CHAPTER 4 – FINDINGS AND RESULTS

4.1. Types of Products and Services

The products and services were provided are:

Retail Internet Access

PT. X provides its individual users with high-speed dial-up connections and excellent customer support, and an array of different connection packages to allow them substantial savings whilst still maintaining optimal performance. Understanding that the core of its consumers needs is 24/7 accesses to the world at the click of a mouse, PT. X is continuously harnessing the latest technology and enhancing the quality of its highly skilled employees to ensure the lasting satisfaction of its customers.

Corporate Internet Access

Working closely with its sister company and PT. Telkom, in the telecommunications and data networking areas, has equipped PT. X with the vital variety of infrastructure options required to provide its hundreds of prominent corporate clients with a full range of Internet connections, from simple analog or digital dial-up connections to far more sophisticated ones that utilize leased line, frame relay, VSAT, and the even more recent technologies of ADSL and wireless broadband. Regardless of the nature of your business or what your Internet access requirements may be, PT. X is ready to offer your company the ideal one-stop cyber solution most suitable to you.

4.2. Analysis

4.2.1. Objectives

The main objective of this research is to obtain faster sales order process in order to increase efficiency, effectiveness, and productivity. Thus, the company will be able to improve the competitive advantage as well as perceive internal and external customer satisfaction.

4.2.2. Sales Order Process in General

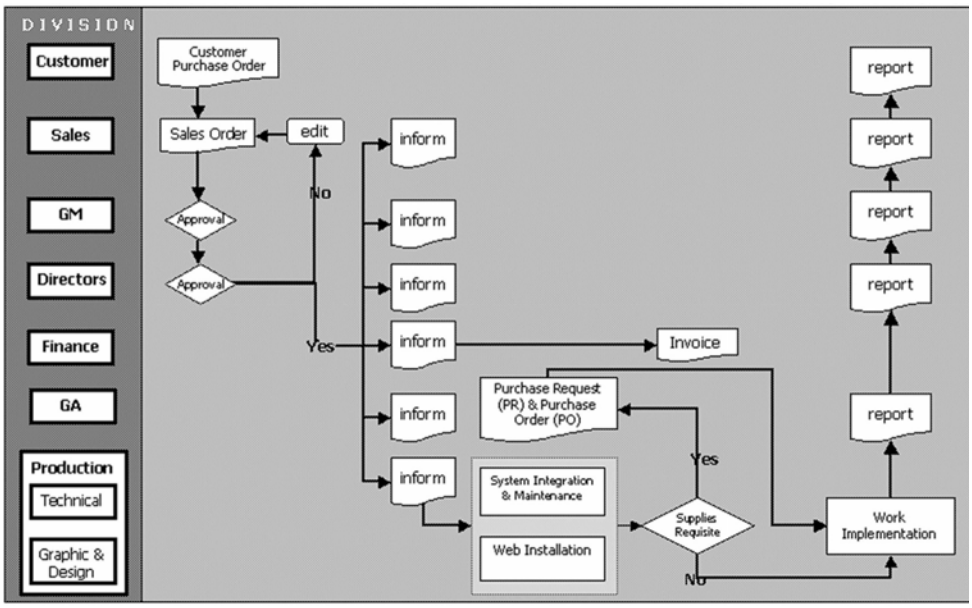

Figure 4.1. Manual System Flowchart
Source: Processed from PT. X existing business process

The process begins from the acceptance of Customer Purchase Order in Sales Department. The customer purchase order was forwarded to the Sales so the Sales Order Form can be completed and approved by General Manager and Directors. This approval process usually will take one and a half workdays. However, if the Sales Order was not approved, the form has to be edited until it is approved. Consequently, the processes might take more than one and a half workdays.

Next, the approved SO should be informed to the relevant divisions such as Directors, General Manager, General Affair, Sales, Accounting and Finance, and Production. The delegation of work is still conducted manually and it will need at least half of workdays to have all the divisions received the document of approved sales order. Overall, the approval processes requires at least two workdays in manual procedures. In addition, the processes may be impeded when one of the approvers is in geographically remote.

Afterwards, the work installation starts to proceed after the approval processes were completed. The duration of production process depends on the type of services which customer required. The production process usually needs three to five workdays without any automation and still using paperwork system. Finally, the processes are accomplished by sending reports to all relevant divisions.

Finally, reports were submitted. However, reports only include the result of the production process whereas not progress during the work implementation. Thus, during the production process was not able to be supervisory controlled. The whole processes seems quite simple, however, order processing may be very bureaucratic and complex.

4.3. Findings

4.3.1. Sales Order Process at PT. X

Based on the research conducted within sales order process in PT. X, the automation was applied only in partial process. The automation was already implemented to the extent of approval process. While the production process including work installation and implementation are still conducted manually with paperwork system. In most cases, delegation of work is still conducted conventionally, they have not yet fully utilized electronic mail. As consequence, the automation is not fully integrated within the business process.

4.3.2. Production Process at PT. X

Further research in the business process was analyzed is the work mechanism in the production process of Corporate Internet Access service which provided in PT. X. The mechanism in production process for Corporate Internet Access consists of several steps. They are:

Step 1: Customer Survey

Divided into two check-out procedures:

1. Customer's Condition Survey

   Inspect on customer's condition.

2. Customer Supplies Requisition

   Inspect the customer's need whether they need additional supplies or not.

Step 2: Installation

The work of installation consists of two procedures:

1. Registration of customers in the system
2. Interconnection

Step 3: Trial Connection

The trial connection is a trial process of connecting the Internet access from server to customer site.

Step 4: Letter of Acceptance

Letter of Acceptance is required to inform to the customer that the work installation is complete. It will then be submitted to the management manually only at the completion date and because of this, monitoring progress during the production process could not be achieved. This is one of the flaws of adhering to the manual process.

4.3.3. Problems in Manual System

Set of problems in the manual process can be determined as follow:

Time Consuming

In manual process required more time to work. This is usually caused by the existence of human error such like suspension, or faulty on works operational. Therefore, the longer duration of operation in manual system causes inefficiency and ineffectiveness.

Inflexibility

Approval processes in sales order process that conducted manually, cannot be done at any given time and place. The impediment process of approval may occur due to the geographically remote. Therefore, it may result deceleration of business process as a whole. Additionally, inflexibility may cause an increment of level of customer's dissatisfaction.

Paper Based Filing System

Due to the paper-based system in manual process, documents were not easily stored, updated and it might as well lose.

Lack of Supervisory Control

The proceeding process that cannot be monitored leads to unanticipated overdue processes. This may cause of lack of work disciplinary among employees. As consequence, it can decelerate the level of work productivity.

Overall, problems were identified leads toward inefficiency and ineffectiveness. Thus, would slow down the productivity and leads to a deterioration of competitiveness in business process if these problems were not countered. In fact, the whole business performance and customer satisfaction can be influenced by the implementation of the business process.

4.3.4. Business Process Automation in Sales Order Process

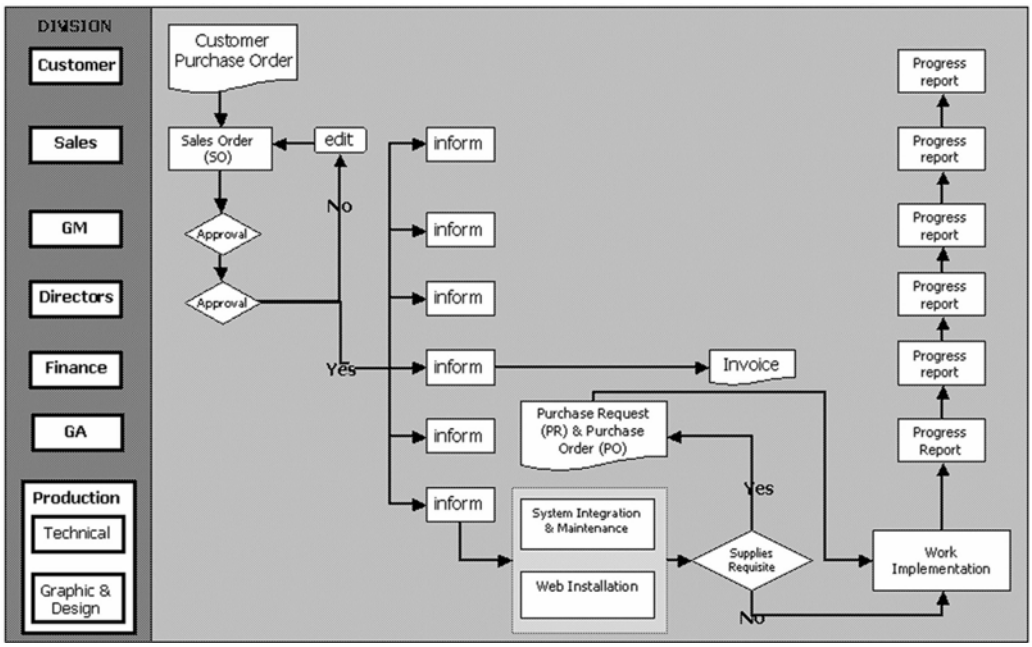

Figure 4.2. Automated System Flowchart

Business process automation develops the mechanism of work in sales order process which not fully automated turning into fully automated. The most important parts to be focused on are the production process and the efficiency of time. In this concept, business processes were using fully automation so the process output is in a digital form. The application of this automated process is using a web-based system and reports were distributed by e-mail.

To make a clearer view on the automation process, author compared the automated system in sales order business process with the manual system. The acceptance of purchase order (PO) was electronically transmitted through e-mail, and thus, the sales person will only received an e-mail notification function as a work delegation to proceed sales order (SO). Sales order (SO) will then be sent to General Manager (GM) and Directors to be approved. Afterwards, the approved SO will be forwarded to the relevant divisions include Sales, Finance and Accounting, General Affair, and

Production as well as GM and Directors. These work delegation processes were conducted electronically. Therefore, documents are digital formed.

Subsequently, production processes can be initiated. Reports then should be submitted continuously at the beginning of date until the completion date of process. Therefore, the whole production process can be monitored through the internal network.

Overall, sales order process with automated system needs approximately half of workdays. Moreover, report summary should also be transmitted by e-mail at least once a week so the process of production can be monitored and supervised by top down management.

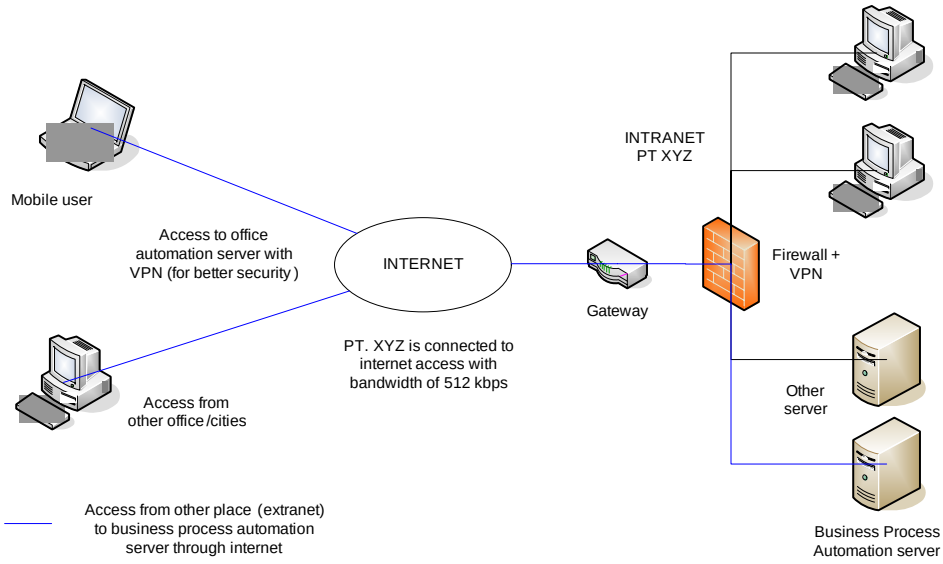

Figure 4.3. Network Configuration of Business Process Automation

4.3.5. Pitfalls in Automation System

Automation may require organizational changes. The most common change that was found in business process automation is regarding corporate culture. The problem is

that manual procedure is involved in the formal duties of business process within the employees. By means, the mechanism of automation is hardly adapted because the people were accustomed to do the business process in manual method. Not only corporate culture but also change in organizational procedures for business operation and might as well the business strategy must be considered accordingly. These can be some constraints for the implementation.

Web-based and integrated system eases all personnel to freely exchange the information through the network. On the other hand, this can be technologically difficult and costly. Additionally, internet-based system can be very vulnerable to computer crime. Laudon and Laudon stated that computer crime is the commission of illegal acts through the use of computer or against a computer system.

4.4. Comparative Analysis between Manual and Automated System

The comparative analysis was taken in order to give more clarification on the benefits of automation that can be achieved in term of several aspects.

Aspects	Manual System	Automated System	Benefits
Business Process	Manual, Paper-based System	Automated workflow	Time Efficiency
Reminder System	Human	Electronic mail	Well-informed
Approval Process	Limited to the office site	Not limited to the office site	Flexible process
Database System	Paper-based Filing System	Integrated Database System	Minimize space usage, organize
Monitoring System	Manual monitoring	Automated	Real-time controlling
Reporting System	Manual	Automated	Faster decision making
Productivity	Unnecessary workload	Reduce workload	Maximized

Table 4.1. Comparative Analysis between Manual and Automated System

Time Efficiency

Automation can reduce the length of process time. In manual system, sales order process take approximately two workdays for approval until all divisions receives the approved SO form. In comparison, automation needs not more than one day for the whole process. Due to the reduction of time, the process became more efficient. The excess of time could be used to generate more sales and thus the working performance could be more productive. In short, automation creates faster system.

Flexibility

Automation transformed the work mechanism became more flexible and faster. In sales order approval, the management can approve as soon as they received the e-mail notification which inform there is a new sales order. Additionally, this notification functions as a reminder when the sales order has not to been approved yet where all the personnel can be well informed. Moreover, this approval process can be clicked without any difficulty of being geographically remote. On the other hand, documents cannot be approved in a distance remote in manual system.

Integrated Database System

Automation reduces paperwork system and human error. Mostly, purchase order from customer can be received by post or faxed. This is usually takes more time to be proceed. In comparison, in automated system, the customer can order online from company's website and the electronic order form could be routed to the sales person directly by e-mail. This creates a reliable information, because the information given directly from the customer without any intervention from the sales person. Afterwards, the information of purchase order should also be keyed into the database system.

Entering information could be very complex if there is no integrated system. In the automation system, the sales person just need to key in the data at once without

completing the paper form that can be easily lost or damage. Moreover, the data in the system can be updated and restored. Therefore, a system can be more effective.

Supervisory Control

As discussed in the previous section, automation involves in transforming manual into automated system using the technology advance. Manually, reports were usually submitted once at the completion date of process. In contrast, by using the web-based application, any progress can be monitored in a weekly basis. Additionally, this will facilitate the project manager as well as the top management in monitoring and assessing the performance of units. Thus creates a transparency business process within the organization.

Real Time Sales Order Reporting System

Automated system eases the access of information and integrates database system. Therefore, all the sales orders will be recorded automatically into the system which creates real time reporting system. In this case, the system will facilitate in preparing a monthly report such as total amount of sales order achieved within a month. Consequently, it will create a faster decision making form the management.

Productivity

In manual system productivity seems to be stunned since there are unnecessary workload in the business process. The sales staff tends to be demanded to do several tasks that were not included in their job function. In this case, when the manager wants to know about certain information from a particular customer, he will ask the staff to locate the file from the database. With automation, the manager can directly access the database without having difficulty. Therefore, productivity can be maximized with this system.

4.5. Results and Implementation

The automation concept was delivered was the development of automated system in sales order process in Internet Service Provider. This research addressed the development of a fully web-based automation concept into a business process. The final output of the automation is shown by a prototype function as a tool which automates the sales order process by using Internet in a real time basis.

This is an illustration of how the sales order process operates using automation system in A-plus Corporation:

1. Customer can call, fax, or send e-mail an order. Then sales staff accepts the order and fills out the form template automatically. After collecting all relevant information, then the sales staff confirms the entire order with the customers.

2. The form will be submitted then the system sends e-mail to the sales manager and directors to inform there is a new sales order need to be approved. The automated approval process will be directly routed to the Accounting Department, Sales Department, and Production Department as soon as it is approved. This will instruct each division to proceed the customer's order including send invoice to the customer and start the work installation.

3. The production process starts the work installation by filling and submitting the report from a template. After they submit the report, it will be automatically routed to the management via e-mail to inform the progress of production process.

Approval Process

1. New Sales Order received. Sales staff fills out Sales Order form from a template then submit the form. Subsequently, the system will automatically inform via e-mail outlook to the management that there is a new sales order waiting.

Notification e-mail will also be sent to the staff to inform them that the sales order is under approval process.

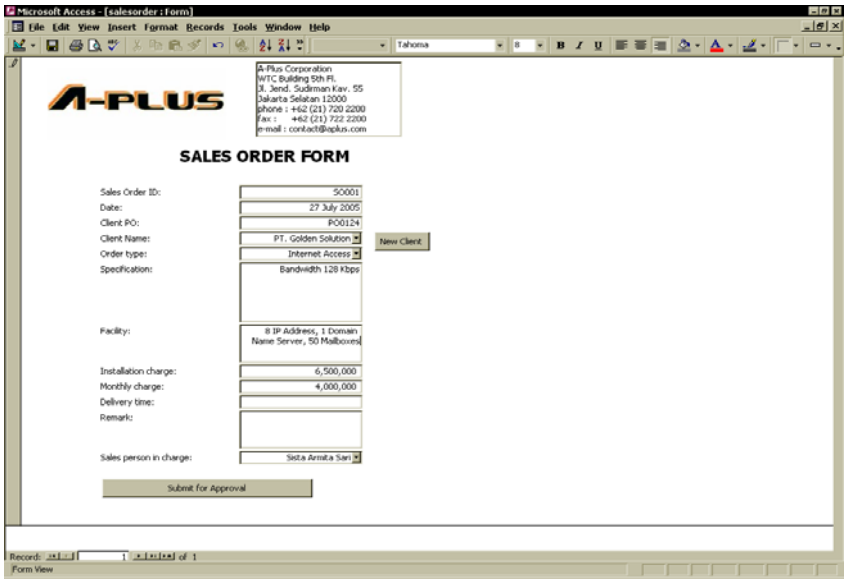

Figure 4.4. Sales Order Form Template

2. To approve a new sales order, the approver should open e-mail and click on the Smart system link to enter the Web:

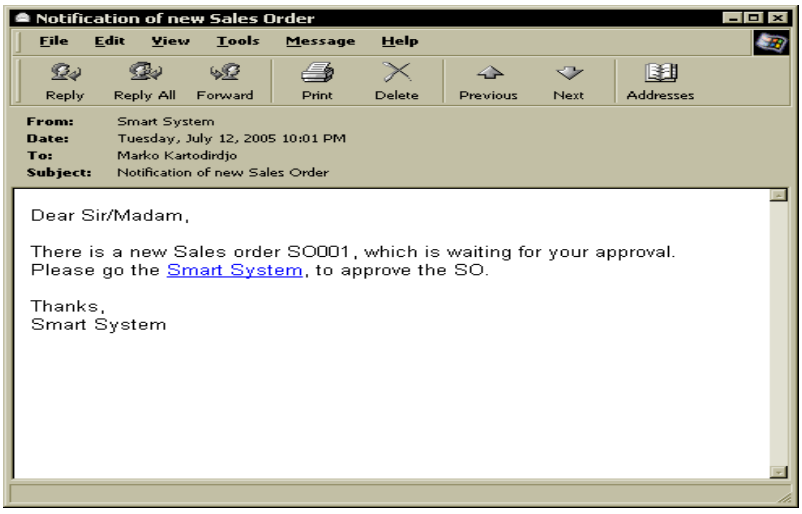

Figure 4.5. E-mail Notification to the Management

3. Enter the user name and password in login page:

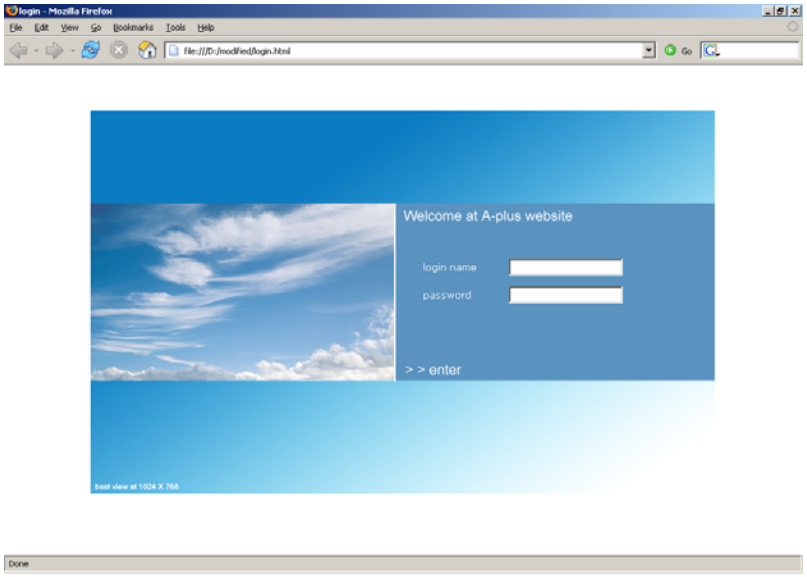

Figure 4.6. Login Page

4. Once the user enters the homepage, it will automatically inform that there is a new sales order. Click on the link new sales order to approve:

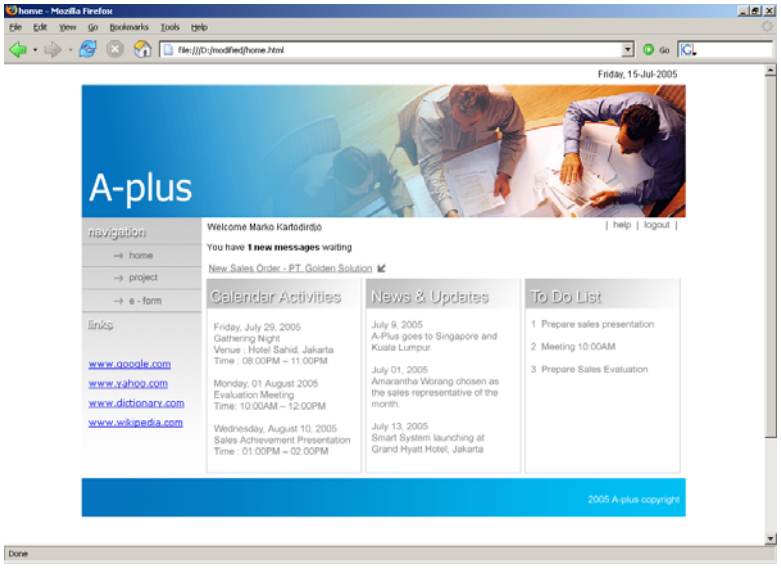

Figure 4.7. Home Page

5. Sales Order form is approved on the Web. Once approver click on the Approve or Disapprove button, the system will inform to relevant divisions by e-mail that Sales Order has been approved or disapproved to the sales staff:

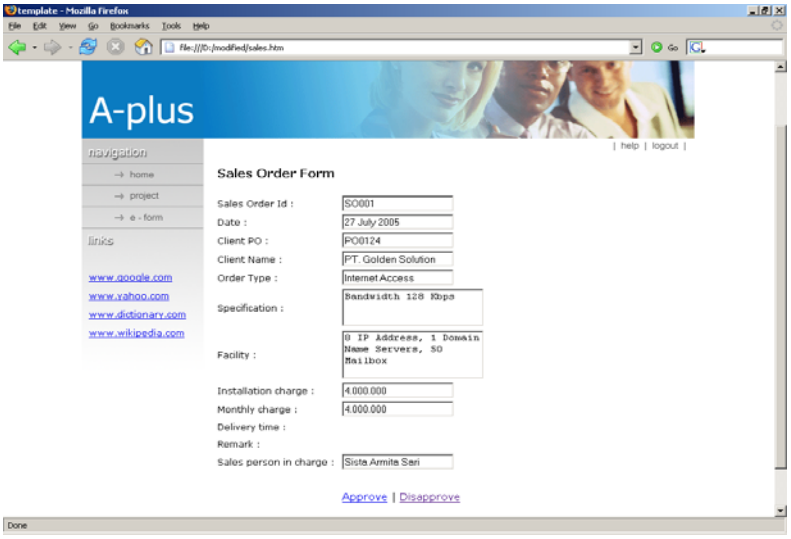

Figure 4.8. Approval Page

6. When a sales order approved, the system will inform to the relevant divisions via e-mail stated that Sales Order Approval is completed. Therefore, each division can proceed the next process.

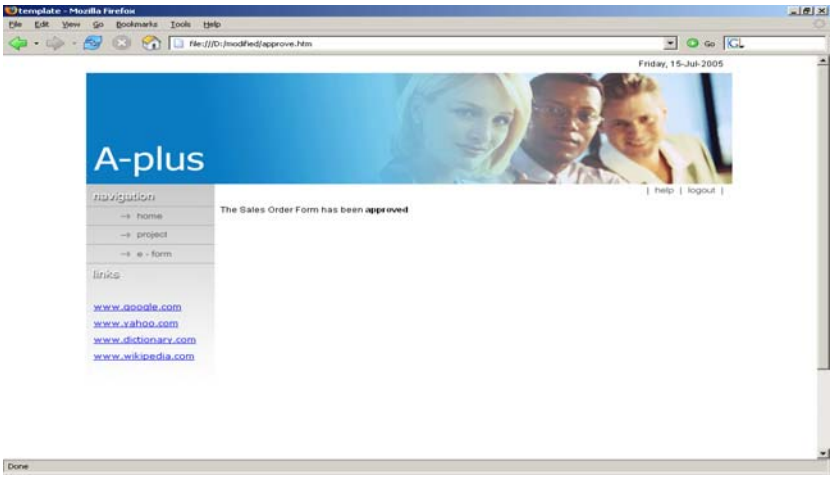

Figure 4.9. Approved Sales Order

Production Process

After the approval process, e-mail notification will be sent to the production so work implementation will be started. Afterwards, reports should be filled out and submitted.

1. E-mail notification inform that new sales order has been approved:

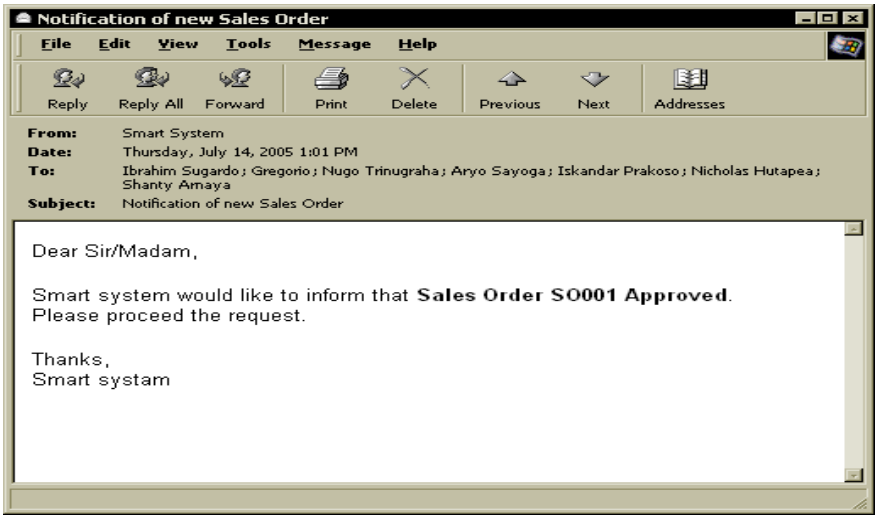

Figure 4.10. E-mail Notification of Approved Sales Order

2. Next, report form should be completed and submitted.

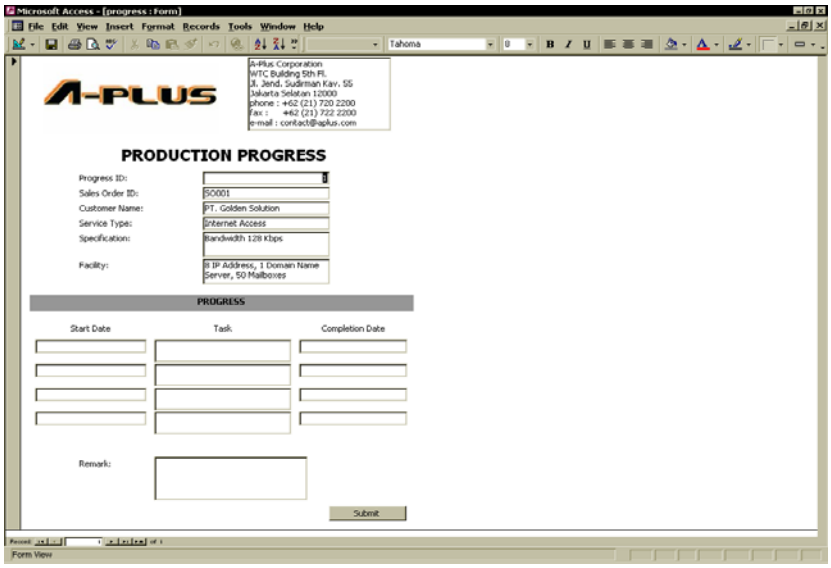

Figure 4.11. Production Progress Form Template

3. Once it is submitted, the system sends the report via e-mail to the sales staff and management.

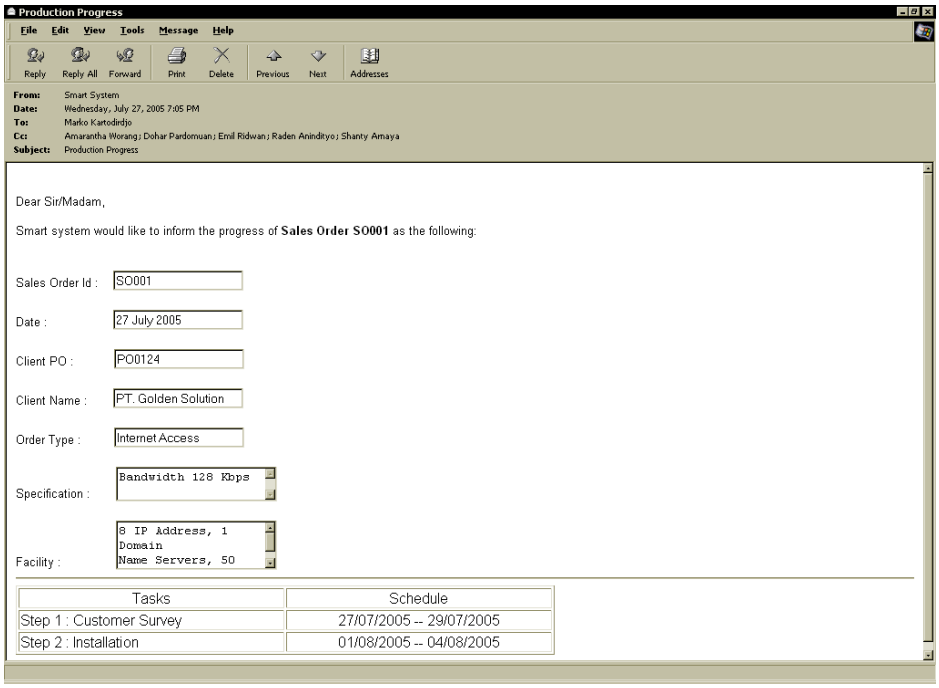

Figure 4.12. E-mail Notification of Production Progress Report

4.6. Financial Perspective

The value of information system can play an important strategic role in the life of company. Systems can have value but the company may not grasp all or even some of the value. The value of system from a financial perspective essentially revolves around the question of return on investment.

Result of research showing that with manual system, total sales order achieved in a month are 25 orders. In comparison, total sales order can be achieved with automated system up to 26 orders. Thus, the company yields for 4% rise in sales order in a month.

Assume that the company sold one type of service such as Internet Access with 4% rise in sales order every month. The data pointed that price of one sales order is IDR 4,000,000, Gross Profit of 30% and Operational Cost of 12.5% of revenues. It can be concluded, a growth of 4% in sales order in one month earns additional net profit for IDR 700,000. This additional net profit for IDR 700,000 will be paid each month.

Additional Net Profit

			in Rupiah
Revenues (1 x 4,000,000)	=	4,000,000	
Gross Profit 30%	=		1,200,000
Operational Cost 12.5%	=		500,000
Net Profit	=		700,000

From the calculation above, it can be inferred that expected profit of IDR 700,000 each month, will earn a total benefit within one year approximately of IDR 54,600,000 with twelve customers. Additionally, a total amount of IDR 210,000,000 with 24 customers in the second year, and IDR 466,200,000 with 36 customers in the third year (table 4.2).

From the table given, the incremental of sales profit from first year to second year is up to 26% and from second year to third year is more than 50%. This can be concluded that automation increases indirectly the sales volume. However, this calculation cannot be measured as the return on investment of the system.

Year	Month	Net Sales Profit	Cumulative Net Profit
I	1	700.000	700.000
	2	1.400.000	2.100.000
	3	2.100.000	4.200.000
	4	2.800.000	7.000.000
	5	3.500.000	10.500.000
	6	4.200.000	14.700.000
	7	4.900.000	19.600.000
	8	5.600.000	25.200.000
	9	6.300.000	31.500.000
	10	7.000.000	38.500.000
	11	7.700.000	46.200.000
	12	8.400.000	**54.600.000**
II	13	9.100.000	63.700.000
	14	9.800.000	73.500.000
	15	10.500.000	84.000.000
	16	11.200.000	95.200.000
	17	11.900.000	107.100.000
	18	12.600.000	119.700.000
	19	13.300.000	133.000.000
	20	14.000.000	147.000.000
	21	14.700.000	161.700.000
	22	15.400.000	177.100.000
	23	16.100.000	193.200.000
	24	16.800.000	**210.000.000**
III	25	17.500.000	227.500.000
	26	18.200.000	245.700.000
	27	18.900.000	264.600.000
	28	19.600.000	284.200.000
	29	20.300.000	304.500.000
	30	21.000.000	325.500.000
	31	21.700.000	347.200.000
	32	22.400.000	369.600.000
	33	23.100.000	392.700.000
	34	23.800.000	416.500.000
	35	24.500.000	441.000.000
	36	25.200.000	**466.200.000**

Table 4.2. Cumulative Net Profit

In the case of PT. X, the new system required a server with a specification of XEON Processor 3Ghz, 1GB SDRAM, 120 GB HDD, DVD-ROM, and Smart Array Controller (raid 5), and NIC Card 10/100/1000 with total cost of IDR 98,000,000. In addition, for the application the system used Microsoft Access, Web-Based Programming, and SQL Database with total amount IDR 82,000,000. Maintenance service and depreciation required 15% and 25% from investment respectively. Therefore, the system had an actual investment cost of IDR 180,000,000 in the first year (year 0).

	Year			
	0	1	2	3
Cost				
Investment	(180.000.000)	0	0	0
Maintenance (15%)	0	(27.000.000)	(27.000.000)	(27.000.000)
Deppreciation (25%)	0	(45.000.000)	(45.000.000)	(45.000.000)
Total Cost	**(180.000.000)**	**(72.000.000)**	**(72.000.000)**	**(72.000.000)**
Expected Profit				
Additional Profit	0	54.600.000	210.000.000	466.200.000
Balance	(180.000.000)	(17.400.000)	138.000.000	394.200.000
Accumulative Net Profit - Investment	**(180.000.000)**	**(197.400.000)**	**(59.400.000)**	**334.800.000**

From the table 4.2, the expected return on investment can be quantified in over three years. In the first two years, total sales profit in year 1 is IDR 54,600,000 and year 2 is IDR 210,000,000 with annual cost IDR 72,000,000. Therefore, the company's return is negative IDR 197,400,000 in the first year and IDR 59,400,000 in the second year. In the third year, with total sales profit IDR 466,200,000 the company earns profit up to IDR 334,800,000.

There are two points that should be considered in assessing the return on investment in Information Technology investment, namely the investment of hardware, software, and infrastructure and the opportunity cost of not implementing the business solution

quickly, of losing the productivity gain, of unexploited savings of time and costs. Therefore, the return on investment from this concept is clear. Aside the expected profit earned from the sales operations, greater profits such as efficiency and productivity arises from the system implementation.