/N	7248J9Z 07S	7248SE9Z 07MM	7248AE9Z 0787	7248NZ9Z 0700
IP Address	172.31.153.26	172.31.153.27	172.31.153.28	172.31.153.29
Barcode S/N	-	-	-	M61MF2
<b>Monitor Model</b>	Samsung 171S	Samsung 171S	Samsung 171S	IBM T860
	GH17H4KTB	GH17H4KTB0018	GH17H4KTB0017	
S/N	00187	4	2	66E07345
ABC Asset No.	-	-	-	-
Printer	Lase 1	Laser 2	Summary	
Printer Name	LJPRNHPSO01	LJPRNHPSO02		
Model/Type	HP LJ 2200 DTN	HP LJ 2200 DTN		
S/N	SGKGR04553	SGKGR046T78		
ABC Asset No.	-	-		
			1	HP ML310
			7	HP D510S
			2	HP LaserJet 2200 DTN

Table 4.1 E) ABC Northeast Counter IT Assets Checklist

ABC Northeast Checklist					
ABC Northeast _____		Date of Checklist : ____ / ____ / ____			
Address : _____					
Contact Person 1: _____		Contact Person 2 : _____			
Description	Front 1	Front 2	Front 3	Front 4	
<b>Computer Name</b>	TH01FSNE1	TH01WINE02	TH01WINE03	TH01WINE04	
<b>Model</b>	Compaq ML310	EVO D510S	EVO D510S	EVO D510S	
<b>Memory</b>	1.0 GB	512 MB	512 MB	512 MB	
<b>Hard Disk</b>	72.8 GB *2	40GB	40GB	40GB	
<b>CD-Rom/Speed</b>					
<b>S/N</b>	8J2CHR6S900	7248KN9Z032	7248JN9Z 0422	7310MZ9Z 1443	
<b>IP Address</b>	172.31.160.01	172.31.160.02	172.31.160.03	172.31.160.04	
<b>ABC Asset No.</b>	-	-	-	-	
<b>Barcode S/N</b>	M61MG7	-	M55PC9	M61MG8	
<b>Monitor Model</b>	Compaq 7550	IBM T860	IBM T860	IBM T860	
	249CP26ZA63				
<b>S/N</b>	0	66-K5533	66-K5541	66-K5539	
<b>ABC Asset No.</b>	-	-	-	-	
Description	Front 5	Front 6	Demo and Self Service	Back-up Unit	
<b>Computer Name</b>	TH01WINE05	TH01WINE06	TH01WINEDM	TH01WINEBU	
<b>Model</b>	EVO D510S	EVO D510S	EVO D510S	EVO D510S	
<b>Memory</b>	512 MB	512 MB	512 MB	512 MB	
<b>Hard Disk</b>	40GB	40GB	40GB	40GB	
<b>S/N</b>	7248J9Z43R	7248SE9Z 03RR	7248AE9ZRE23	7248NZ9ZFGF	
<b>IP Address</b>	172.31.160.05	172.31.160.06	172.31.160.07	172.31.160.08	
<b>Barcode S/N</b>	-	-	-	M61MF2	
<b>Monitor Model</b>	Samsung 171S	Samsung 171S	Samsung 171S	IBM T860	
<b>S/N</b>	DH17HFDS	DD17H4K0066	LYH17H4KDF	DFFE07YHT2	
<b>ABC Asset No.</b>	-	-	-	-	
<b>Printer</b>	Lase 1	Laser 2	Summary		
<b>Printer Name</b>	LJPRNHPNE01	LJPRNHPNE02			
<b>Model/Type</b>	HP LJ 2200 DTN	HP LJ 2200 DTN			1 HP ML310
<b>S/N</b>	SGKGR04233	SGKGR04556			7 HP D510S
<b>ABC Asset No.</b>	-	-			2 HP LaserJet 2200 DTN

All of above are focused on front office IT assets report while the desktops using in the back office is acquiring the same standard. ABC has many other file servers in there, we are only responsible for the front office and PCs in the back office as the first year contract support.

#### **4.2 Consolidated Support Propose**

We have assessed the inventory of ABC and proposed the consolidated support process and submit in the statement of work(“SOW”) to ABC as below:

##### Base Services

The base services for servers and direct attached storage will be broken into the following types:

- a) *Sites with onsite hardware engineer personnel.* - Services required for sites with onsite hardware engineers. - Emergency Impact Front Offices
- b) *Sites with no onsite hardware engineer personnel.* - Services required for sites that do not require onsite hardware engineers, but will need hardware engineers called to site for break/fix services. – Low Impact and back offices

##### Other Services – Patch Update

Those services that are not related to hardware failures such as patching, software updates that will be onsite, but a scheduled service upon agreed date/time between our engineers plan and ABC system administrators in each location. Guideline for patching and or software updates will be prepared for ABC to follow. ABC help desk is using Siebel as an in-house tools for marketing and sales division which consider as a core

user groups that drive business strategies to the market. We have working out the process for Siebel patch update, below the update instruction for ABC.

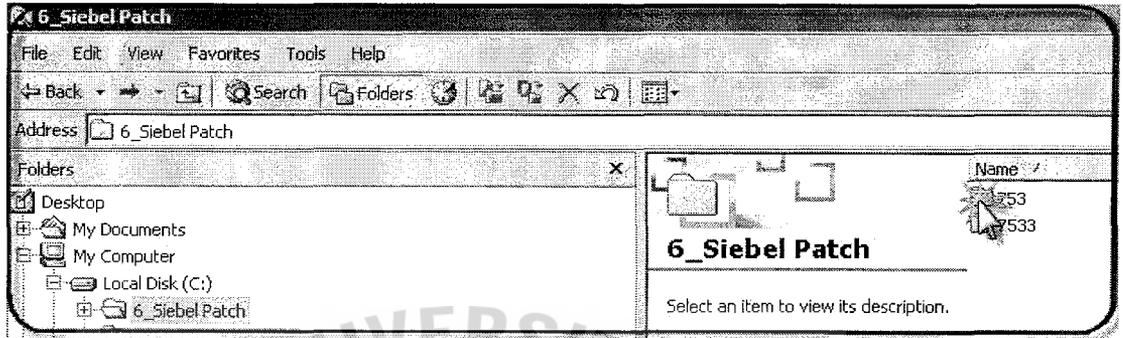


Figure 4.2 a) Siebel Folder Update

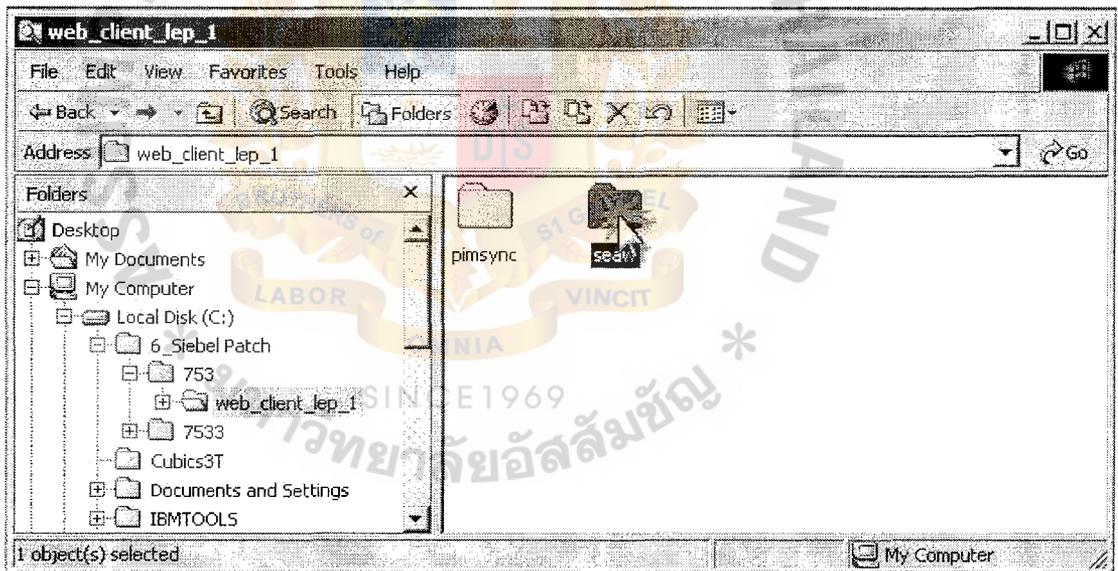


Figure 4.2 b) Siebel Folder Selection

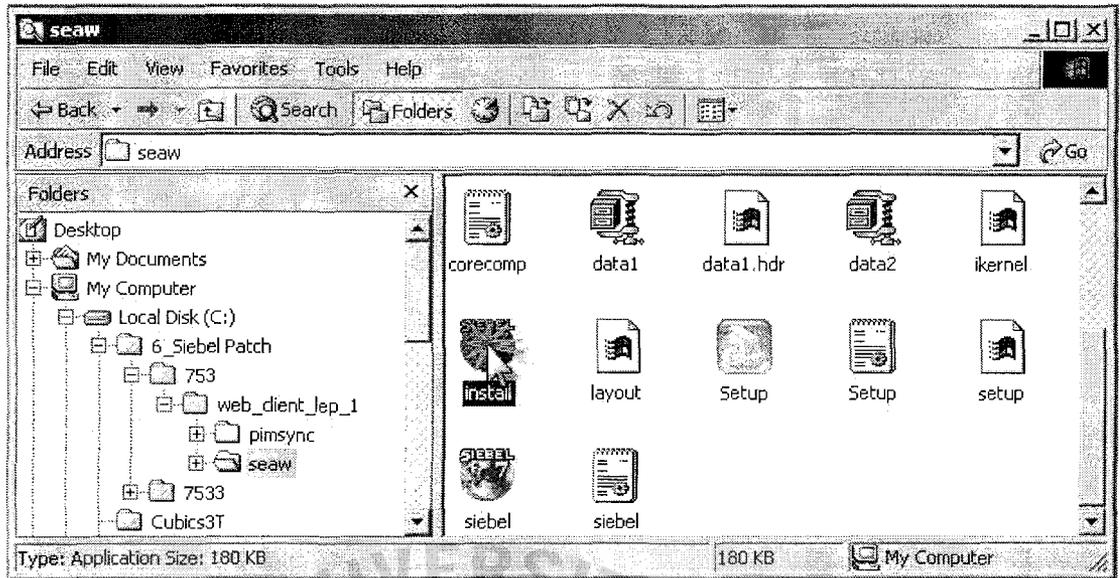


Figure 4.2 c) Siebel Install Icon

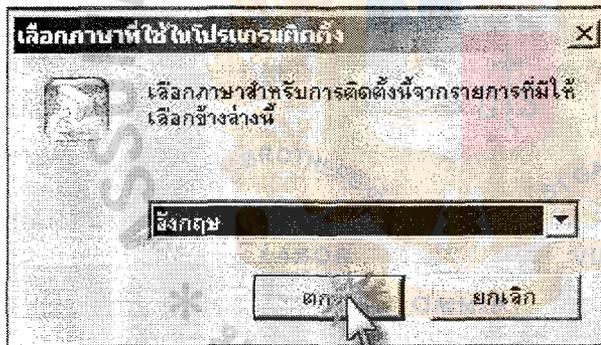


Figure 4.2 d) Siebel Language Selection

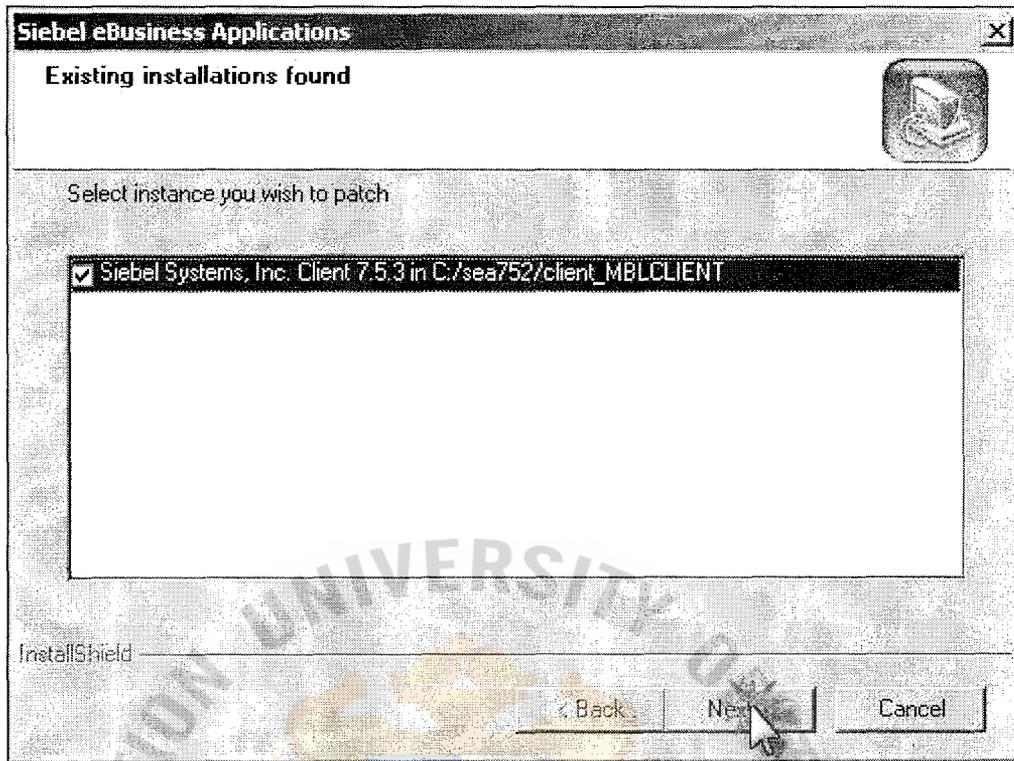


Figure 4.2 e) Siebel File Location

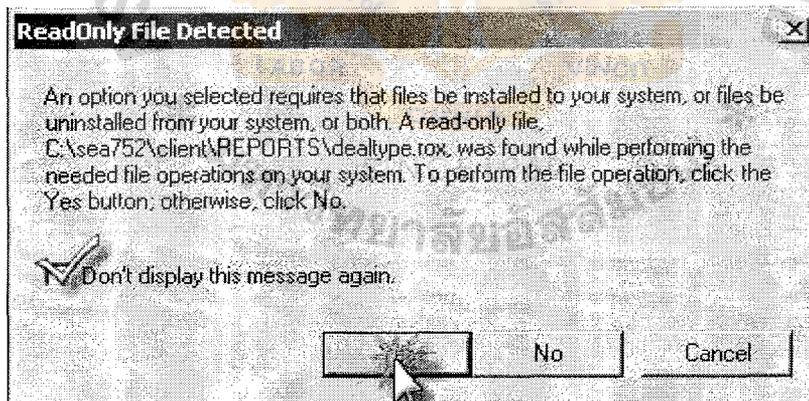


Figure 4.2 f) Siebel File Detected

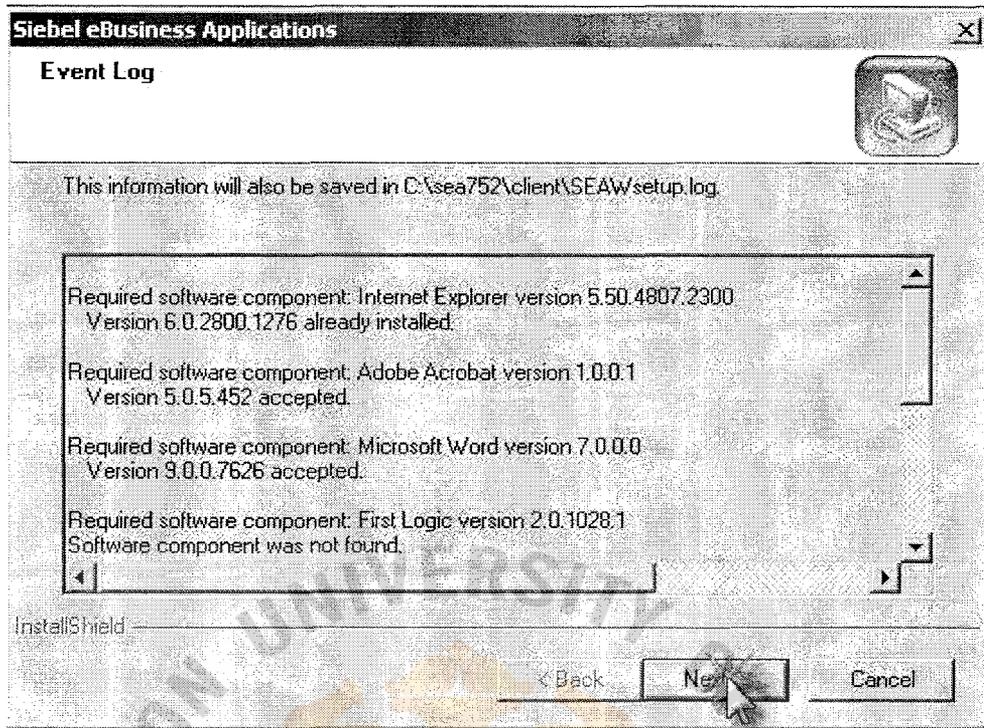


Figure 4.2 g) Siebel Update Create



Figure 4.2 h) Siebel Patch Installed Complete

a) Preventive Maintenance

This is to maintain equipment and facilities in satisfactory operating condition by providing for systematic inspection, detection, and correction of incipient failures either before they occur or before they develop into major defects including tests, measurements, adjustments, and parts replacement, performed specifically to prevent faults from occurring. The average PC user doesn't think much about problems that can occur with a computer until the problem actually occurs. Once a failure happens, the repairs can be costly and time-consuming. There are, however, preventive measures that a user can take to decrease the likelihood of running into problems with the computer's smooth and efficient operation and also to lessen any damage that does occur despite best efforts to avoid failures.

Computer failures occur for a variety of reasons, sometimes because of human error and sometimes because of factors in the environment that cause a computer to malfunction (or a combination of human and environmental factors). These factors can include excessive buildups of dust, heat or magnetism; viruses picked up from the Internet or from storage media shared between different computers; static electricity shocks or power surges; carelessness, such as spilling liquids into a computer or bumping or dropping the hard drive casing; software that has not been configured correctly or a PC's setup that has been handled incorrectly; incorrect handling of upgrades. So, not just wait and see if the failures arise and send the engineer to fix it up, a schedule preventive maintenance could prevent the so called "unplanned downtime" which causes system disruption to users. We term "planned downtime" for this kind of activity that we have managed and set up the back up process, if necessary, and bring up the systems back to system stability.

Below here is the preventive maintenance form that we develop as a checklist to do PM.

Table 4.2 Preventive Maintenance Form

<b>Computer Name :</b>		<b>Owner :</b>
<b>Brand/Model :</b>	<b>S/N :</b>	<b>Date :</b>

<b>System Cleanup</b>	Empty Recycle Bin	Pass	Fail
	Checkdisk	Pass	Fail
	Scandisk	Pass	Fail
	Defragment	Pass	Fail

**Hardware Checklist**

<b>CPU Status</b>	Pass	Fail
<b>Cooling Fan Status</b>	Pass	Fail
<b>Memory Status</b>	Pass	Fail
<b>Disk Drives Status</b>	Pass	Fail
<b>Tape Drive Status</b>	Pass	Fail
<b>Power Supply Status</b>	Pass	Fail
<b>Accessories:</b>		
Monitor	Pass	Fail
Keyboard	Pass	Fail
Mouse	Pass	Fail

**Software/OS Checklist & Others**

<b>O/S Update</b>	Pass	Fail
<b>Drivers Update</b>	Pass	Fail
<b>Patches Update</b>	Pass	Fail
<b>Anti Virus S/W Update</b>	Pass	Fail
<b>Browser Update</b>	Pass	Fail
<b>Clean Tmp Files</b>	Pass	Fail

In term of service response, the vendor will respond to system/device hardware problems as notified by telephone and follow up using ABC trouble ticket system. Tickets will be used for reporting problems. The vendor will diagnose accurately failed component and liaise with ABC's support team to schedule remediation according to risk and criticality.

### Viruses Protection

Computer viruses tend to grab our attention. On the one hand, viruses show us how vulnerable we are. A properly engineered virus can have an amazing effect on the worldwide Internet. On the other hand, they show how sophisticated and interconnected human beings have become. For example, experts estimate that the Mydoom worm infected approximately a quarter-million computers in a single day in January 2004.(Times Online). Back in March 1999, the Melissa virus was so powerful that it forced Microsoft and a number of other very large companies to completely turn off their e-mail systems until the virus could be contained. The ILOVEYOU virus in 2000 had a similarly devastating effect. That's pretty impressive when you consider that the Melissa and ILOVEYOU viruses are incredibly simple. one, and that's when they make the news.

We have done virus protection update to every PCs during the preventive maintenance period that scheduled by a quarterly basis. This would ensure a minimal system down impacted from email, file downloading and could be devastatingly disrupted a number of users in ABC. Though we can't totally get rid of this problem from every user, it could be a useful activity to be done as a proactive activity rather than visiting every infected system after it is disrupted.

### Parts Inventory

Maintain a parts inventory and manage this appropriately according to demand e.g. build up stocks for scheduled ‘power downs’ etc. For key server types maintain and acclimatize server chassis and boards/cards used in event of swap-outs. Parts should be held onsite at ABC’s premises and additionally offsite at vendor premises if within close proximity.

All replacement parts provided by vendor will remain the property of vendor until such replacement part is used to replace any covered system or component thereof, whereupon the covered system or component that is replaced will become the property of vendor and the replacement part the property of ABC. This will not apply where the covered system is temporarily replaced with a replacement part, in which event the replacement part will remain the property of vendor and the item that is replaced will remain the property of ABC.

### Hot-Swap Replacement

Where a repair is not practical or cannot be performed within SLA, the engineer will perform a hot swap of the entire component or server.

Replacement parts and servers should be replaced on a ‘new for old’ basis, or ‘like for like’ where the part is no longer manufactured. Vendor will inform ABC of any faulty equipment that is beyond economical repair/obsolete or where possible cards and boards should be burnt-in prior to using in a production environment.

### Firmware

Upgrade system and device firmware to latest level to resolve problems.

### Out of Hours Support

Perform out-of-hours first line response to a server down situation (or other system problem) by attending site as directed by ABC's emergency impact case. Severity/criticality of problem to be advised by ABC's support team. Manage out-of-hours rotas and provide escalation procedures for escalation of issues.

### 7x24 Online and Telephone Software Support

Unlimited online and telephone support for all covered Software problems 24 hours per day, 7 days per week, including public holidays.

### Provisioning Services - Optional

Build o/s disks : Build of core operating system to ABC standards for new servers, upgrades and re-builds. Build requests will normally be submitted by means of a remedy process. Assemble new servers ready for installation, install system/boot disks, run diagnostics and soak-test to acclimatize to new environment.

Racking: Physically install newly built or relocated servers (and chassis swaps) into server suite racks and connection of peripheral devices and SAN/LAN patches. Perform first boot and initial configuration (network, hostname etc) up to point where server accessible from network.

Decommissioning: Physically remove servers from racks for relocation or decommission. The activities will be planned and co-ordinated by ABC's assigned personnel.

Device Installs: Install new/replacement devices for system upgrades.

### Further Install tasks

Receipt of equipment from manufacturer/VAR

Unpacking and staging

Testing system for a specified length of time

Physically installing equipment at the user location

Labeling of equipment with asset tag detailing configuration settings

Transferring files and applications from old to new equipment

Performing operational testing,

Working in conjunction with ABC's technical support to install specialized or customized non-standard applications

Cleaning up any debris after installation

Updating ABC's asset management database

Interfacing with manufacturer to replace Dead On Arrival ("DOA") equipment

#### Additional Services

Respond to hardware and o/s technical queries from ABC's support staff. This may involve escalating to 3<sup>rd</sup> party vendors technical support and passing on core dumps, 'explorers' and other diagnostics information. This may be part of problem diagnosis/escalation relation to a system failure.

#### Change/Service Requests

The vendor will respond to system/device hardware change and service requests (planned maintenance) as notified by telephone and followed up using the ABC's change management system. The tickets will be used for reporting change requests. The vendor will liaise with ABC's IT team to schedule the requests. These include moves, changes and disposal services.

### Disposal Services - Optional

Vendor shall be responsible for removing old equipment from ABC's sites and or either storing the equipment, shipping the equipment or disposing of the equipment in accordance with applicable law and regulations. Vendor will be responsible for updating ABC's asset management system for removals. Prior to disposal vendor shall perform a "wipe clean" of the hard drive to ensure confidential information is un-retrievable, and certification that this "wipe-clean" has been performed. Vendor shall also provide a monthly inventory report containing a list of all ABC owned assets.

### LAN/SAN Patching

Supply ad hoc support connecting SAN and LAN patches for SAN migrations or connections to new networks and supporting problem diagnosing of the same.

### Service Reviews (Availability Manager)

Operating under the guidance of ITIL best practices, the Availability Manager will be responsible on a global basis for the delivery and sustainability of the Site Services provided by Vendor under this SOW. The Availability Manager will also be the project owner for the implementation of the Site Services at each of the ABC Sites. The Availability Manager will co-ordinate the activities of the On-Site Teams and will be the primary contact for management escalations during the implementation of this SOW. Thereafter he ensures the quality and continuity of Site Services provided by Vendor under this SOW. The Availability Manager will have the knowledge and authority to influence vendor internal policies and procedures. The Availability Manager will plan and host monthly service reviews with ABC's IT management with formal report documenting:

- Call summary statistics

- Response/Fix Time analysis
- Distribution of Calls Logged analysis
- Calls logged by ABC's unit
- Call Trend analysis
- Calls against service levels
- Systems uptime information
- Organization chart of on-site team
- Parts inventory

#### Asset Inventory

The vendor will be responsible for maintaining the asset inventory of all servers that are maintained within the ABC's environment. The inventory will be stored and updated within ABC's server inventory database.

#### New Technology Introduction - Optional

Vendor will maintain a New Technology Contingency Plan with respect to ABC. Vendor shall remain current on new technologies being brought into ABC. Vendor shall have hot spares available prior to the first day of the new product actually being put into production or within fifteen days of notification.

#### Media Handling Services - Optional

Eject media from backup infrastructure for daily offsite using media lists generated from ABC's IT support staff. Prepare the offsite media containers to pass to offsite vendor. Receive the return media containers from the offsite vendor. Place return media into appropriate storage area. Subscribe to 3<sup>rd</sup> party vendors alert

distributions and highlight to ABC's hardware, security and other critical alerts which should be addressed.

#### Configuration Analysis - Optional

Analysis of system hardware/software configurations and flagging to ABC's IT of potential problems/issues. Regional/Platform variant: Proactive monitoring of system monitoring tools for PC server hardware to identify component predictive and actual failures.

#### Warranty

Ensure servers under warranty are maintained under warranty rather than under contract. This implies keeping track of delivery dates and charging maintenance appropriately.

#### Remote Services Support

Where required ABC will be entitled to receive vendor dial-up support, using ABC provided gateway, for advanced level problem diagnosis from specialist support centres.

#### Event Monitoring

Vendor's remote systems monitoring tools will periodically collect data from specified enterprise-class covered systems using software agent technology. The remote systems monitoring tools may be configured for ABC's requirements. The received data and incoming system malfunction alerts are remotely monitored and evaluated 24 hours per day, 7 days per week, including public holidays.

Technical Reports for the following :

End of Service Life Dates (products & services)

Mission Critical Dashboard

Systems uptime information

Other Services - (e) Software Services

#### Operating Environment Releases

ABC will receive periodic delivery of one copy per ABC's location of Operating Environment major x.0 releases and minor .x releases with license keys for each Covered System (or as otherwise agreed by the parties). This should be available immediately after release

#### Online Support Center Access

ABC will receive access to the vendor online system 7x24, which allows ABC to perform multiple functions via the web, including the update of software licenses and to obtain selected software updates. Feature availability may vary by country. The Online Support Center offerings are continually evolving. Vendor may make service substitutions and modifications to the Online Support Center at any time that do not cause a materially adverse effect in overall service performance. This is in accordance with ABC to provide gateway/port to get remote support in return.

#### Additional Media and Documentation – Optional

ABC may require additional copies of media and documentation for supported versions of operating system releases.

The responsibilities migrated under the technical support group are:

- Level 1 Troubleshooting, that provides for a First Level Technical Helpdesk function and associated activity:-

- Provide telephone and remote technical support on products under support contracts to meet our customers' expectations for quality technical support.
- Troubleshoot logged faults in order to accurately isolate the cause and provide working solutions.
- Reduce unnecessary costs associated with providing parts/engineer to site.
- Liaise with vendors where necessary in order to resolve vendor related issues.
- Monitor progress against customer SLAs using Siebel systems to ensure customer service levels are achieved.
- Ensuring sufficient accuracy and detail in call logs for shift handover and post-mortem escalations.
- Highlight errors/discrepancies in the customer data (Siebel + documentation) to the response center to ensure accuracy of customer data.
- Maintain and develop technical skills/certifications as required to service new customer contracts.
- Document and share knowledge of regular fault solutions within vendor's working group to reduce rework in solving the same problem.

- Level 2 Troubleshooting, that provides for a Second Level Technical Helpdesk function and associated activity:-

- Perform advanced troubleshooting to isolate technical faults as the 2nd Level

Escalation contact

- Responsible for verification ongoing management of technical escalations

- Scope change requests received by Uptime customers to confirm complexity and duration of implementation, and handover to Professional services if required.
- Co-ordinate communications with all stakeholders (Customer and Operational) for Priority 1 and 2 cases to ensure all parties are kept informed of call progress.
- Monitor progress against customer SLA using Siebel systems to ensure customer service levels are achieved.
- Ensure adherence to customer processes within the Uptime Team.
- Deliver internal training to 1st Level Engineers on Specialist products to ensure sufficient skills to cover 24x7 requirements.
- Maintain and develop a knowledgebase of key technical information to assist in the efficient diagnosis and resolution of customer faults.
- Attend technical meetings for identified key accounts to develop understanding of customer networks and improve efficiency in diagnosing faults.

Vendor's Service/Project Manager provides the function and associated activity:-

- This role is to be a mentor to your call managers and helpdesk, resolving daily work related issues, a point of escalation within the team and to filter out problems for the call manager.
- To ensure the call manager and Helpdesk follow the correct procedure for accurate and timely achievement of SLA success.

- Working with your call manager and helpdesk to identify shortfalls with regards to all processes to ensure of achieving successful logging of service requests within the agreed Service Level Agreement.
- Provide guidance, training and progression to your call Manager and helpdesk to increase their skill set, confidence and productivity.
- To be a point of escalation for your team, ensuring a timely and accurate response to all service request difficulties to see that they are carried out satisfactorily.
- Organize frequent team meetings to update your team with the company's moves, changes or any new procedure to promote team involvement and increase company awareness.
- Set six monthly development review meetings with the call manager and helpdesk, encouraging them to work towards their set objectives and promote self development.
- Create your team's shift rotate at least three months in advance to ensure call Manager be aware of the scheduling for normal business practice to take place.
- To produce an organized desk space for your call manager and Helpdesk, promoting a safe working environment and maintaining IT and stationery requirements.
- Complete related administrative tasks efficiently and on time to facilitate the smooth running of the department.

All above is the detail proposed IT support process that implement to ABC for service level improvement.

V. CRITICAL SUCCESS FACTORS - RESULT EVALUATION

Critical Success Factors : It is to study and investigate the resources planning and support proposed that implemented for ABC Insurance Ltd. and is measured by user service level agreement which brings up to the company's business success factor by means of:

5.1 Responsiveness – Support Trend Analysis

This is an immediate response from the case request by users to the end of support process that bring up the system from downtime to uptime. Performance is measured by means of monthly service report. After a quarter of implementing our support process, it's proven that service level commitment to users are in line as plan and improved from the previous in-house support by ABC itself.

A) Support Trend Analysis – Geographic View

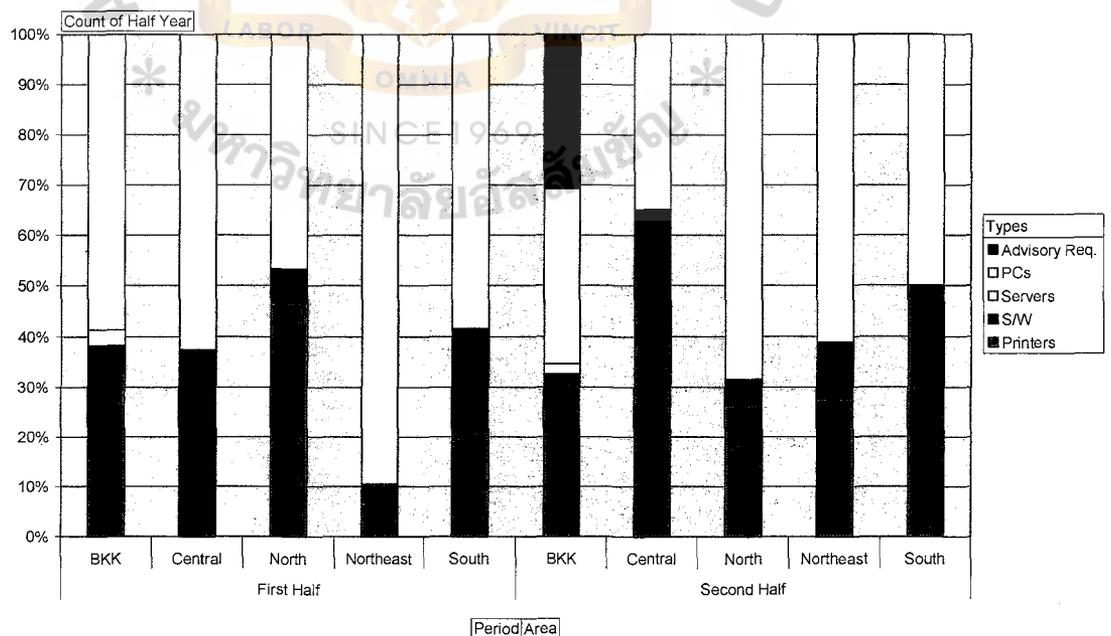


Figure 5.1 A Support Trend Analysis

As above summary report, we would find that the most demanding for support lays on PCs which is undoubtedly that the users' terminals are most requested for service and commitment. We could also make use of above information to analyze the weaken areas by geographic, this could be helpful in term of skills development since we could consider to sharpen only the skills urgently required by categories for specific region. Without above information, skills development would be conducted widely for all users. Training cost and time consume for those who are not in need or not weak in the areas being trained would be wasted and, in turn, excessive cost which is cost saving to the company.

B) Support Trend Analysis – Percentage by Types/Categories View

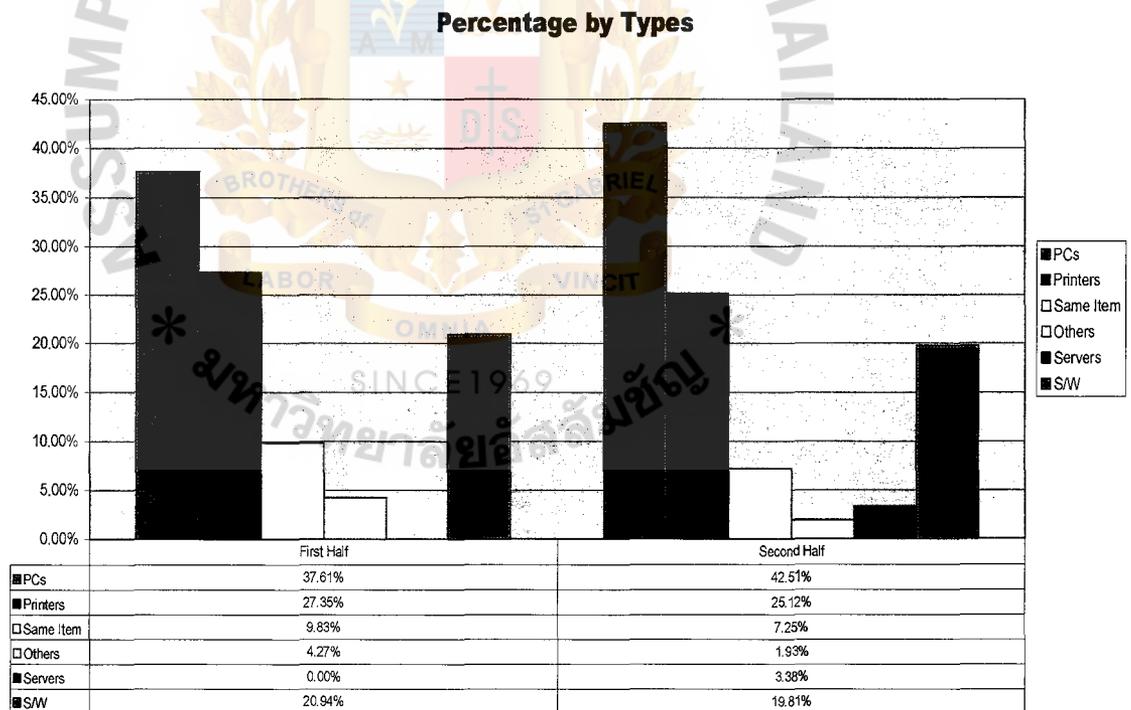


Figure 5.1 B Support Percentage by Types

Above report is supportive evidence that defines the weight of support request by types or categories in figure 5.1 A. Again, a combination of summary by geographic and by types would be a decision mix for management to do a further step for IT support improvement. This is not the only output for us as a current support partner, but a valuable input to the future plan of ABC’s IT committee.

C) Support Trend Analysis – Support In/Out SLA View

In order to pinpoint the root cause that it has been satisfied responded to the end users or not, we would justify the outcome with the users’ pain points which was raised in 3 main areas:

1. Service Level Agreement:

Partial outsourcing arises from the main issue “no service level commitment”. This is a core user’s demand that we have pinpointed and prove with a success outcome.

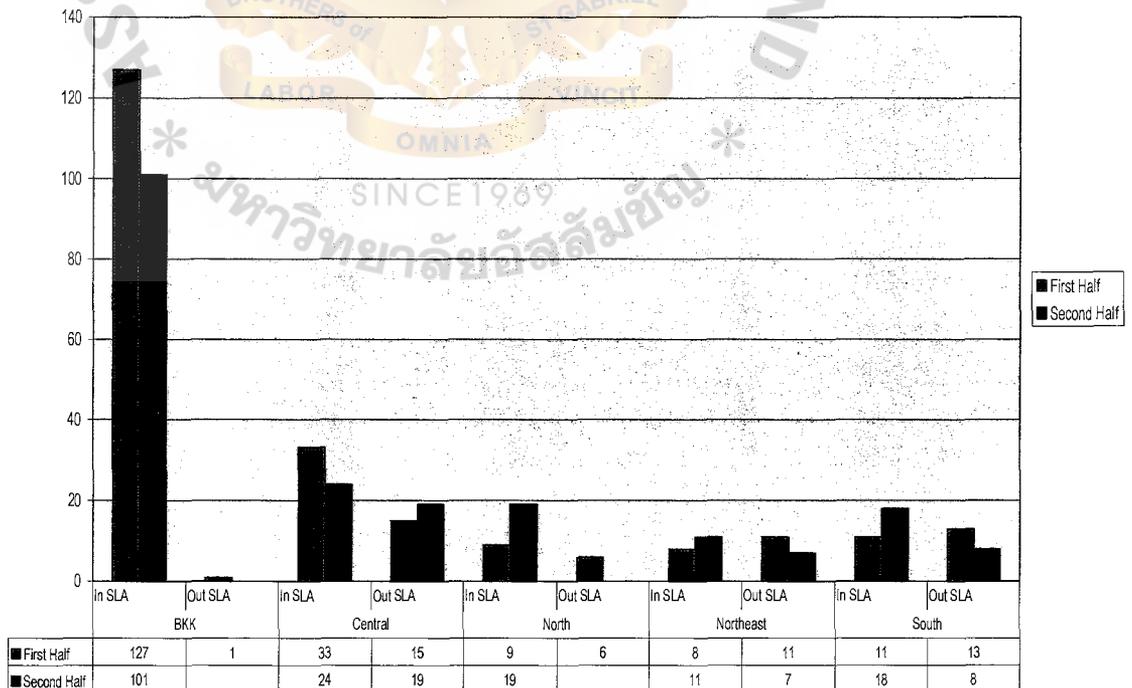


Figure 5.1 C Support In/Out SLA Summary Analysis

After a completion of first year service level agreement that we adopt IT support processes to tailor with ABC's environment, we have an impressive outcome which is shown in the support summary report comparing first half and second half as above figure. We could see the result from the first half support summary report compare with the second half support summary report defines by Service Level Agreement or "SLA" that tightens up to "Emergencies" and "Low Impacts" in the previous section. We could see a slight improvement from the second half result compare with the first half result. Almost all the regions service level are more trendy "In SLA" and less trendy in "Out SLA". We have seen an on-going service improvement from month to month which refers as an achieving in the first critical success factor – responsiveness.

## 2. System Upgrade:

In term of system upgrade, if refers to hardware upgrade, we have to depend on ABC's management decision because this is the internal issues, though we could suggest for the appropriate system upgrades, the final decision is on IT committee to allocate budget for this matter. However, O/S upgrade and patch update (Siebel) being implemented during the contract period has proven to stabilize ABC's systems from system down that causes unknown errors in the past.

## 3. Insufficient Support Channels:

As mentioned in the proposed IT support solutions section that we have opened the channels for ABC's end users to request call service via phone, e-mail and fax. This answers the requirement and solve this pain point. We could track back to the In/Out SLA summary that measure from call log until problem resolves.

To consider the overall outcome of the service processes, we have summarized the service level categorized by percentage as a snapshot for the "responsive" result.

### SLA by Percentage

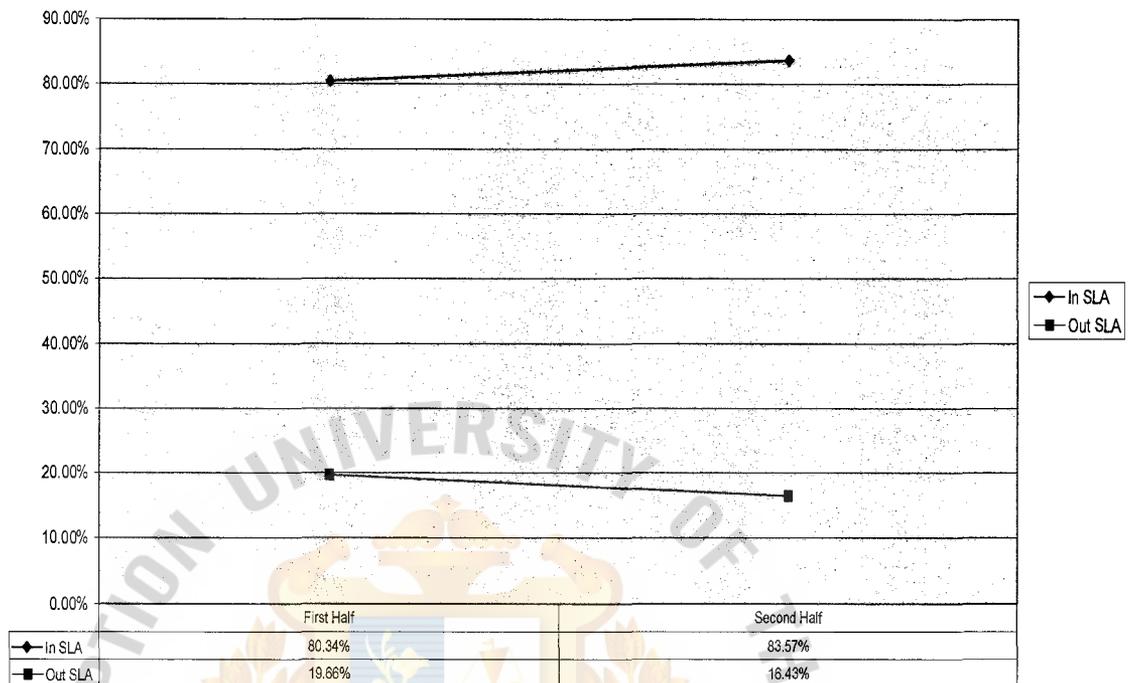


Figure 5.1 D SLA by Percentage Summary Analysis

### 5.2 Efficiency – Cost Saving

Efficiency refers to economic term for conditions that create the biggest possible profit with the smallest possible costs. This is an important idea in industry, since the goal of any business is to make as much money as possible and avoid wasting any undesirable costs. We mentioned efficiency to measure here as a controlling on I.T. support cost to meet responsiveness for ABC Insurance Ltd. To verify efficiency in a measurable element we use the financial analysis to compare cost saving between in-house support of ABC Insurance Ltd. And hiring our company to support.

#### Financial Analysis

In financial analysis forecast is the process of developing assumption or premises about the future that managers can use in planning or decision making. Forecast is

concerned with the cost forecasting and projection. This forecast is based on the money spent on labor rate and parts rate that bring up the total cost of maintenance. Once projected, the cost forecast could become a guiding framework to make a further step by expanding more scopes and responsibility to outsourcer. Cost projection is made on a 3-year trend analysis that we assume a flat rate for outsourcing contract cost with a slight year by year increase of in-house support cost due to pay raise and fringe benefit that tighten up with basic salary of company's staffs. Below here is the cost table comparing between partial outsourcing cost to supplier and in-house support team cost of ABC Insurance Ltd.

The methodology used to justify financial perspective is based on net present value(NPV) comparing in-house support cost allocate in 3 years with partial outsource support cost to the supplier or vendor allocate in 3 years. We do not evaluate the pay back period or rate of return here, since this project study is focusing on the cost conscious and the cost of IT management itself does not signify a measurable monetary value earning in return, but a cost saving that counts. Table below is the list of hardware that we have agreed to support for ABC Insurance Limited in the first year contract, this includes all front offices IT assets – File Servers, PCs, Printers and some back office systems of the same categories.

Table 5.2 A List of IT Assets Support

List of Hardware	Units
File Servers	5
PCs	740
Printers	60

Table 5.2 B Cost of Partial Outsource

Descriptions	PC/Printer	File Server
Units	800	5
M/A Cost per unit*	1,500.00	20,000.00
M/A cost by category	1,200,000.00	100,000.00
Total by Category		1,300,000.00
Project Management**		240,000.00
Total Cost Proposed Year 1		1,540,000.00
Total Cost Proposed Year 2***		1,694,000.00
Total Cost Proposed Year 3****		1,863,400.00

\*M/A Cost per unit covers all cost from defected products including labor and parts cost

\*\*Project Management charging as an overall project management by non-dedicated project manager 20,000 baht/month

\*\*\*Total cost proposed year 2 incremental charges of 10% from year 1 contract

\*\*\*Total cost proposed year 2 incremental charges of 10% from year 2 contract

Table 5.2 C Year 1 Cost of In-House Support

Year 1	I.T. Support Staffs	
Cost of Staffs	Supervisor	Senior Staff
Salary	50,000.00	30,000.00
Mark up Overhead*	60,000.00	36,000.00
No. of Staff	1	3
Months	12	12
Total yearly Salary	720,000.00	1,296,000.00
Bonus**	50,000.00	30,000.00

Table 5.2 C Year 1 Cost of In-House Support (Cont.)

Parts Cost***	480,000.00	37,500.00
Total Cost Year 1	2,613,500.00	

\*Overhead Cost is extra cost that company pays for employee e.g. training, medical cares, etc.

\*\*Bonus is based on 1-month extra paid on salary rate

\*\*\*Parts Cost estimated from 2% of PC and Printer price, 5% of File Server price.

Table 5.2 D Year 2 Cost of in-house support

Year 2	I.T. Support Staffs	
	Supervisor	Senior Staff
Cost of Staffs		
Salary+++	52,500.00	31,500.00
Mark up Overhead	63,000.00	37,800.00
No. of Staff	1	3
Overhead*	12	12
Total yearly Salary	756,000.00	1,360,800.00
Bonus**	52,500.00	31,500.00
Parts Cost***	480,000.00	37,500.00
Total Cost Year 2	2,718,300.00	

+++Salary increases 5% on yearly basis

\*Overhead Cost is extra cost that company pays for employee e.g. training, medical cares, etc.

\*\*Bonus is based on 1-month extra paid on salary rate

\*\*\*Parts Cost estimated from 2% of PC and Printer price, 5% of File Server price.

Table 5.2 E Year 3 Cost of in-house support

Year 3	I.T. Support Staffs	
	Supervisor	Senior Staff
Cost of Staffs		
Salary+++	55,125.00	33,075.00
Mark up Overhead	66,150.00	39,690.00
No. of Staff	1	3
Overhead	12	12
Total yearly Salary	793,800.00	1,428,840.00
Bonus	55,125.00	33,075.00
Parts Cost	480,000.00	37,500.00
Total Cost Year 3		2,828,340.00

+++Salary increases 5% on yearly basis

\*Overhead Cost is extra cost that company pays for employee e.g. training, medical cares, etc.

\*\*Bonus is based on 1-month extra paid on salary rate

\*\*\*Parts Cost estimated from 2% of PC and Printer price, 5% of File Server price.

Table 5.2 F Partial Outsourcing: Net Present Value Year 1-3

Partial Outsourcing Cost : 3-year Projection			
Year	M/A Cost	P/F, 5%, N year	Total Net Present Value
1	1,540,000.00	0.95238	1,466,666.67
2	1,694,000.00	0.90703	1,536,507.94
3	1,863,400.00	0.86384	1,609,674.98
Total 3-year Partial Outsource Cost			4,612,849.58

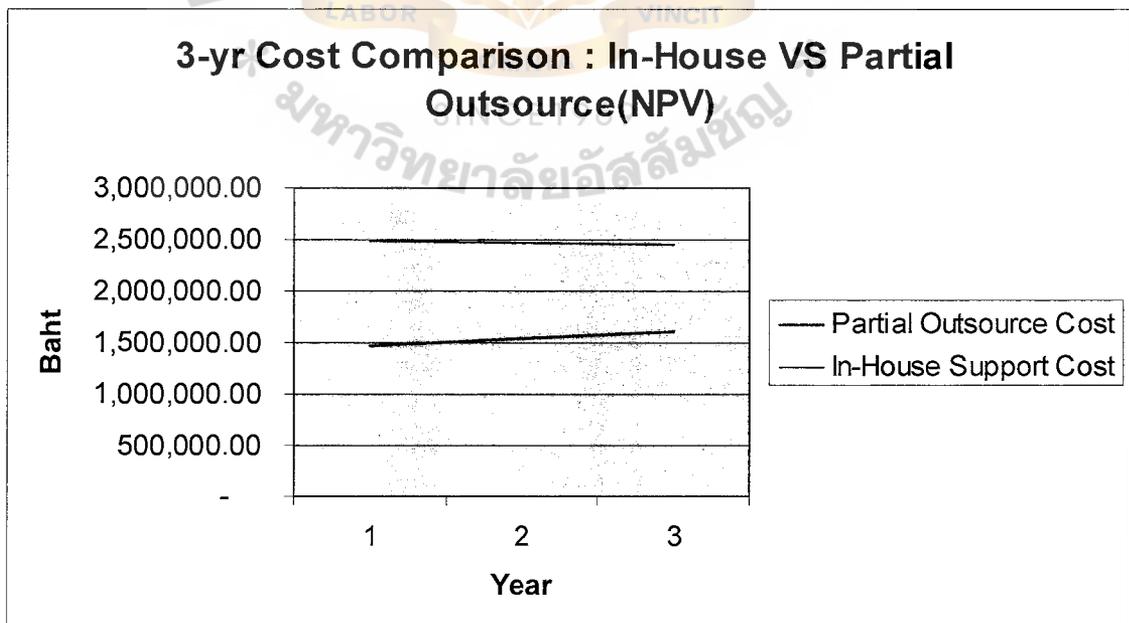
Table 5.2 G In-House Support: Net Present Value Year 1-3

In-House Staff Cost : 3-year Projection			
Year	In-House Staff Cost	P/F, 5%, N year	Total Present Value
1	2,613,500.00	0.95238	2,489,047.62
2	2,718,300.00	0.90703	2,465,578.23
3	2,828,340.00	0.86384	2,443,226.43
Total In-house support cost			7,397,852.28

Table 5.2 H Cost Comparison: Net Present Value Yearly Basis

Year	Partial Outsource Cost(NPV)	In-house Support Cost(NPV)
1	1,466,666.67	2,489,047.62
2	1,536,507.94	2,465,578.23
3	1,609,674.98	2,443,226.43

Table 5.2 I 3-yr Cost Comparison: In-house VS Partial Outsource by Chart



We have clearly seen in the second critical success factor which is efficiency, in term of, cost saving to ABC that could be evaluated in the financial analysis as above to around 2.8 million baht saving for 3-year present value evaluation comparing in-house support and partial outsource.



## VI. CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Conclusions

Customers oriented is a key winning strategy to all companies, however, many companies do not really know in what areas and how would be done to successfully implement a strategic move over the others. IT has deployed as a mean to fulfill this key win strategy. Automated and online services are widely accepted and is a must to many industries as a platform to operate business. Associated with its benefit, IT comes with a huge cost and even a hidden disadvantage to any companies those unprofessionally manage this resource in the organization.

Many companies set up IT division which comprises of a hierarchical level of IT staffs. We found that I.T support and cost efficiencies is very fit to the quote “size doesn’t matter” which means it does not depend on the number of staffs that an organization has for the support team, but the responsiveness and efficiency that count.

A typical view of IT management is looking at a high level of technology focus like fiber optic SAN, high-speed processors, gigabit network, etc. Actually, those behind the scenes represent only 20% of the outage in the IT environment, much likely those causes crashes are people skills and processes that are not properly operated. People angle refers to IT staffs especially those who own and entitle to manage IT resources, but lacking appropriate skills, unclear responsibilities to manage the resource efficiently. The situation of no owner is even worst when IT crashes down happening. Processes angle refers to the practices that inefficiently sets up to operate the IT lacking of regular upgrade plan for O/S or patches, unclear support escalation processes are all referred to weaknesses in IT management. We have studied an improvement in IT services as well as cost savings to ABC Insurance Ltd. in this project, proposing and implement the IT support processes for front offices and end-user workplace. Starting

with inventory management and checklist that draws a roadmap for us to see the IT assets of ABC and study the current process of ABC's in-house support, we then come up with a new support procedures which comprises of:

Base Services: Remote and Onsite support, Preventive Maintenance

Part Inventory, Hot-Swap Replacement, Out-of-office services, etc.

Optional Services: Provisioning Services, Disposal Services, Media Handling Services and Configuration Analysis

Base Services are all the services that required and implement for ABC as a baseline or support platform to standardize support processes in ABC, optional services are much complied to ITIL which would be commented more in the recommendation section.

We could summarize a critical success factors that measure this project study from the outcome of:

1) Responsiveness: We measure this critical success factor from the result that answers the users' pain points of SLA commitment required, system upgrade required and support channels required. Service summary report shown a satisfied SLA that answers an overall requirement back to the users' system uptime as a whole.

2) Efficiency: We have justified this critical success factor by means of cost saving to ABC Insurance Limited from a 3-year cost projection that outcome a saving around 2.8 million baht calculation based on net present value(NPV) of ABC in-house support cost compares with partial outsource to our support arms that clearly show an impressive result. Though the trend of in-house support be a slight in downward slope in year 2-3 while the partial outsource has a slight upward slope in year 2-3, this does not stun us from the outcome because the IT assets life cycle, especially the users' tools (PCs, Printers) has a 3-year life cycle and most companies write off these assets in 3-

year, so the slight downward and upward does not signify any unfavorable trend in the long run.

## **6.2 Recommendations**

A continuous improvement in IT support process is the key area to sustain service quality in every organization, this could be complied by implementing IT support processes through ITIL approach whereas IT Infrastructure Library(ITIL) is the 'IT Infrastructure Library. It is essentially a collection of volumes detailing a number of 'disciplines' and processes for IT Service management. It was first published in the nineties by a department of the UK Government, known then as the CCTA, although is quickly became internationally recognized and deployed.

ITIL guidelines these below concepts for continuous service improvement:

### **(1) Incident Management**

To restore normal service operation as quickly as possible and minimize the adverse impact on business operations, thus ensuring the best possible levels of service quality.

### **(2) Problem Management**

To minimize the disruption of IT services by organizing IT resources to resolve problems according to business needs, preventing them from recurring and recording information that will improve the way in which IT deals with problems, resulting in higher levels of availability and productivity

### **(3) Configuration Management**

To identify, control and audit the information required to manage IT services by defining and maintaining a database of controlled items, their status, lifecycles and relationships and any information needed to manage the quality of IT services cost effectively.

(4) Change Management

To manage all changes that could impact on IT's ability to deliver services through a single, centralized process of approval, scheduling and control to ensure that the IT infrastructure stays aligned to business requirements.

(5) Release Management

To manage the effective use of new changed services throughout the organization by planning, designing, building, testing and releasing the hardware and software components to ensure the deployment of compatible, licensed and appropriate releases and to minimize the use of releases that do not contribute to organizational objectives.

(6) Capacity Management

This is to concern with having the appropriate IT capacity and making the best use of it, would be more familiar with capacity planning.

(7) Financial Management

To manage IT infrastructure costs and to provide a sound financial basis for business decisions relating to IT by identifying and accounting for the costs of delivering services, and where appropriate by recovering costs in an equitable manner.

(8) Availability Management

To ensure the delivery of IT services where, when and to whom they are required, by planning and building a reliable and maintainable infrastructure and maintaining key support and supply relationships according to service requirements.

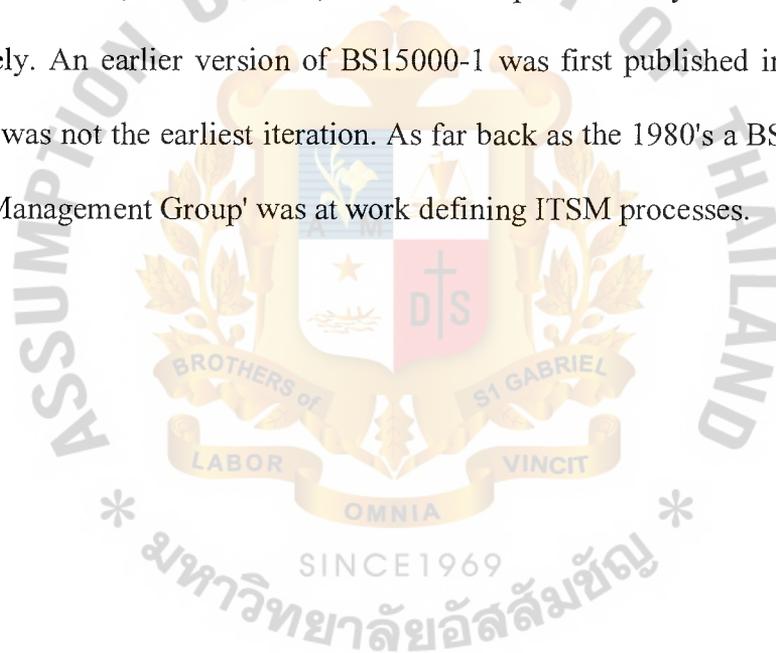
(9) Service Level Management

To maintain and improve IT service quality through a cycle of negotiating, defining and managing the level of IT services and instigating actions to eliminate poor service

## (10) Service Continuity Management

To manage the risks of key IT services failing by avoiding identified risks and by planning to recover key IT services in a contingency, to support the continued functioning of the business to a specified level within a stated set of circumstances.

The ultimate goal for continuous IT service improvement and ensuring that an organization is maintaining a well qualified service quality to end users, the organization should develop the IT support processes certify towards ISO2000 - standard for IT management service while. ISO 20000 is in fact based upon an original pair of documents, BS15000-1/2, which were published by BSI in 2002 and 2003 respectively. An earlier version of BS15000-1 was first published in 2000. Even this, however, was not the earliest iteration. As far back as the 1980's a BSI group called the 'Service Management Group' was at work defining ITSM processes.





**APPENDIX A**  
**SERVICE SHEET SAMPLE**

Table A.1) ABC Service Sheet Sample

Company	Month	Job No.	Description	Serial No.	Diagnosis	Action Taken	Request-Time	Start-onsite-time	stop-onsite-time	Travel time
ABC	Dec	J87061537	HP NetServer E800 PIII-866 Mod 1	SG10803862	YS/SITE-OPERATION SYSTEM NOT FOUND (RPL NO#133)	PPTD	12/01/03 07:00 AM	12/03/03 08:50 AM	12/03/03 11:45 AM	1.8
ABC	Dec	J87214188	12GB DDS 3 DAT tape drive	GB21063728	JS/SITE-DDS3 FAILED (**RPL NO#736**)	REPLACE TAPE	12/15/03 02:55 PM	12/16/03 12:30 PM	12/16/03 01:30 PM	0.0
ABC	Dec	J87214212	12GB DDS 3 DAT tape drive	3930A88976	JS/SITE-CUSTOMER CAN'T UNLOAD CLEANING TAPE FROM DLT7000 DRIVE	REPLACE TAPE	12/15/03 03:11 PM	12/15/03 03:37 PM	12/16/03 02:30 PM	0.0
ABC	Dec	J87214236	12GB DDS 3 DAT tape drive	GB21063728	JS/SITE- DDS 3 FAILED (**RPL NO# 133**)	DDS3 IS HANG, REBOOT SYSTEM AND IT'S OK.	12/15/03 03:11 PM	12/15/03 03:37 PM	12/16/03 02:30 PM	0.0
ABC	Oct	J8R722482	HP Vectra VL420 DT BTCO Base Model	SG14804025	SG/SITE-NOT BOOT,HDD FAIL.(**RPL NO#736**)	CE-BOONLRO CHANGE HDD AND TEST OK.{P8982- 69001}	10/01/03 12:10 PM	10/01/03 01:11 PM	10/02/03 04:45 PM	0.0
ABC	Oct	J87G00126	3 Com Hub Failed	KTRS301477 A	KS/SITE-3COM FAILED	CHANGE 3COM HUB 1 UNIT AT IT-ROOM	10/01/03 12:10 PM	10/01/03 01:11 PM	10/02/03 04:45 PM	0.5
ABC	Oct	J87G00130	Lanplex FDDI Module	NSN:3C20010 Z:C4PETKASE M.NET	NB/SITE-FAN WAS FAILED.	CHANGE FAN IN LANPLEX2500 1 UNIT	10/16/03 04:05 PM	10/16/03 04:16 PM	10/17/03 07:40 PM	0.0
ABC	Oct	J8R427197	HP LaserJet 1300	SGBB043843	CO/BENCH-PAPER JAM /PART BROKEN **RPL#736**	REPLACED FUSING ASSY AND CLEAN UNIT,TESTED OK,(V).	10/16/03 04:05 PM	10/16/03 04:16 PM	10/17/03 07:40 PM	0.0
ABC	Sept	J8R427198	HP LaserJet 1300	SGBB043842	CO/BENCH-PAPER JAM/PART BROKEN **RPL#736**	REPLACED FUSING ASSY AND CLEAN UNIT,TESTED OK,(V).	10/16/03 04:05 PM	10/16/03 04:16 PM	10/17/03 07:40 PM	0.0
ABC	Sept	J8R721853	HP Vectra VL420 DT BTCO Base Model	SG22002160	PEA-NOISY, CAN'T BOOT	REPLACED POWER SUPPLY TEST OK. (P5751-63001)	09/01/03 12:23 PM	09/15/03 11:00 AM	09/24/03 12:10 PM	0.8

Table A.1) ABC Service Sheet Sample (Cont.)

Company	Month	Job No.	Description	Serial No.	Diagnosis	Action Taken	Request-Time	Start-onsite-time	stop-onsite-time	Travel time
ABC	Oct	J87213905	36GB disk, D510S	PHKT006691	CS-TO INSTALL 36GB DISK	INSTALL_DISK 36 GB	10/16/03 04:05 PM	10/16/03 04:16 PM	10/17/03 07:40 PM	0.0
ABC	Oct	J87213906	36GB disk, D510S	PHKT007488	CS-TO INSTALL 36GB DISK	INSTALL HARDDISK 36 GB	10/16/03 04:05 PM	10/16/03 04:16 PM	10/17/03 07:40 PM	0.0
ABC	Oct	J87213907	36GB disk, D510S	PHKT007652	CS-TO INSTALL 36GB DISK	INSTALL HARDDISK 36 GB	10/16/03 04:05 PM	10/16/03 04:16 PM	10/17/03 07:40 PM	0.0
ABC	Sept	J87213940	HP LaserJet 1300	SGBB043434	CO/BENCH-PAPER JAM/PART BROKEN **RPL#736**	Clean Fuser, tested OK	09/01/03 12:23 PM	09/15/03 11:00 AM	09/24/03 12:10 PM	0.8
ABC	Sept	J87213961	HP LaserJet 2200	SGBB04643	CO/BENCH-PAPER JAM/PART BROKEN **RPL#736**	REPLACED FUSING ASSY AND CLEAN UNIT, TESTED OK,(V).	09/01/03 12:23 PM	09/15/03 11:00 AM	09/24/03 12:10 PM	1.0
ABC	Sept	J87213962	HP LaserJet 2200	SGBB043456	CO/BENCH-PAPER JAM/PART BROKEN **RPL#736**	REPLACED FUSING ASSY AND CLEAN UNIT, TESTED OK,(V).	09/26/03 03:31 PM	10/01/03 04:45 PM	10/01/03 05:05 PM	0.3
ABC	Jul	J87213963	HP LaserJet 2200	SGBB046565	Fuser Failed/Overheat	REPLACED FUSING ASSY AND CLEAN UNIT, TESTED OK,(V).	07/17/03 04:38 PM	07/18/03 08:49 AM	07/18/03 10:45 AM	0.0
ABC	Jul	J87213964	HP LaserJet 2200	SGBB049384	Fuser Failed/Overheat	REPLACED FUSING ASSY AND CLEAN UNIT, TESTED OK,(V).	07/17/03 04:38 PM	07/18/03 08:49 AM	07/18/03 10:45 AM	0.5

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