



CHAPTER III

RESEARCH BACKGROUND AND PROBLEMS

3.1 Introduction

In this chapter the finding shall focus on the background of this research. The study shall analyze the operation environment of the company using various management tools and techniques. It would then touches on the background of the problems leading to this research which includes the current Business Processes (BPs). The BPs of order management (sales order, order picking, shipping), procurement/purchasing and last but not least the inventory management of the warehouse work flows and business processes are presented. This chapter also touched on blunders and the problems that occurred with the current BPs as well as obstacles in the current IS.

3.2 Systems Development Life Cycle (SDLC)

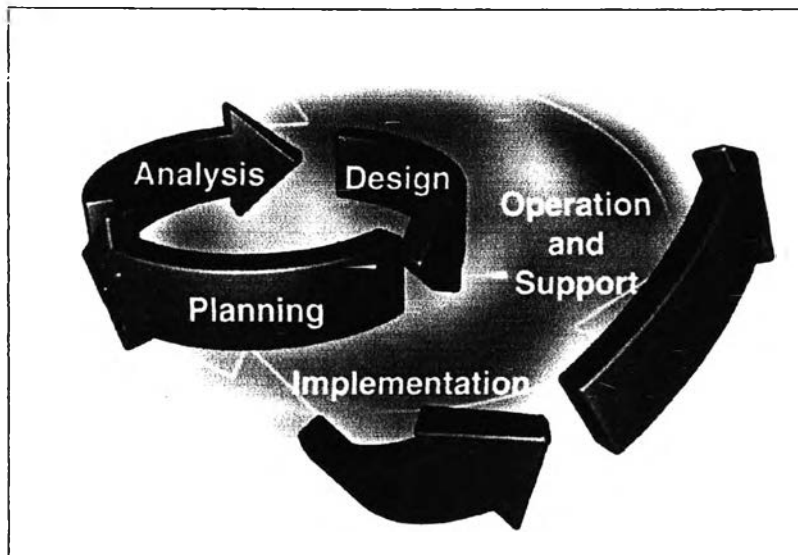


Figure 3-1: An alternative model of the SDLC focuses on the inter-action of planning, analysis, and design tasks, which leads to implementation, followed by operation and support.

Source: Gary B. Shelly., et al. (2003:23) System Analysis and Design. Thomson Course Technology. Boston, Massachusetts

The research utilized the System Development Life Cycle (SDLC) as the framework in pursuing the chosen strategy and implementing the mentioned ERP system. According to Shelly et al (2003:23) the framework consist of five main steps, including, System Planning, System Analysis, System Design, System

implementation, and last but not least, System Operation and Support. The SDLC can be illustrated by two models, one as an interactive diagram illustrating more of today's world practices which evolves continuously which can be seen in the figure 3-1, another one being the traditionally seen as a waterfall model seen in figure 3-2.

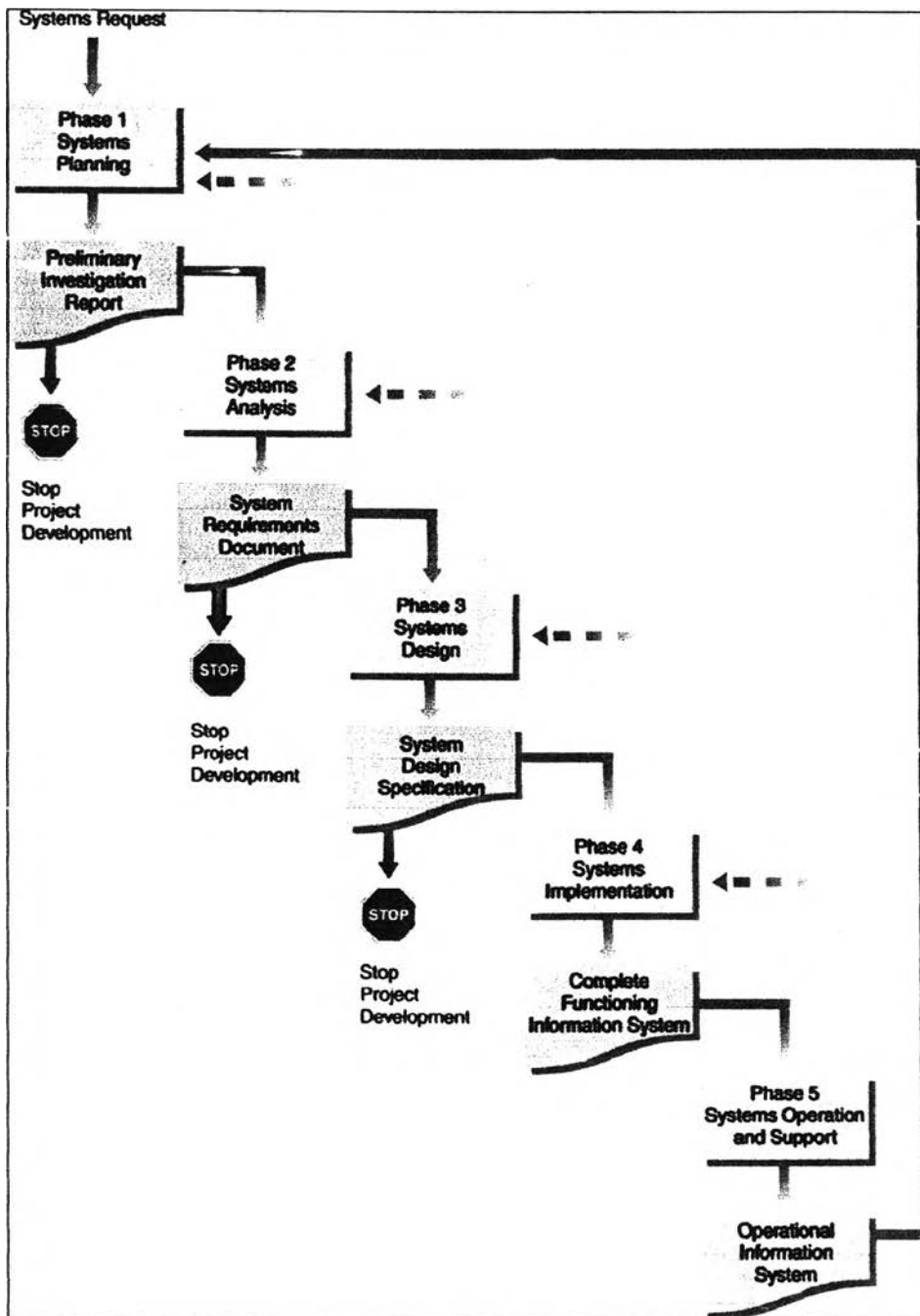


Figure 3-2: The overview of the phases and deliverables of the SDLC phases a more traditional model.

Source: Gary B. Shelly, et al. (2003:23) *System Analysis and Design*. Thomson Course Technology. Boston, Massachusetts

3.3 System Planning and Company Analysis

According to the SDLC technique this was the first step of the ERP system implementation or any other IS system implementation. The planning started with formal system request which described the problems, desired changes in the current IS or the BPs. The main objective of the system planning phase was to do a health scan and investigation of the current company's situation, operation environment, problems, and the business opportunities or threats. This analyses step was done according to the following diagram.

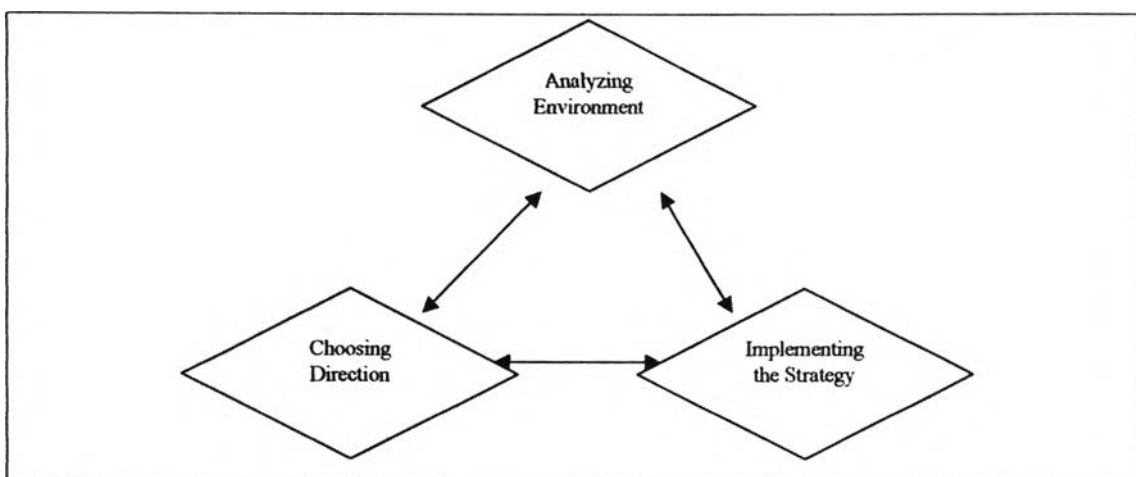


Figure 3-3: Analysis Frameworks

The analysis of the company includes the analyses of the current operating environment that the company was in. From then, the research will follow up with discussion of various business and implementation strategies, then the choosing of the implementation direction. The research then use the following frame work proposed by the Warwick Manufacturing Group (WMG) shown in figure 3-2 as a guideline to analyze the company.

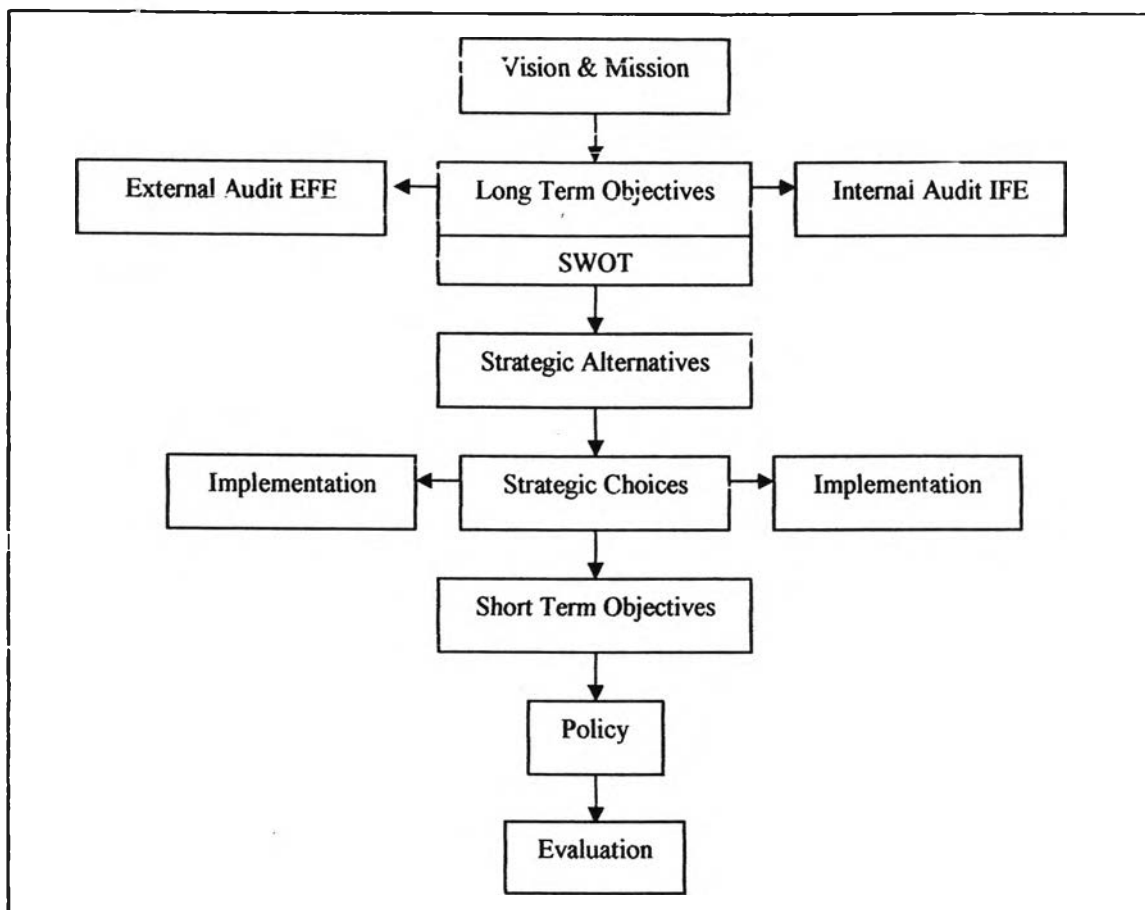


Figure 3-4: Business Strategic Framework

3.3.1 Vision and Mission Statement

ABC Paint co., ltd's vision statement is as followed.

"We aim to supply our customer with quality, environment friendly, affordable paint, informative and good sales after sales services and aim to give our customer knowledge with the up to date technology while keep the company's stake holder with reasonable return on investment."

"We aim to be in the top three of the leading brand domestically in customer mind quantitatively and qualitatively by the end of the fiscal year 2008."

From the company vision and mission statement, it was clear that one of the objective of the company was to have a good sales and after sales services. In order to gear up with the scope of the research mentioned in chapter 1, the research shall follow up this point of interest as the main goal. According to figure 3-2, the next step was to do the auditing of the internal

and external factors. The research utilized the following tools, SWOT analysis, PESTEL analysis, Porter 5 forces analysis.

3.3.2 SWOT Analysis

The company's strengths and weaknesses analysis were from the internal perspective and the opportunities and threats were from external perspective analysis.

Table 3-1: SWOT analysis table

Internal perspective
<p><u>“S” Strengths:</u></p> <ul style="list-style-type: none"> ▪ The company 27+ years of experience in the local paint business; ▪ owns an established brand name; ▪ Thailand Industry Standard Institute (TISI) quality qualified; ▪ used to be popular among paint contractors and dealers in the past.
<p><u>“W” Weaknesses:</u></p> <ul style="list-style-type: none"> ▪ Delivery time to customer was below par (more than one day for Bangkok and Metropolitan area, and three to five days for other provincial area within Thailand); ▪ the production department often produced finish good or shade of color which did not match the market demand, this resulted in high amount of “dead stock” or non-selling inventory and high inventory holding cost; ▪ miscommunication between departments which often results in poor forecast, and manufacturing planning; ▪ poor cost control, resulted from the highly swinging chemical raw materials price used in paint; ▪ the production department failed to stock the right raw materials, resulting in out of stock and lost of sales opportunities; ▪ the company has only 7% of market share, sales are not up to expected plan; ▪ no differentiation in products or services; ▪ numbers of customer complaints rise rapidly due to shortage of goods during peak seasons, resulting the customer are turning away from the company's good and services (losing orders to competitors).

External perspective**“O” Opportunities:**

- The recent potential growth in the property sector;
- the expansion of the paint industry (market shares, more demand);
- end-customer do not have negative product experience towards the company’s product;
- opportunities in expanding the current market to international level as neighboring countries such as Myanmar and Cambodia, stills rely on importing medium grade paint from Thailand;
- interest rate was low at the moment which theoretically should encourage people to invest e.g. buying properties and home etc.

“T” Threats:

- The intense competition in the current market (a lot of players) as well as the threat of market share leader has increase spending on advertising and R&D;
- pundits and economist experts predict second burst of economic bubbles;
- high capital (time and money) of improving current technology, people to compete to with the industry’s best.

3.3.3 PESTEL Analysis

The PESTEL analysis comprise of factors which affects the company’s operational environment externally. This includes the following factors.

3.3.3.1 Political Factors

- The Thai’s government has been supporting “Bann Ua Ar Thorn” campaign which supports and encourages all class of the population to have a proper home.
- Evidences from recent APEC meetings show evidences that there is strong push from the government to persuade nations around the world to invest in Thailand.
- The government pushed the Bank of Thailand and others commercial banks to sustain their loan rate which increased only slightly since the 1997 regional financial crisis.

- The current government is single party government, so all decision making are fast and direct, providing Thailand with economic and political directions stability.

3.3.3.2 Economical Factors

- As mentioned in SWOT analysis, loan and deposit interest rate is low at the moment, people are encouraged to invest through governmental monetary's policy.
- Expected rise in the national's GDP.

3.3.3.3 Socio-cultural Factors

- Trends have been set that Thai people now care more about home and family well-being e.g. rise in health care products.

3.3.3.4 Technological Factors

- The current "Do It Yourself" (DIY) trend from the Europe has seen the share of self- tinted paint system rises.
- The tinting machine open up new market e.g. replacing some material for internal decoration.
- The emerge and the reduction in cost of the resource planning software as well as Customer Relationship Management software vendors has seen the competition in the industry getting update to the technology utilizes the functionalities of the system to become more service oriented.

3.3.3.5 Environmental Factors

- The market is becoming more aware to the environmental issues, low (volatile organic compound) V.O.C. raw material are widely asked for in Europe and Japan. The local market is developing the trend and awareness.

3.3.3.6 Legal Factors

- The industry ministry may pass law which will disallow manufacturer to produce and distribute paint which contain V.O.C. raw material.

3.3.4 Porter's five forces analysis

We shall now identify the nature of the force fields and characteristic of the market that ABC Paint Co., Ltd is facing according to the next figure.

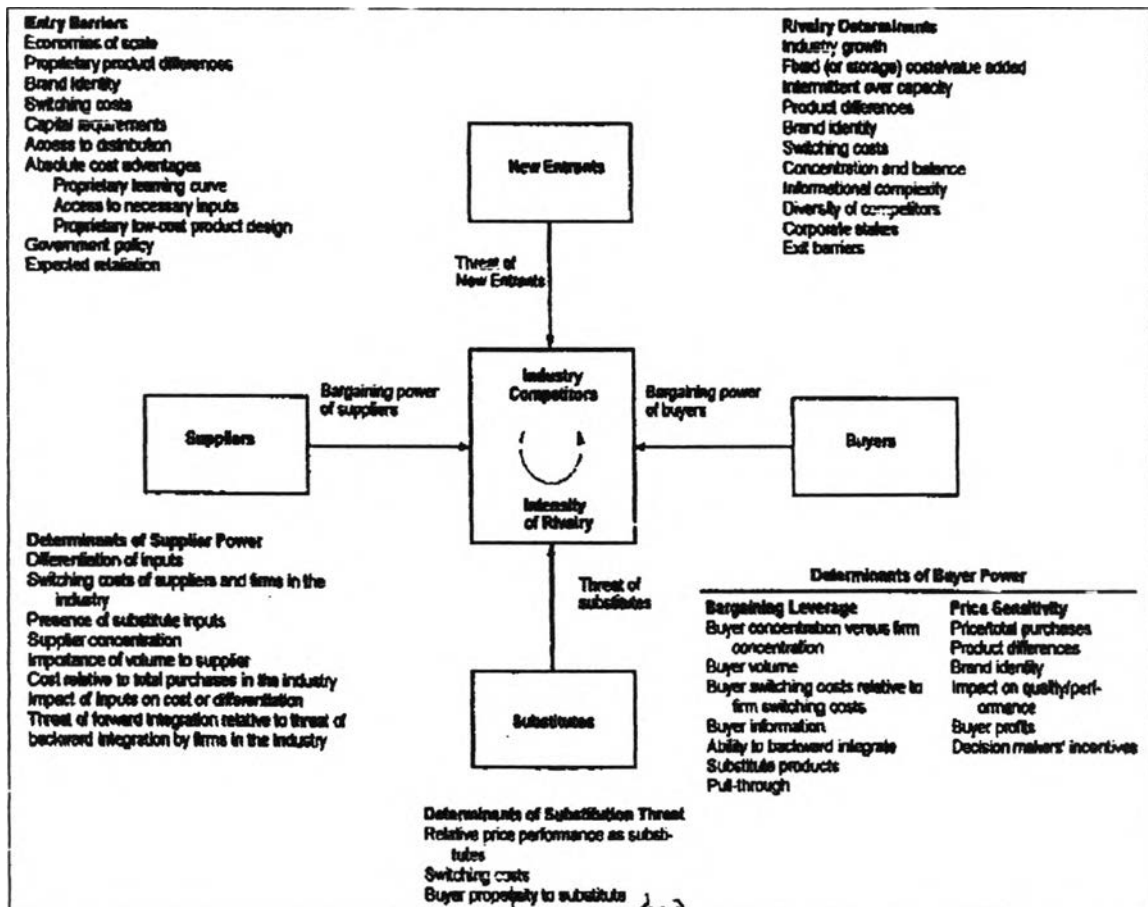


Figure 3-5: Porter's five forces analysis framework

Source: Anonymous. 2002, "Operation Strategy for Industry Modules Note" WMG and Chulalongkorn University., Coventry/Bangkok

3.3.4.1 Customer as a force

- Companies in the industry sell paint to many small retail shop owners.
- It is moderate costly for customers/buyers to switch from one source of supply to another as they have to clear out the current inventories which as an industrial product, total clear out is unlikely.
- Seventy percents of the products/services offered by companies in the industry are essentially interchangeable and indistinguishable. The product/service is nearly considered as a commodity.
- First tier customers/buyers generally purchase the product/service from multiple resources.

- As paint is approximately about only 1-3% of the total construction cost of a building therefore the cost of the product/service represents a relatively small percentage of the buyer's/customer's total cost.
- The retailers of the company's product/service have relatively good margins and are quite profitable, depending on which product.
- Customers are not likely to backward-integrate (i.e., acquire a company in the industry being analyzed).
- As the nature of the industry that needs to operate nation wide, companies in the industry are not likely to forward-integrate (i.e., acquiring one or more of their customers/buyers).
- The product/service of the industry is of moderate importance to the buyer/customer.

From the customer's force perspective it can be concluded that the buyers or the customers are a moderate force in the industry. Big powerful retailers have high bargaining power so tend to drive down company's profitability whereas weaker buyers are not as likely to be as price-sensitive. However as the globalization and free trade area (FTA) becomes widely agreed and practiced, the competition tends to rise and the situation may soon be change, i.e. weaker buyers having more bargaining power and choices of suppliers.

3.3.4.2 Competitor as a force

The nature of the paint industry in Thailand from the competitor's perspective is as followed.

- It is relatively easy for customers/buyers to switch from one source of supply to another source.
- The products/services offered by companies in the industry are essentially interchangeable and indistinguishable (decorative paint can be nearly recognize as commodity product i.e. buying which ever brand give the same value).

- In Thailand there are about five companies composing around eighty five percents of the total market share and therefore few large competitors that dominate the industry.
- Within the industry the companies are not of the same size, there are both large and small competitors in the industry.
- Production capacity can be added in small, inexpensive increments.
- As half of the top ten companies within the industry are own by the local therefore owns a similar culture and ways in how they do business.
- The product/service sold by the industry has low storage costs or is not perishable.
- Due to the factors mentioned in the previous section, the industry is experiencing relatively fast market growth.
- Top ten companies within the industry have high fixed costs and spend a lot of money on plant and equipment.
- Staying in the industry is of relatively strategic importance to companies in the industry because the rise in market share is very difficult and the barrier to exit is high (machine intensive and high investment cost in research and development and production plant cost is high).

From the analysis it can be concluded that the competition within the industry is moderately strong. The competitors can push down the industry's profitability by cutting prices or offering more product attributes for the same price. Price war is often the case when there is head to head rivalry.

3.3.4.3 Suppliers as a force

The nature and characteristic of the suppliers within the paint industry in Thailand are as followed.

- There are a few global sized concentrated chemical suppliers who provide most of the raw materials (which are nearly can be considered as commodity product) to the paint industry.

- It is very costly for companies in the industry to switch from one supplier to another as once raw material reflect not only in the total price of the formulation of the paint itself but also the some major properties and the quality of the product which must be tested both in the laboratory and the real environment which can be very time consuming.
- The companies within the industry are not likely to backward-integrate (i.e., acquiring one or more of their suppliers). This is mainly because the core competences of each different chemicals (raw material) is very different and difficult to control e.g. resins which is one of the very critical component in alkyd resin oil base paint otherwise known as long-oil often consisting more than 30% in average quality paint requires the technology of soybean oil making which is highly energy consuming process and high investment industry (high barrier of entry). Also because there are more than one hundreds component of raw material within one single paint formula therefore
- As the paint industry in Thailand required the connections and good relationship with the retail shops owner and strong sale force, suppliers are not likely to forward-integrate as they do not own a local expertise required.
- If raw-material costs get out of line, companies in the industry could not use a different raw material to produce the product/service.
- Companies in the industry being analyzed were only a minor source of revenues for the suppliers.
- The quality and costs of raw materials have a significant impact on the quality/price of the products/services produced by the industry.
- There were a few concentrated suppliers who provide most of the raw materials to the industry.
- The raw materials provided by suppliers were essentially interchangeable and indistinguishable. The raw materials were essentially commodities.

To sum up on the supplier's factor, they were obviously a relatively powerful force in the industry. Moreover, as China recent

expanded economy, most global raw material tends to move there focus to the mainland. Strong suppliers would normally push down the company's profitability as they can charge higher prices for the specialized product and service they offer. Weaker suppliers were not likely to bargain on the selling price or impose any demand on companies within the industry as they need both volume and fast to cash to cash cycle in order to stay competitive.

3.3.4.4 Substitute product as a force

- It is quite costly for customers/buyers to switch from one source of supply to another.
- The prices of the substitute products are usually more expensive.
- The quality, features and benefits of substitute products are not generally lower. It is costly for customers/buyers to switch from one source of supply to another.

From the above points it can be conclude that the substitute product are a moderate force in the industry. They act as selling price barrier. The price and cost must be within certain range so that

3.3.4.5 New Entrants as a force

- If within the same price range, paint was essentially interchangeable and indistinguishable. The product/service was a commodity.
- The economies of scale play a significant role in the cost of produce paint. The higher the production volume the more the bargaining power for lower price raw material. This implies that the barrier to entry is quite high.
- Companies in the industry have relatively low fixed costs and spend relatively little on plant and equipment. Big investment comes during expansion or building the new production plant.

- Governmental regulations have little or no impact on whether new companies entering the industry.
- Competitors in the industry will defend their market position by aggressively cutting price.
- New entrants would have a hard time gaining access to the industry's distribution channels.
- Patents, proprietary knowledge, and brand reputation will make it difficult for new companies to successfully enter the industry.

The new entrants were potential competitors depending on the entrance segment, but the segmentation can expand and hit the company either directly or indirectly. The new entrants were moderate force in Thailand's paint industry.

From the five forces analysis done, the following were the strategies and tactics done by the team of ABC Paint Co., Ltd through brainstorming and numerous hours of meetings.

- The company must try to find new ways to differentiate the product or service that has value added to the customer. Although the product was nearly a commodity, there are many ways to differentiate it in terms of the services that surround it. Differentiation can occur from the very first time customers becomes aware of the product to the time when the replacement or disposing is needed.
- The company must try to offer additional services or support to customers in exchange for a larger share of their total purchases. The company must try to develop services that make it easier for them to work with the company as a single source supplier so that the customers don't have to look elsewhere for the product. The company should consider creating a new distribution channel, by opening the company's outlets, franchises or forward integration (buying one of the outlets). Figure out ways to disintermediate those in the distribution channel. Find ways to get closer to the end user.
- Always use multiple suppliers for the key raw materials. This may make the short term costs goes up but it will keep the company free

from being locked to one supplier and increase bargaining power to the certain extend.

- The production and the procurement team must be on the constant lookout for alternative raw materials to be use instead of the current raw materials. The research and the development team must be on constant alert to find the substitute raw material that has similar characteristic but more of a commodity so that reduces the bargaining power of the supplier. Also that the company must try to acquire one or more key suppliers if they are adding more value to the end product than the company was doing. Move down the value chain for more profits. Turn a cost center into a profit center.
- To reduce the force of the substitute product, when setting the price of the product the marketing team should consider the prices of substitute products. It was reasonable for charging higher price only when the performance of the product was superior to of the substitute. However the competitor's pricing strategy must also be considered.
- Try to work with regulatory bodies to establish industry policies and procedures. This would make it hard for new entrants to be "certified" for example, raising the standard of TISI. The more stringent the requirements, the lower the possibility of new companies entering the industry; the cost will be too high, or the barrier to entry will be high. This is one time that industry regulations are good to the business.
- In order to brush off the new entrants or potential competitors, the management must make sure the company is growing faster than the industry. This is to make new entrants fight for every customer. The company shall not become complacent and assume that there's enough business for everyone.

3.3.5 Predicted Market Situation

The trend of the local paint market has been influenced by trends from the leading architect or interior designer of the European and North America continents. Normally the factors that will determine the trend in the local market can be summarized as the following points.

- Global housing design and fashion trends e.g. texture color,
- Crude oil prices as they have direct effect on the raw material used in paint production.
- Cost of selection and implementation (how difficult to choose from the varieties, and the labor cost for painting)

The current trend in the continents mentioned is the “Do It Yourself” which also known as DIY. In the past DIY was not very popular with the Thais for several reasons. Firstly, the cost of labor in Thailand was still lower than those of the mentioned continents, therefore consumers still prefer to hire a painter rather than painting by themselves, it saves time and trouble of studying the detail, moreover a more professional finish. Secondly the level of understanding in the paint properties (type of paint) as well as color selection was relatively low at the time of this research being done. It was often that the company’s call center gets phone calls for paint application problems. These were basic questions and showed that most end-users still have little understanding of paint. As for color selection was still much based on the point in time trends and fashions which normally would be selected by the architects or interior designers.

However the trend was shifting towards DIY. This was mainly because, skill labor has become as more expensive in the urban and metropolitan regions as well as the house owners are more aware of the paint applications and feels the need to build a good house. Home owners are now more involved in colors selection to express their character and personality but leave the paint type selection and painting to the painters and architects. In summary, although the trend of DIY is now more prominent, the product influencer such as the painters and architects still play an important role in decision making. As a result of this and the rising trend of the property market mentioned, paint companies tend to communicate more with the end-users with evidences in the rose in advertisement campaign budgets and spending.

3.3.6 Conclusion

From the analyses made, the following points can be summarized.

- The company was lacking behind the industry in terms of delivery standard, service standard.
- The competition will get tenses as there was a rise in the shadow industry (property market).
- Supplier was strong force within the industry.
- Customer will eventually have more bargaining power as there are tend to be a rise in number of competition within the industry i.e. more choices for the buyers.
- There were rise of customer complaints especially during the peak sale period, regarding the company's services especially delivery and order tracking.
- There are lost of sale due to the company BPs's bottlenecks and incapability to satisfy orders.
- The trend of shift to DIY made the company must act on to capture market opportunities.

According to the matrix suggested by Igor Ansoff, the company's management had decided to act on new product and service development to keep pace with the industry and capture lost sale or even add on competitive advantage. It is highlighted in the top right quadrant of the matrix. One of the competitive advantage is believed to be in the IS strategy, of implementing the ERP system to solve the mentioned problem in the current BPs.

	Existing Products	New Products
Existing Market	Marketing Penetration	Product Development
New Markets	Marketing Development	Diversification

Figure 3-6: Ansoff Matrix

Source: 2003, www.quickmba.com

3.4 Current System Analysis

The main objective of this phase of SDLC was to construct a logical model of the new system. The main application of the strategy here is the implementation team must create and find the requirements model. The method was to study the current business processes and document. The requirement model was a model stating what the new system must be able to do whereas the end-product of this phase was the system requirement document.

3.4.1 Background of the Business Processes (BPs)

In order to come up with the model the current and the background of the current BPs must first be analyzed. This section introduced the overall work process of sale within the company daily. The brief current work route when an order comes in is shown in figure 3-7.

Through observing figures 1-2 in chapter 1 and 3-1 shown above, when an order comes in via telephone it first reached the customer service agent who will take down the list of orders then manually pass it on to the credit control department where the customer's credit will be checked. After the approval/disapproval of the order whereas in the later case will be reported back to customer service agent, who will then inform the sale representative.

When passed the sale order paper works are forwarded to the accounting department for the inventory checking (because the inventory database was situated in the accounting department and could not be situated elsewhere because of authorization reasons), if there was a shortage of the ordered good, the customer service agent would then be informed by hand, who would then again contact with the factory to check for the next availability date of the product, then inform the sale representative who would then call up to inform the customer.

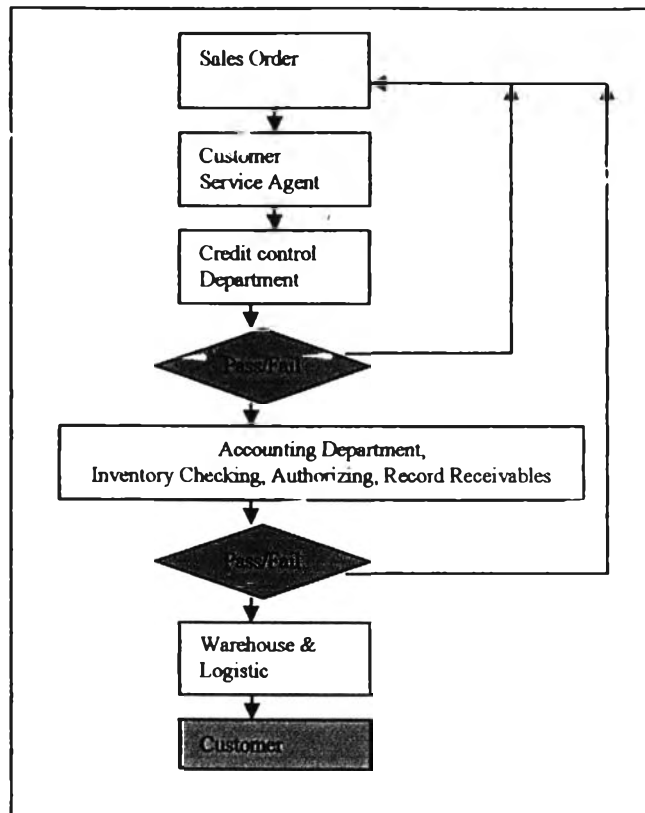


Figure 3-7: Brief Current work process

In contrast if credit is passed the sale order paper work was manually passed onto the account receivable (AR) department for receivables recording, then accounting department where the accountant seeks authority signature from the sales manager, then order would be entered into computer system for stock reduction and invoice issuing.

Up to this stage the invoice was transmitted through Public Service Telephony Network (PSTN) and then being printed out at the warehouse. The invoice which have five copies have three main functions, one the warehouse manager would utilize a copy of the invoice as picking list for the warehouse officers to get the necessary product then prepare for dispatching, another copy was for the logistic officer to arrange the necessary transportation routing and shipment to the customer, while the last one was packed into an envelope for the customer to signed and kept as an evidence of good reception, another copy was returned to the warehouse where the logistic manager recorded down a form which would be passed on to the customer service agent that the order had been delivered. The signed copy of the invoice would be send back

to the AR department where it was later distributed it to sales representative who then would go and collect the cheque or money for the good sold according to the due date of the receivables.

3.4.2 Current BPs and Problems related

In this section more in-depth analyses of the current BPs was introduced. The modules and BPs involved were order management (sales order, order picking, shipping), procurement/purchasing (manage suppliers) and the inventory management of the warehouse work flows and business processes.

ABC Paint Co., Ltd
WF-SO-01 Flow in taking in Sales Order (SO)/Purchase Order (PO)

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Sale Agent	1-1		Sales agent receives sales/purchase order from the customer or sale representative, recording the order in Purchase Order (PO) form	Ratana Wasana		- Company's SO/PO form
Sale Agent	1-2		Officer ask whether is it 'Deposit Buying' Yes go to B No go to step 1-3	Ratana		
Sale Agent	1-3		Officer record down customer's SO/PO into the database system	Ratana Wasana	- Company's SO/PO form	
AR Credit officer	1-4		AR Credit officer check for the customer credit and whether there are any disapprove cheque - Yes go to A - If its within the given credit go to step 1-5	Benjapom		
AR officer	1-5		Officer records invoice into the database system for VAT purpose	Nantana		
	1-6		Officer print out the invoice or to the warehouse and print out another copy as a record at the office for future price investigation			-Invoice

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Figure 3-8: Current Flow in taking in Sales Order (SO)/Purchase Order (PO) (1)

ABC Co., Ltd
WF-SO-01 Flow in taking in Sales Order (SO)/Purchase Order (PO)

POSITION	REF	PROCESS	DESCRIPTION	user	FORM/REPORT	
					INPUT	OUTPUT
AR Credit Officer	2-1		Process for more credit	Benjaporn		
Sales Manager	2-2		Consider whether to expand the credit limit or not - If yes go to step 1-5 (Steps in issuing invoice) - Disapprove go to step 2-3 in informing the sale	Wanchai		
Sale Agent	2-3		Informing the account or the area sale person in order to inform the customer for reasons in not approving the SO/PO and to take further actions e.g. ask the customer to clear out some of the money having credited with the company			

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Figure 3-9: Current Flow in taking in Sales Order (SO)/Purchase Order (PO) (2)

ABC Co., Ltd

WF-SO-01 Flow in taking in Sales Order (SO)/Purchase Order (PO)

POSITION	REF	PROCESS	DESCRIPTION	user	FORM/REPORT	
					INPUT	OUTPUT
AR officers	3-1		Officer	Benjaporn Hunsa		
	3-2		Checking of Deposits	Pompen		
	3-3		Record the Deposit Buying Form into the database and hard copy card system	Benjaporn Hunsa	Deposit Buying Form	
	3-4		Commit contractual agreement - Yes go to step 3-6 up country customer - No go to step 3-5 Bangkok area customer	Pompen		
	3-5		Keep the record for future investigation			
Accounting Personnel	3-6		Issue Contract of Deposit Buying Form	Pompen		Contract of Deposit Buying Form

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Figure 3-10: Current Flow in taking in Sales Order (SO)/Purchase Order (PO) (3)

ABC Co., Ltd

WF-SO-02 Steps in preparing and delivering finish goods

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Warehouse Administrator	1-1		Logistic administration officers print out the invoices taking out the purple colored copy to be returned to the office after the order had been successfully delivered (signed by the customer)	Jiraporn Tanyarat		Invoice printed from the office
	1-2		Logistic administration officers sorts out the type of delivery service needed			
Warehouse Manager/ Supervisor	1-3		Delivering the product to customer via an outsourced logistic? - Yes, prepare the deliver envelope which contains the invoices and destination detail - No, proceed to step 1-4	Jiraporn		
	1-4		Logistic officer sort out the route e.g north, south, east or west of bangkok	Narong		
Driver Logistic officers	1-5		Warehouse officer come to sorted route invoice and take the invoice for product picking	Logistic (Blue Team)		

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Figure 3-11: Current Flow in preparing and delivering finish goods (1)

WF-SO-02 Steps in preparing and delivering finish goods

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Logistic Officer	2-1		The officer check whether there is finish good within the warehouse according to the invoice or not - Incomplete (not enough finish product) WF-SO-01 - Complete (enough finish good) proceeds to 2-2	Logistic (Blue Team)		
Logistic Officer	2-2		Officer sort order according to which customer to reach first and last (within the given routing)	Logistic Officers		
Warehouse Officer	2-3		Officer record down each vehicle delivery route into the Delivery Form	Jirapom		
	2-4		Officer print out the Delivery Form and fax to the office (sale coordinator)			Print out Delivery Form
Logistic Officer	2-5		Officers arrange product on to delivery vehicle	Logistic Officers		
Logistic and Warehouse Officer	2-6		Office check the invoice, loaded product, and paste sticker tag on to the product*	Jirapom Tanyarat Siri Anuwat		

* Sticker tag are for products being delivered by outsourced vehicles only whereby the sticker contain the address of the receivers and the company's address to protect against lost during transportation.

Figure 3-12: Current Flow in preparing and delivering finish goods (2)

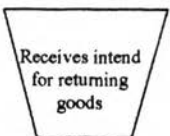
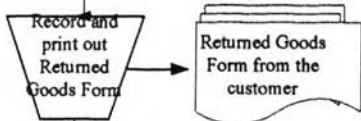
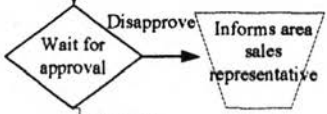
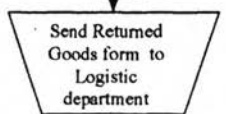

WF-SO-02 Steps in preparing and delivering finish goods

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Warehouse Supervisor	3-1		Officer signed the delivery order while keeping the original form	Narong		
Logistic Officer	3-2		Officer deliver the ordered product	Group		
	3-3		Is the outsource logistic supplier needed? - Yes, take back the invoice form the outsource supplier (to be paid for the service) - No, go to step 3-4			
	3-4		Officer take back signed invoice from the customer			
Warehouse Administrator	3-5		Officer receive the original Invoice Record (IR) from sale coordiantor (printed out from the database system)	Tanyarat		
	3-6		Officer record down the Invoice Record by entering the actual date that the product being delivered to the customer			
	3-7		Officer send back the original IR back to the office after all the product had been delivered to the customer			

version 1.07/
47

Figure 3-13: Current Flow in preparing and delivering finish goods (3)

WF-SO-03 Receiving Return Goods

POSITION	REF	PROCESS	DESCRIPTION	user	FORM/REPORT	
					INPUT	OUTPUT
Area Sales Representative	1-1		Warehouse personnel receive intention for returning from sales representative	Warehouse personnel		
Warehouse Officer	1-2		Records and print out the Returned Goods Form	Prapa		Returned Goods Form from the customer
MD, Sale Manager	1-3		Ask for permission for return from MD - Dissapprove - inform the area sales personnel - approve go to 1-4	Arjnarong		
	1-4					
Logistic Supervisor/ Manager	1-5		Officer arrange vehicle to take back the return goods	Narong		

version 1/07/ 47

Figure 3-14: Current Flow In receiving Return Goods (1)

WF-SO-03 Receiving Return Goods

POSITION	REF	PROCESS	DESCRIPTION	user	FORM/REPORT	
					INPUT	OUTPUT
Driver/ Warehouse officers	2-1		Warehouse officer receive returned goods from the customer, recording every detail of each SKU, size , amount, batch no, then give one copy of the Returned Goods Form to the customer	Group		
Warehouse manger/ supervisor	2-2		Must returned goods be re-process? - Yes, send the returned goods to the production department - No, resale, re-pack, re-ject, send the returned goods to the warehouse and keep a copy of Returned Goods Form	Narong		
Warehouse administrator	2-3		Officers send back the original Returned Goods Form to the accounting department at the office	Thanyarat		
Accounting Officer	2-4		Accountant issues C/N, one copy forwarded to invoice issuing officer for print out to customer, the original and another copy as for record to be keep in files	Prapa		Credit Note (C/N)

version 1:07:

47

Figure 3-15: Current Flow in receiving Return Goods (2)

WF-SO-04 Steps in exchanging from one bought product to another product

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Area Sales Person	1-1		Sale receive intention for changing of product	Sales Representative, Customer Service Agent		
Warehouse Officer	1-2		Officer record and print out Product Change Form (PCF)	Nantana		Product Change Form from customer
MD, Sales Director	1-3		Ask permission from the sale director - Disapprove, inform the area sales person - Approve, go to step 1-4	Arjnarong, Wancai		
	1-4					
Warehouse Personnel, Logistic Team	1-5		Officer arrange finish product according to the Product change form	Group		

version 1/07/47

Figure 3-16: Current Flow in exchanging good (1)

WF-SO-04 Steps in exchanging from one bought product to another product

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Warehouse personnel, Supervisor, Manager	2-1	Sort out routing	Officer sort out routing	Narong		
Logistic Officers	2-2	Send new product, take back the exchange product	Officer send the new product, requesting the customer to sign the PCF, take back the exchanged product according to the PCF and issue a copy of the PCF to be given to the customer	Group		
Warehouse Supervisor Manager	2-3	Needs re-process	Must returned goods be re-process? - Yes, send the returned goods to the production department - No, resale, re-pack, re-ject, send the returned goods to the warehouse and keep a copy of Product Change Form	Narong		
Warehouse Administrator	2-4	Send Back original PCF	Officers send back the original Product Change Form to the accounting department at the office	Tanyarat	Original Product Change Form	
Warehouse Administrator	2-5	Record in the system and print out	Officer record into the system (keying in the new balance), changing according to the Product Change Form	Nantana		

version 1/07/47

Figure 3-17: Current Flow in exchanging good (2)

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Sale Coordinator	1-1		Receives Production Delivery Form via facsimile and the Production Summary Form from the production department	Rawinthawiph	- Production Delivery Form - Production Summary Form	
	1-2		Record receives from the production department according to Production Summary Form into the database and information system and print out Production Receipt			- Production Receipt
	1-3		Keep a the form as a record as a hard file for future investigation			

version 1:07/
47

Figure 3-18: Current Flow in taking in finish product form production department

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Procurement Officer	1-1		Procurement officer recalculate the RMTL balance every ten days by (Quantity in record book (through receipt) - RMTL Quantity on hand - Used Quantity)	Kertsara		
	1-2		Officer send in the total quantity/amount of the raw material (RMTL) use to accountant every ten days - Quantity Used Form - Balance Form			
Accounting Personnel	1-3		Record Used RMTL quantity (every ten days) using Microsoft Excel	Kanjanaporn Parthita		
	1-4		Balance (quantity check) Incorrect do 1-1 Correct proceed to 1-5			
	1-5		Record Used RMTL used and print out as hard file for future investigation			
	1-6		Keep as hard file for future record			

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Figure 3-19: Current Flow in taking our raw materials for production (chemicals)

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Procurement Officer	1-1	Record Raw Material request	Officer records request into request booklet	Kertsara		
	1-2	Record Raw Material Request Form → Raw Material Request Form	Officer re calculate the amount of packaging stock			
	1-3	Sum up the request to be pass on to accounting officer	Sum up all the packaging raw material to the accounting officer			
Accounting Officer	1-4	Record and print out → Request Form	Record and print out all the requests for future investigation	Kanchananom		
	1-5	Keep as hard file for future reference	Keep as hard file for future investigation			

version 1:07/
47

Figure 3-20: Current Flow in taking our raw materials for production (packaging)

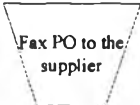
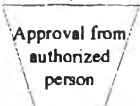
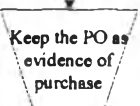
WF-PO-01 Steps in ordering Raw Material (RMTL) and accessory which to be use in the factory

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Procurement Officer	1-1		Procurement officer check whether there is a PO from various department - Have, proceed to step 1-2 - Don't have, do not order	Kertsara		
Procurement Officers	1-2		Officer check for the PO approval - Approve, proceed to step 1-3 - Disapprove, send back the PO to the requested department			
Procurement Officers	1-3		Officer record down the PO into the system sorting according to supplier			
Procurement Officers	1-4		Print out purchase order		Purchase Order (PO)	
Procurement Officers	1-5		Send PO out to the authorized person for order authorization			

Version 1.077
47

Figure 3-21: Current Work Flow of Outgoing PO (1)

WF-PO-01 Steps in ordering Raw Material (RMTL) and accessory which to be use in the factory

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Asst to MD	2-1		Approval from authorized person	Arjnarong		
Procurement Officers	2-2		Officer fax out PO to the various approved list of suppliers	Kertsara		
Procurement Officers	2-3		Keep the factory's purchase order (PO) for future investigation and wait for billing of suppliers invoice	Kertsara		

version 1/07/
47

Figure 3-22: Current Work Flow of Outgoing PO (2)

WF-PO- 02 Steps in receiving ordered goods into the database (factory)

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Supplier	1-1	Supplier send in the ordered goods	Supplier send in the ordered goods according to the office's Purchase Order			
Procurement Officers	1-2	Receives ordered products and documents	Procurement officer receives the ordered goods, suppliers invoice, delivery form and Certificate Of Approval (C.O.A)	Kertsara		
	1-3	Compare sent product	Officer check the send product according to the factory's Purchase Order with the delivery order			
	1-4	Product Delivered	Officer check for the correctness of the product received - Incorrect, proceed to step 2-3 - Correct, proceed to step 1-5			
	1-5	Records	Officer records accepted delivered product into daily summary of receives			

version 1/07/7
47

Figure 3-23: Current Work Flow in receiving ordered goods (1)

WF-PO- 02 Steps in receiving ordered goods into the database (factory)

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
Procurement Officers	2-1		Procurement officer send in original supplier's invoice and daily Summary of Receipt form to the accountant for recording as account payable	Kertana		
	2-2		Keep document (a copy of the supplier's invoice) as a record for issuing cheque for payment			
Procurement Officers	2-3		Officer rejects that lot of product	Kertana		
	2-4		Officer informing supplier to resend the product according to the factory's Purchase Order			
	2-5		Wait for receiving the resend correct product			

Figure 3-24: Current Work Flow in receiving ordered goods (2)

WF-PO- 02 Steps in receiving ordered goods into the database (factory)

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
IQC officer	3-1		<p>IQC officer receives Certificate Of Approval (C.O.A) as a standard for quality checking of the RMTL.</p>	Anusom		
	3-2		<p>Check and categorized the received product into the following category</p> <ul style="list-style-type: none"> - solvent - additive - binder - extender - pigment 			
	3-3		<p>Measures (taking sample) various property of the received product according to the factory specification</p> <ul style="list-style-type: none"> - solvent measures Specific Gravity (S.G) - additive measures S.G , Viscoustiy (VIS) - binder measures S.G , VIS , % of solid - extender measures S.G , VIS , Oil Absorption - pigment measures S.G , Oil Absorption 			
	3-4		<p>IQC officer record down the measurement result into the RMTL IQC Form</p>			Measurement Record Form

version 1/07/ 47

Figure 3-25: Current Work Flow in receiving ordered goods (3)

POSITION	REF	PROCESS	DESCRIPTION	USER	FORM/REPORT	
					INPUT	OUTPUT
IQC officer	4-1	<pre> graph TD A{Measurement Result} -- Fail --> B((2-3)) A -- Pass --> C[/Retain Sample of the lot received/] </pre>	Compare the measurement with the specification - Fail, proceed to step 2-3 - Pass proceed to step 4-2	Anusorn		
	4-2		IQC officer retain a sample of the RMTL approved for future investigation			

version 1.0/1
47

Figure 3-26: Current Work Flow in receiving ordered goods (4)

From observing figure 1-2 presented in chapter 1, it could be observed that the company's information system network structure showed that the database (both inventory and accounting) was situated in the Bangkok office situated 55 km from the production plant. Therefore any activities which required recording into the information database, documents were needed to be transfer from one department to another either through physical processes, e.g. delivering report hand to hand as paper base and manually input e.g. keying and inputting the daily production delivery information into the database.

On the sale side, from a recent survey when ask why the sale target was not achieved, the common complains (symptoms) that the management received from the area sales representative and area sales manager was that the back office (sale coordination, accounting, production and logistic department) were working too slowly and cannot react to the fluctuate demand, the following are a few examples.

- The delivery of the product was too slow, averaging 2-3 operating days within the Bangkok and metropolitan area and 3-5 operating days when delivering to outer skirt and other provinces. This was below industry standard. Top companies were able to deliver the product (if available in stock) within 1 operating day for Bangkok and metropolitan area and averaging 3 days for provincial area. The main problem lies with the Bangkok and metropolitan area where the customer did not have free space to stock up inventory (where land is more expensive than those in provincial area), this implied that the slower delivery of product equals slower inventory turnover within the customer warehouse which resulted in lower sale.
- The inventory on hand information within the company was not accurate, often when order came in the sale coordinator inform the area sales representative or the customer that there were requested product in stock but when the invoice was printed out to the warehouse and logistic department for picking and delivery, it was often found out that the product was not available or available but not at the ordered quantity enough to satisfy the order. The PO must then be canceled manually. It would then pass back to the main office. This results in

delay of delivery causing customer dissatisfaction and the information on the inventory database to be inaccurate.

- The more sellable or requested product e.g. certain shade of colors were often out of stock and cannot satisfy demand.

As a counter to those complaints, other departments filed in the following complaints.

- The production department complained that the sale forecast was often inaccurate and that was a reason why they fail to stock or produce the required product/shade of color.
- The production department also complained that they do not have the accurate information on the amount of raw material left on hand. The procurement takes too much time to deliver the raw material on hand stock report. Physical counts were the solution being applied at the moment before the ERP system was going to be implemented. However the processes were time consuming and due to human errors often yield inaccurate results, therefore the production departments often end up producing what they have available for production not what the customer required.
- Similarly the procurement or the purchasing department failed to stock up the required raw material for production.
- Sales coordinator complained that the inventory database were never accurate, and the accounting department took too long to approve credit and therefore delays in sending the purchase order to the warehouse and the logistic department to deliver the required product.
- The warehouse and logistic department complained that the purchase order took long time to be delivered. This resulted in wrong capacity planning of the delivery truck.

Repeating parts of the symptoms from chapter 1, the following were the problems from other department within the company.

- As a result of inaccurate inventory database sales representative keep changing orders because they did not know the product availability, the accounting department and the sale coordinators complained that, through changing the order it increase unnecessary work load on the accounting and financial and accounting department (General Ledger (GL), Account Receivables (AR). Account Payable (AP)).
- Losing orders which should be converted into sale (especially repeated orders);
- Customers were unhappy, many of complained at late delivery and led to cancellation of the order.

Through analyzing all the business processes and the complaints the problem can be sum up that the delay, multiple entries of data and information making the inventory database inaccurate, the real time data and information shown in the computer at one single point in time in different department was different information. This cause misinterpretation of information and lost of sales. As mentioned the out dated IS and fix form BPs were the real cause and the root of the problem.

The research utilized the Ishikawa or the fishbone diagram to sum up sources of the problem where the lost of sale is regarded as the main symptom located at the furthest right of the figure.

According to the company's PABX system statistic, there was an average of 300 purchase orders daily. Each order had a value ranging from a thousand to millions of baht, averaging at 8,000 baht per order per call. The value of lost order through failure to deliver was estimated by the consulting team to be around 40 orders per day which was around 96 millions baht or 13.33% per year.

The problems mentioned and its roots can be summarized and mapped down in the Ishikawa or the fish bone diagram shown in the figure 3-27.

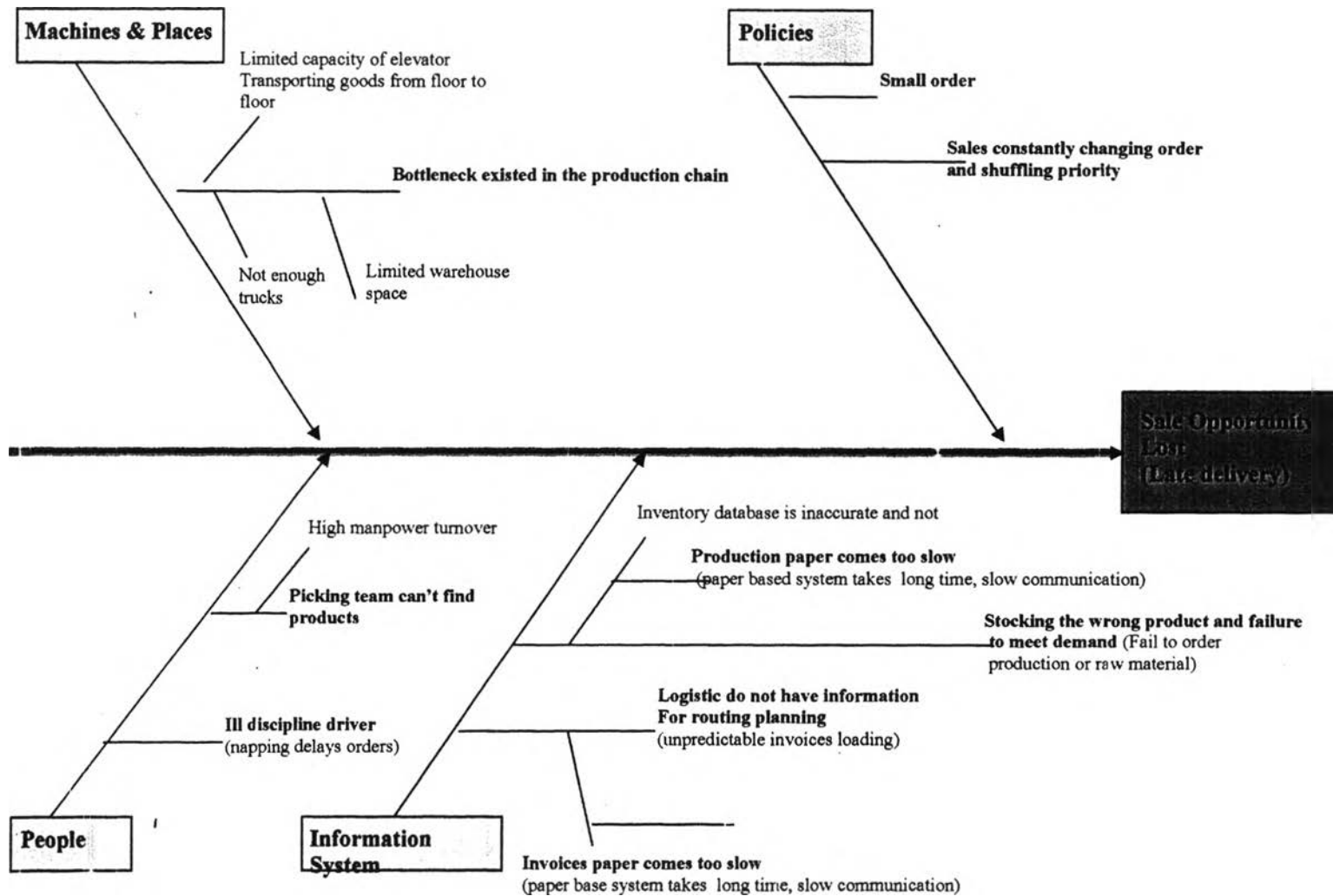


Figure 3-27: Summary of the problems related