CHAPTER 6

FORMULATING STRATEGIES BASED ON SURVEY RESULTS

The flexible and creative survey efforts lead us to understand customers' root needs. Both current unmet needs and future market opportunities can be found from the integration of vast array of market knowledge and market survey's results. Therefore, the final benefit of the survey is the strategies that are formulated according to the survey results. Such benefit is divided into two stages. At first stage during the economy recession, due to the difficulty in adding more investment, the first group of strategies involve a development of marketing mix that serves the customers' behavior and needs, and an improvement of customer satisfaction based on customers' suggestion. This stage is called ***a survival stage***. Second, after an appearance of the economy recovery, it is recommended to transform a market opportunity derived from the survey into the strategy for ***a market-driven stage***. The recommended strategies of both stages are described below.

6.1 The Strategies in Survival Stage

6.1.1 The marketing mix based on customer behavior and needs

A marketing mix should be developed in a consistent direction of mission, objectives, business strategy, and functional strategy respectively.

- Establishing Mission Statement

Before developing a marketing mix, the management views about what activities TT&T intends to pursue, namely mission, must be stated. A mission statement sets on organization apart from other in its industry. For TT&T, the mission statement is that "TT&T operates most advanced and reliable telecommunications networks to connect

citizens in all provincial Thailand and to the greater Bangkok and excellence in quality service, and value added information technology for seamless telecommunications development in the Kingdom". TT&T's mission statement may has little in common with TA and TOT mission, even though all firms mentioned are in the telephony industry.

- *Setting Objectives*

Setting objectives is the conversion the mission into target outcomes and performance milestones with a deadline for achievement. Objective can be stated in terms of financial performance and strategic performance. However, under the circumstances of TT&T's high investment and unpredictable telephony needs, the financial objective, that involves revenue growth, higher dividends, rising stock price, bigger cash flows or else, is not developed.

Like other companies, TT&T needs both long-term and short-term objective. Long-term objectives of three years ahead push the employees to take action now in order to achieve targeted long-term performance later. Long-term objectives of TT&T emphasize on

1. quality of service
2. enhancing revenue from value-added services development
3. service-minded, team-working, and effective operations
4. developing an organization's image
5. human resource improvement for efficient working
6. cost reduction by modifying current procedures

Short-term objective indicates the specific level of performance to be achieved. The current unsatisfied performance and external critical environment could be the key factors that lead to the next short-term objective development of an organization. For TT&T, since the financial situation of an organization has not represented the satisfied

signal throughout the year and the external economy circumstance has not shown the bottom crisis yet, the financial issues become to be the main short-term objective of the year 1999. In addition, the financial crisis directly leads to the further limitation of additional investment in the next year. Hence, the big investment will not be approved from the management. Combining to the high level of customer complaints and negative image, the second short-term objective relates to the elimination of complaints and the good image development without investment.

The short-term objectives of TT&T in the year 1999 are

1. To bring the company to survive and pass the financial crisis and to prepare an organization for supporting the competition after liberalization

2. To emphasize the quality of services and operations by developing competitive customer satisfaction

- Establishing Strategy

TT&T needs some specific strategies to guide how to achieve the objectives and how to pursue the mission. As a single-business company, there are three distinct levels of strategy.

Business strategy refers to moves and approaches to complete successfully and to develop a competitive advantage. Changing external conditions such as market forces, economic trends, customer needs, and new legislation can influence the forming of business strategy. Business strategy of TT&T for the year 1999 is "to standardize the operations continually".

Functional strategy refers to the activities for a particular department. TT&T needs a functional strategy for every major function unit, including marketing, finance, accounting, human resources, network operations, customer service, administration, and

billing & collections. Functional strategies will support the TT&T's mission, objectives, and business strategy. Combining with the results of market survey, some marketing strategy will be determined later in terms of price, product, place, and promotion issues.

Operating strategy concerns the narrower approaches for handling daily operating tasks. It add further detail and completeness to functional strategies. Since the market research's questionnaire was not developed for supporting an operating strategy establishment, TT&T's operating strategy will not be mentioned in this analysis.

To accelerate the sales and revenue per line of basic fixed-line telephone, the marketing strategy will be guided by the proper marketing mix based on the result from TT&T's market survey. The marketing mix includes four "P", namely Product, Price, Place, and Promotion.

Product is a good and service that is being offered for sale. More than that, a quality of such a good and service is included. From the survey result of Figure 4.30-4.37 and Figure 5.36-5.44, there are some shortages of customer satisfaction in the quality of TT&T product and service. Thus, the strategy should focus on improving those unsatisfied product and service quality to achieve the higher customer satisfaction. The detail of the improvement strategy will be described in the next subject.

By targeting the market precisely, TT&T should focus on the business type and province that shows high revenue per line (RPL) and high number of fixed line being used. According to figure 4.1 and 4.2, emphasizing on selling TT&T's line to the business of wholesales, hotel, and hospital particularly in Chiangmai may expand TT&T's customer base. Likewise, concentrating on the business of trading with branches, factory, insurance, transportation, and construction especially in Songkhla is believed to accelerate TT&T revenue.

Price is the amount that customer must pay for the installation of new telephone line, the monthly tariff, and the tariff. It is found from Figure 3.12-3.17 and Figure 5.17-5.21 the survey that both an application of new line and a volume of telephone usage are totally influenced by the economy, either business or residential customers. Also, tariff reduction of basic fixed-line telephone is not rewarded by the higher usage, as we believe previously. Increasing the monthly fee can be done without a strong objection from the customers only if there is an enormous improvement of TT&T service, tariff reduction, or a signal of economy recovery. However, an exceptional deposit of 3,000 baht is interested from the residential customer, so it should be included in the strategy of obtaining more sales volume. For a charging concept of telephone usage, it is found that both business and residential customers are interested in the concept of charging by the times of use for long distance-call. For example, a call generated from Chiang Mai to Bangkok can be charged 60 baht per one call, whether it is held for long time or short time. Thus, after liberalization, this finding can be developed as a pricing strategy.

Place refers to the availability of the product or service to the customer at the time and location where it is desired. For TT&T, place means how easy the customers can apply and acquire for a new basic telephone line. From the survey, problems, difficulty, and complaints are found mainly from residential customers who have to go to TT&T's sales office themselves. The demands of telephone line in certain area have not been served due to the mistake of network planning. The number of TT&T office that is the only place selling the TT&T line can be said to be very few. Combining with its inconvenient location, the place strategy to eliminate such difficulties and problems should be stated as serving residential customers in the same way as business customers, expanding the network into the areas that have high demands, and increasing the mobile sales office and representatives to access the remote area and the public area periodically. Other strategies are described later in the subject of office image improvement.

Promotion includes all the marketing activities that are designed to inform and encourage the potential customers to apply for a TT&T's new telephone line. Also, it includes the way to accelerate the telephone usage of the existing customers. There are many findings derived from the survey result. First, according to Figure 4.9 and 5.30, Prepaid promotion causes the customers, who can pay in advance, to use more than the amount that they have paid. This promotion should target more in the residential customers, particularly in Nakhon Ratchasima, because the company's accounting system, which is the popular problem, is not involved. However, to promote prepaid card in business should be done as a pilot project in the businesses of hotel, hospital, and construction, especially at Chiang Mai province. Further, about the promotion of telecommunication equipment shown in Figure 4.10 and Figure 5.31, it is obviously that TT&T should launch campaign relating to a computer in both business and residential target. Refer to Figure 4.4 and 5.9-5.10, SPC service and bank direct debit should be promoted precisely on the residential customers, particularly in Southern and North-eastern areas that the customers has a lower percentage of SPC usage and bank direct debit attention. Some behavior of residential customers that found from the remaining figures should be considered before developing a campaign such as Phonelink "152" is the most popular brand of pager, Thairat, Daily news, Kaow Sod are the most three popular newspaper, and so on.

6.1.2 Satisfaction improvement through a customer orientation

Success in the marketplace of fixed-line telephone business depends on TT&T's ability to attract, satisfy and retain our customers that generate revenue and growth of market share. Lacking of ability to retain current customers could be explained by a constant of high cancellation as being through the year 1998.

Customer satisfaction is the primary determinant of retaining the customers and then leads to a customer royalty. Long-term relationships can be grounded in the

delivery of satisfactory service and valued by TT&T. Cost of public relation will fall because TT&T spends less fund and energy attempting to present good image. Continued success rests on adapting the service to their evolving needs. Understanding which product/service or product/service attributes that customers currently desire is insufficient. TT&T must also anticipate in advance what customer preferences is. Therefore, some parts of market survey were designed to understand customers' current and future needs in the service providing of fixed-line telephone. The information from the Figure 4.30-4.39 and Figure 5.36-5.44 will be used in order to take market action.

Process of Customer Orientation

There are three conceptually distinct goals that provide a foundation for developing a customer orientation. (Frederick, 1994)

1. Attaining customer information

At first, TT&T must attain customer information to understand customers' root needs and values, how they are served by current products and services, and how they will likely be served by future products and services. This process should include both existing customers and potential customers. The market survey is the selected approach of attaining information of our existing and potential customers. The primary results are illustrated in Chapter 3-4.

2. Circulating customer information

Further, the purpose of the second goal is to prepare the whole organization to translate customer needs into effective actions. Every division that are either directly or indirectly involved in satisfying customers should take actions and monitor their performance against a common benchmark. The prioritization of such needs and the actions of improvement in customer satisfaction will be described below.

Process of setting priority

A satisfaction survey asked customers to rate TT&T and TOT on the various performance attributes. Customers also provide their perception on TT&T image as well as the suggestions for improvement. To make a quality improvement decision, priorities are set using two significant sources of information. The first is the criteria from customers in selecting a telecommunication company. This is the impact measurement reflecting whether improving a product or service on particular criterion has any payoff in terms of increasing satisfaction. The second key source is the level of satisfaction on particular service. A strategic satisfaction matrix, simply called ***Quadrant Analysis***, is the popular way to combine the two information sources. This matrix, as shown in Figure 6.1, involves considering four possible scenarios. If the service has a relatively large impact on customer satisfaction and TT&T is performing well on that service, it is a competitive strength in the eyes of TT&T's customers. If the service has an impact on satisfaction and TT&T is not performing well on that service, then it is a high priority for improvement. Improving the product or service on that attribute will have a strong payoff in the eyes of TT&T's customers. In contrast, an attribute does not have an impact on satisfaction and TT&T is performing well on that attribute it is a low priority. Consequently, any improvement is less important. Eventually, if service does not have an impact on satisfaction and TT&T's performance is poor, it is the lowest priority. This is not what the customer is looking for and not an area where TT&T should spend the resource to improve satisfaction.

Low impact, Strong performance	High impact, Strong performance
Low impact, Weak performance	High impact, Weak performance

Figure 6.1 *A strategic satisfaction matrix*

From the market survey results, there are both business and residential measurements of satisfaction. For the business customers, we will consider all the samples we have interviewed whether they have TOT line or not. And for the residents, samples that have occupied at least one TT&T line are included. Therefore 331 business satisfactions and 150 residential satisfactions are taken into consider. The overall results of both customer types are illustrated in Figure 6.2.

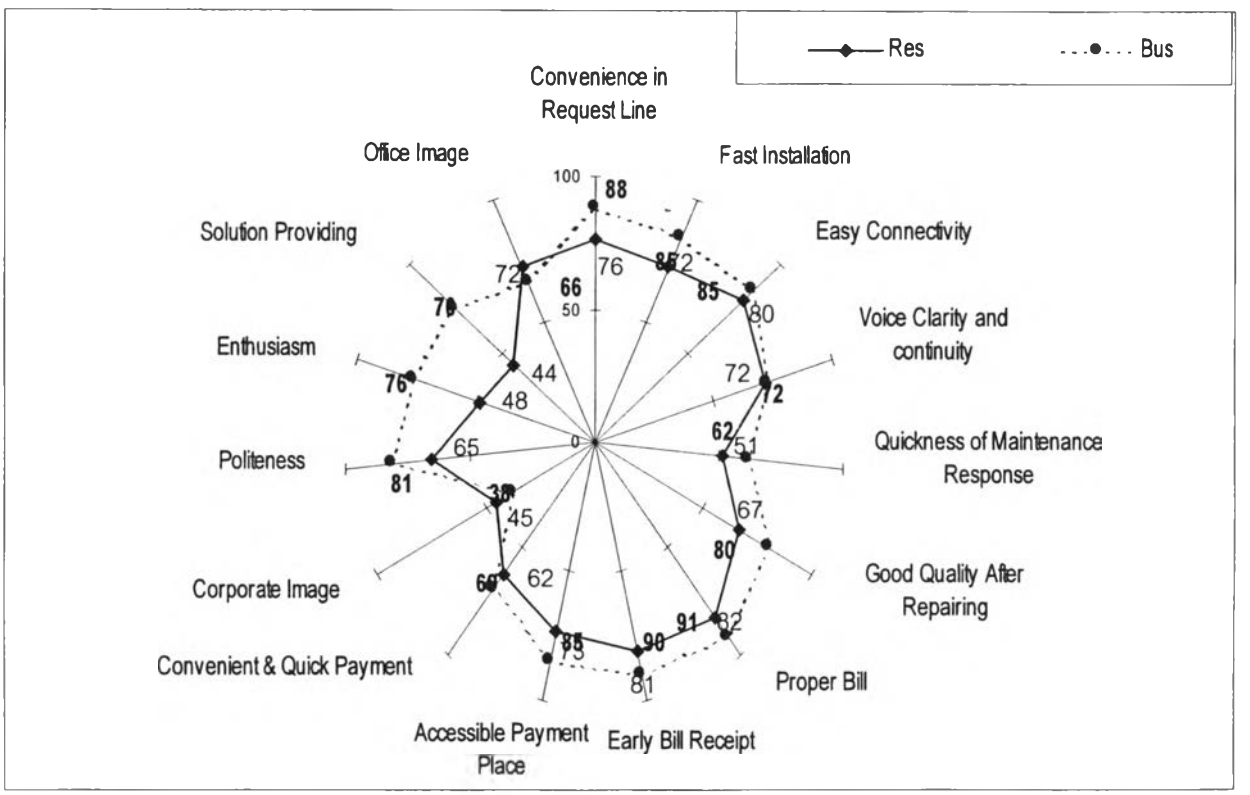

Figure 6.2 *Customer satisfaction of business and residential samples in all provinces*

Because this is the first time we did the measurement of customer satisfaction, there is no existing target level or any benchmark. The higher percentage of service represents higher satisfaction from the customers. Therefore, all the services that have the percentage of satisfaction less than 100 percent need to be improved. However, all of them cannot be improved simultaneously under the time and resources constraints. The needed improvements will be prioritized to support a decision-making of which service should be taken action of improvement first.

From the survey result of satisfaction, we assure that the percentage of 80-100 represents a strong performance and the rest means a weak performance. In terms of impact level, both business and residential customers have emphasized on quality first, following by price, aftersales service, and value-added service. Unfortunately, both impact and satisfaction measurements were not designed to support completely the quadrant analysis, which we are trying to use. Only two criteria that are quality and after sales-service, can be applied with the 15 services that we measure for the satisfaction. Quality will apply to the network issue as a high impact and aftersales service can be modified to all the remaining services as a low impact. Consequently, the performance and impact of all service are illustrated in Table 6.1 and the TT&T's strategic satisfaction matrix is shown in Figure 6.3.

Service no.	Performance		Impact
	Business	Resident	
1. Convenience in request line	Strong(88%)	Weak(76%)	Low
2. Fast installation	Strong(85%)	Weak(72%)	Low
3. Easy connectivity	Strong(85%)	Strong(80%)	High
4. Voice clarity and continuity	Weak(72%)	Weak(72%)	High
5. Quickness of maintenance response	Weak(62%)	Weak(51%)	Low
6. Good quality after repairing	Strong(80%)	Weak(67%)	Low
7. Proper bill	Strong(90%)	Strong(82%)	Low
8. Early bill receipt	Strong(91%)	Strong(81%)	Low
9. Accessible payment place	Strong(85%)	Weak(73%)	Low
10. Convenient and quick payment	Weak(69%)	Weak(62%)	Low
11. Corporate image	Weak(38%)	Weak(45%)	Low
12. Politeness	Strong(81%)	Weak(65%)	Low
13. Enthusiasm	Weak(76%)	Weak(48%)	Low
14. Solution providing	Weak(76%)	Weak(44%)	Low
15. Office image	Weak(66%)	Weak(72%)	Low

Table 6.1 *The performance and impact of all service for all provinces*

(Priority 4)	(Priority 3)
Low impact, Strong performance	High impact, Strong performance
Proper Bill Early Bill Receipt Convenient Line Request (B) Installation (B) Accessible Payment Place (B) Politeness (B) Good Quality after Repairing (B)	Easy Connectivity
Corporate Image Quickness of Maintenance Response Quality after Repairing (R) Solution Providing Enthusiasm Politeness (R) Office Image Convenient and Quick Payment Accessible Payment Place (R) Convenient Line Request (R) Installation (R)	Voice Clarity and Continuity
Low impact, Weak performance	High impact, Weak performance
(Priority 2)	(Priority 1)

Figure 6.3 ***The TT&T's strategic satisfaction matrix***

According to Figure 6.3, all the service from Table 6.1 are placed in the right quadrant. "B" stands for business customers and "R" refers to residential customers.

The highest priority for satisfaction improvement located in the high impact/weak performance category, is the voice clarity and continuity.

Further improvement is the services in the low impact and weak performance category that TT&T's existing and potential customers show less emphasis. For residential

customers only, they are the quality after repairing, the convenience in line request and speed in the installation, the accessible payment place, and the employees' politeness. For both business and residential customers, they are quickness of maintenance response, the convenience and speed in payment, enthusiasm and solution providing of employees, office image, and corporate image.

Next, the easy connectivity, which is located in the high impact and strong performance category, is needed to keep as a competitive strength of TT&T.

Finally, in the low impact and strong performance category, customers do not look for TT&T to provide the improvement on the services of this category.

3. Implementing the Improvement Actions

Once the improvement subjects are prioritized, the actions must be planned to implement. From the 15 services of customer satisfaction, we group them into 8 major items. To explain further is the guideline of improvement actions of each item based on customers' needs and suggestions according to Figure 4.30-4.39 and Figure 5.36-5.44. The detail actions that will be established by the responsive division within TT&T is not included in this explanation.

3.1 Network quality

Network quality includes voice clarity and continuity and easy connectivity. Network group, which is responsible for all activities involving TT&T network should find the cause of low level signal and noise interference, especially during raining internal, and then the suitable solution. Also, why the line is often disconnected and why the dialing tone is coming late or disappear need to be discovered. The cable and drop-wire damages as well as the long length of drop-wire are the causes frequently found. The network quality at Chonburi and Nakhon Ratchasima should be obtained more concern. In addition,

TT&T is installing a particular system, namely External Line Test System (ELTS), for corrective and preventive maintenance of drop-wire as shown in Appendix C. By using the system, it can reduce a number and time interval in repairing wrong points of drop-wire. The preventive action generated from ELTS is set up by supervisor to investigating the damages of assigned lines at the desired period. All the complaints, the services, and the results are automatically kept in the database to make some statistical reports.

The expected benefits include a reduction of corrective maintenance work and expenses, higher revenue from higher availability on the lines, improvement of TT&T's image, and improvement of management capability due to the statistical reports.

To strengthen the capability of network connectivity, TT&T should check the routing plan, which is the plan for a direction for the telephone signal movement, whether the route for such difficult-connectivity line is high traffic or not. If it is, the plan should be revised. If it is not, the customers may require an additional explanation from TT&T. However, instead of waiting for the complaints, traffic checking should be done regularly and the suitable adjustment should be perform in the point of traffic congestion.

3.2 Fault management

The second priority of improvement actions that TT&T needs to do is fault management, including the quick response to repair and the quality of repairing. According from Figure 6.3, the residential customers seem to be more unsatisfied with the quickness of maintenance response than the business customers, particularly in Chonburi province. Actually, TT&T has achieved a target of accomplishing 95% of the daily complaints within one day. To satisfy more, maintenance unit and needed equipment might be increased following the historical record of fault complaints. The manager of fault clearance unit should be trained for better management. Also, technicians should be

trained about the necessary techniques to obtain more quality and satisfaction after repairing.

3.3 Corporate image

This issue relates to both public relations and marketing activities. Often, it is found from the survey that customers, particularly residential type, have misunderstood TT&T as an abbreviation of TOT, as the same company of TOT, as a subsidiary of TOT, or as a PABX-selling company. Some of them have believed that the tariff and fee of private company as TT&T are more than the tariff and fee of TOT, which belongs to government. Some business customers have known TT&T from the marketer who proposes them directly a new telephone line at their offices, otherwise they will know nothing about TT&T. Besides, the particular message about the promotion that marketers have tried to deliver through a billed attachment seems to be useless because of its unattractiveness of campaign.

To improve satisfaction and performance of this issue, the PR (public relation) division should revise the roles of public relations that how well they establish and maintain mutual understanding between an organization and the publics. PR employees should realize that they have four major roles to concentrate. (Wilcox, Ault, and Agee, 1995)

3.3.1 Reputation protection and enhancement

This role involves preserving and building good-will for a company by demonstrating to the public that TT&T is an efficient, and honest service provider of fixed-line telephone; TT&T follows good environment practices and is urging management to do so. Also, PR is responsible to show the public that TT&T cares for the welfare of our employees and communities in which TT&T's facilities are located; to initiate programs to

explain company goals and policies; to protect and promote corporate trade marks and logos; and to explain the company's position on political, social, and economic issues.

3.3.2 Information service to support a reputation establishment

PR should send news to the media in order to inform the public about earnings, new promotion campaign, and so on. Sometimes, interviews for reporters with company executives should be arranged.

3.3.3 Marketing communication

Public relations strategies should be designed more efficiently to serve the marketing activities, particularly in selling product and service.

3.3.4 Community relations

Good relations should include an effort to inform the public that TT&T will comply with the environmental regulations and to work with particular groups for improving the quality of life.

It is believed that effective public relations is a process that starts with a research. Firms who understand their customers' attitudes, hopes, fears, and concerns will be in a better position to formulate message that appeal specifically to them. Besides, the research can prevent organizations from wasting time, effort, and money in attacking perceived image problems.

The roles, that mentioned above and performed in many ways, can use a variety of strategies to build a positive image of TT&T. Image means the character of the company projected to the public. Alternatively, image can be described as a corporate identity. To enhance a positive image of TT&T, PR should set the image strategy as following.

3.3.4.1 Define the problem

After analyzing the survey result, the problem areas were determined. Negative perception of TT&T image in terms of reputation, security, reliability, and technology was recognized from both business and residential customers. The plan to convert a negative image to a positive one and the plan of maintaining a favorable image have into be prepared.

3.3.4.2 Set objectives

Because public awareness is abstract and hard to quantify, one difficulty usually occurs in measuring how well the objective has been achieved. Therefore, it is important to have an ideally established set of measurable objectives. Budget should be estimated when the program is established. The program will not success if the cost exceeds the value of its objective. Time is another factor to be concerned about setting the objective. When a program is designed to correct a negative image or perception like this, a long period of time may be required and interim measurement of the program should be made periodically.

3.3.4.3 Define target group

Once the objective has been developed, we should define the target customers at whom the program intend to inform or motivate. The purpose of determining target group is to avoid wasted effort and money. Targeting the message to the appropriate audience is more likely to produce profitable results.

3.3.4.4 Plan and implement the program

3.3.4.5 Assess the results

Some part of the program's results may easily be evaluated, particularly in time and cost issues. But, measuring the effectiveness of an abstract part of the program, such as reversing the negative image, is more difficult because no apparent statistics are available as benchmark.

To perform effectively outsourcing of a public relations firm might be used. The advantages and disadvantages should be traded-off before making a decision.

advantages

1. The firm has more specialists that expert in speech writing, trading magazine placement, and research performing.
2. The firm has abundant media contacts and works regularly with numerous suppliers.
3. The firm may have an extensive reputation in desired areas.
4. The successful public relations firm has a reputation for professional and ethical work.

disadvantages

1. The firm may not thoroughly understand the TT&T's business or needs.
2. The firm may lack of full-time commitment.
3. TT&T's confidential information must be shared.
4. It is generally known as an outside counsel is expensive.

3.4 Office Image

The most important problem of the office image is very few number of TT&T offices. The increased plan should be developed, for more chance of sales. However, due to the financial crisis, other improvement of office image should be more considered. It is found from the survey that customers have strongly complained TT&T office about no corporate identity, lacking of car parking area, confined office area, and difficulty in finding the office. To decrease such complaints, TT&T's employees should accelerate their works as well as re-arranging of the document flow to increase the car park indirectly. The tidiness and cleanliness should be investigated periodically or daily to make the office looks wider. PR should involve in part of informing the TT&T office location to the publics, especially when the office has a movement. Also, the difference between TT&T office and TOT office should be declared to customers. Remarkable, the urgent action should be taken place firstly at Nakhon Ratchasima.

3.5 Quality of Employees

Quality of employees include their politeness, enthusiasm, and solution providing. The first thing TT&T has to do is to differentiate TT&T employees from TOT employees for the accurate image from customer perception. Next, employees who have to contact directly to the customers must be acknowledged the service-minded concept to eliminate their behaviors of ignorance, tuneless-speaking, solemn-face, impoliteness, violence, and loudly chat while working.

The employees should be trained about the fundamental knowledge involving telephone network and the responsibility of each unit so that they can provide a good solution to customers. However, some punishments may be developed.

The residential customers have encountered the more severe problems about TT&T's employees than business customers, mainly in Chonburi. Therefore, some specific seminar or training courses should be arranged as soon as possible at Chonburi.

3.6 Requesting a number and Installation

Obviously, the line request and speed of installation of residential customers are worse than of business customers, especially in Nakhon Ratchasima and Chonburi. It is true that we have focused more on business customers. But now, TT&T has to emphasize on both types of customers. To fasten the application procedure, the process flow and a necessary document should be facilitated and declared early to the potential customers. After applying, employees at TT&T office should inform the customer whether the line is available or not. If not they should be informed that how long they have to wait. Contacting to the waiting list may be periodically required. For the line installation, a target of within 7-days installation should be controlled restrictedly. How much the customers have to pay more for the additional drop wire length should be informed before installing the lines.

3.7 Convenience in Payment

Mostly, the payment places are TOT offices and the procedure is under the TOT regulation. A low number of officers and pay-in windows may not be enlarged because it's organized by TOT. Computerized queuing system should be suggested to TOT to minimize an unsystematic and messy payment. A payment through a credit card and bank direct debit should be promoted to minimize the waiting time of customers. Sometimes, a collection outdoor unit for a remote area and a department store may be required. In addition, the early interaction to the customers before disconnecting their lines due to the unpayment should be strongly emphasized. Songkhla is the first province that deserves for the urgent improvement.

3.8 Billing management

Customers always mention about their unreasonable bills, particularly the local-call charging that can not be easily checked, therefore the method for charging in both local and long-distance calls should be explained clearly to the publics. The complaint and dispute investigation should be facilitated and fasten to enhance customer confidence of their bills' accuracy. In addition, payment without the bill should be possible. So that, TT&T will have less work to do and customers are not necessary to wait for the bills.

After implementing the activities for a customer satisfaction's improvement, some measurements will be made following the changes to evaluate the results that expected to be a positive direction. Better than that, TT&T should establish the target of significant parameters that TT&T will reach after implementing the improvement programs. The parameters include sales volume, cancellation volume, revenue, and market share. The Table 6.2 shows the forecasted value of such parameters without any action of improvement and Table 6.3 shows the forecasted value of such parameters after implementing the improvement programs.

	1998A	1999F	2000F	2001F
Annual Sales Volume (lines)	68,652	60,492	60,000	60,000
Monthly Sales Volume (lines)	5,721	5,041	5,000	6,000
Annual Cancellation (lines)	42,480	36,000	36,000	24,000
Monthly Cancellation (lines)	3,540	3,000	3,000	2,000
Accu. Billable Line (bills)	1,102,260	1,126,752	1,150,752	1,186,752
%Growth of Accu. Billable Line	N/A	2.22	2.13	3.13
RPL (baht)	640	600	600	613
Revenue (million)	705	676	690	727
TOT Billable Line (same growth as TT&T)	995,996	1,018,107	1,039,793	1,072,338
%TT&T Market Share	52.5	52.5	52.5	52.5

Table 6.2 *Forecast value of some parameters before improvement*

	1998A	*1999F*	*2000F*	*2001F*
Annual Sales Volume (lines)	*68,652*	*66,541*	*66,000*	*86,400*
Monthly Sales Volume (lines) @ +20%	*5,721*	*5,545*	*5,500*	*7,200*
Annual Cancellation (lines)	*42,480*	*32,400*	*32,400*	*21,600*
Monthly Cancellation (lines) @ -10%	*3,540*	*2,700*	*2,700*	*1,800*
Accu. Billable Line (bills)	*1,102,260*	*1,136,401*	*1,170,001*	*1,234,801*
%Growth of Accu. Billable Line	*N/A*	*3.10*	*2.96*	*5.54*
RPL (baht) @ +5%	*640*	*630*	*630*	*644*
Revenue (million)	*705*	*716*	*737*	*795*
Increased Revenue due to improvement (million)	*0*	*40*	*47*	*67*
TOT Billable Line (same growth as TT&T)	*995,996*	*1,018,107*	*1,039,793*	*1,072,338*
%TT&T Market Share	*52.5*	*52.7*	*52.9*	*53.5*

Table 6.3 *Forecast value of some parameters after improvement*

According to Table 6.3, after improving, sales volume and revenue per line (RPL) are forecasted to increase 20% and 5% respectively. In contrast, cancellation volume is expected to decrease 10%. As a result, TT&T can increase the annual revenue in year 1999, 2000, and 2001 for 40 Mbt, 47 Mbt, and 67 Mbt, is with the increased market share of 52.7%, 52.9%, and 53.5%.

The costs of improvement are shown in Table 6.4, which include two major issues; TT&T's sales office and maintenance equipment.

Improvement Items	Units	Amount per unit (bt)	Total amount (bt)
1. Decorate TT&T's sales office	88	10,000	880,000
2. Equipment for drop-wire maintenance	120	20,000	2,400,000
			3,280,000

Table 6.4 *Costs of improvement programs*

Comparing the valuable benefits and costs, it is found that the investment, which will be made throughout the year 1999, seem to be economically feasible. Moreover, in order to continue improving, TT&T must revisit the strategic objectives, make a refinement to the measurement system, set new priorities, and re-implement the improvement program in accordance with those priorities.

6.2 The Market Opportunity in Market-Driven Stage

6.2.1 Which market is interesting?

Previously, telecommunications is only voice transmission over telephone lines. Nowadays, it means a collection of compatible hardware and software arranged to communicate and transmit digital data over some distance. Most of business companies require the information communication for their daily operation, especially the companies that locate in provincial area. On-line information systems and remote access to information would be impossible without telecommunications. From the market survey results involving telecommunications usage as shown in Figure 4.17-4.23, a variety of services have been used to smoothen the business operations although the economy seems to get worse. They are Facsimile, Computer, local area network (LAN), Intranet, Point of Sale, Internet, Modem, Satellite, Leased line, and Pay TV.

Facsimile is the transmission and reception of images, including text and graphic, through ordering telephone lines. The fax machine at transmitting side will digitize the image and transmit the bits to the receiving fax machine, which will transform

the digitized codes back into an image. From the survey result, 100% of business samples are using fax machine, both separately from telephone line and in common with telephone line.

Satellite serves as microwave relay stations, which are placed in, orbit about 22,000 miles above earth. Once it stars its orbit, it will stay above the same point on earth because of its synchronization with the earth. It is found from Figure 4.21 that 16% of business samples are using satellite, especially insurance, bank and financial institution, and wholesales. Communication via satellites are used for long-distance telephoning and private business data networks. In addition, the result of survey shows that 35% of business samples that have paid for the television broadcasting are receiving the broadcasting signal from satellite.

Modem is a device to modulate and demodulate communications signals. Most modems are connected to telephone lines resulting in higher transmission rate. According to Figure 4.21, 30% of business samples run some application through modem interface, such as Intranet, Internet, on-line transaction, and point of sale.

Internet is a communication network connected to government and researchers that could transmit text only. As illustrated in Figure 4.19, 33% of all business samples are using the Internet.

E-mail, or electronic mail, the first use of the Internet that allows user to type and transmit message to designated address. Business can send and receive messages to and from the other remote offices, even in other country, with the local call charge. Because it is fast and convenient, it may help businesses to establish contacts with potential clients, suppliers, or else. (Oz, 1998)

File transfer protocol, or ftp, is the transferring of software and large amount of data from one computer to another via communications lines. The data can be

conveniently loaded into their own databases and applications for further processing and manipulation.

Internet telephoning is a long-distance and international conversation, which are conducted via the Internet connection, with the proper software and microphones attached to their computer. Users will pay for only the local call to the Internet service providers. However, since the Internet telephoning will record, digitize, and transmit each vocalization, there is a noticeable delay and a lost of data at the destination, leaving the recipient with a garbled communication.

LAN is a computer network within a building or with in a group of adjacent buildings. LAN is the most common way to allow users share software and hardware resources resulting in enhancing communication among users. According to Figure 4.17 and 4.18, 38% of business samples are using LAN, especially in the business of telecom-service provider, hospital, and bank.

Intranet refers to the Internet within an organization. Users can send and receive message via LAN if both sender and receiver are working in the same building and via some specific media such as satellite, leased line, or telephone line if there are apart. Modem is used to be the interface between computer and media in case of long-distance data transferring. It is found from Figure 4.17 and 4.18 that 13% of all business samples are using Intranet technology.

Leased line is digital transmission circuit that the company will pay monthly fee to the service provider and has a right to use the circuit for transferring data anytime. In doing that, the technology of time-division multiplexing will used. The method is that multiplexer allocates equal amounts of time to each connected terminal, receives each terminal's signal simultaneously and pieces the signals together again. However, only 17%

of business samples are found from Figure 4.21 that there are leasing the line for data and voice transmission.

In additional to the evidence from the survey, some studies have predicted the future of telecommunication services that there is the ongoing merging of telecommunications and data communications. Trends of end-user needs are upward. Data communications in public network will increase. Companies will have more and more distance workers and remote offices. Computer will be used more in office for data communications, e-mail, information retrieval etc. More and more private end users will have a personal computer (PC) also. The telephone will be supplemented the PC and wireless access. Cordless or cellular mobile could be requested for the PC. Internet will continue to grow providing private users the interactive services such as home shopping, information retrieval, or remote banking. Simultaneously, real-time image transfer service such as facsimile that is high usage today will be low value in the future. Multimedia communication will increase, in companies first, then also in the residential users, leading to more bandwidth of telecommunication system required.

Therefore, the telecommunication market seems to be the most interesting opportunity for the near future. In addition to telephone service that we have provided continually since the year 1993, another telecommunication service that has the highest potential to be the second business of TT&T is going to be determined after establishing the SWOT analysis.

6.2.2 SWOT Analysis

To identify a telecommunication service that has the most marketing opportunity, the internal and external environment are typically evaluated. Internal environment refers to all of the controllable factors inside TT&T that may influence the company to provide another potential telecommunication service. TT&T's employee and

their skills, technologies used, resources, and the organization culture are some examples of internal environment, as a strength or weakness. The economy, competition, technology, trend of customer need, and effects from the master plan of telecommunications development are included in the analysis of external environment as an opportunity or threat that are the uncontrollable elements outside TT&T.

Timing is an important factor in conducting the SWOT analysis. As mentioned above about the TT&T short-term objectives for the year 1999, TT&T has to survive with the existing resources that will be utilized without any investment. Moreover, the economy slump that is the most influenced factor of TT&T's business direction is believed to be saturate in the worst situation on next year and the recovery stage will take one or two years after that. Combining with the market-oriented analysis from TT&T's market survey that will be analyzed as an opportunity or threat, the SWOT analysis will be developed from the viewpoint within three years ahead that the results of the market survey seem to be reliable.

The Internal Environment

Strengths

1. TT&T can provide any other telecommunication service that mostly uses our existing transmission and outside plant network such as data communication network, satellite, or cable TV with more cost-effective action than other companies that have no own network.

2. With TT&T telephone network, TT&T can be an Internet-service provider without an additional big investment. The existing network will be utilized to obtain more benefits. However, such benefits and returns are not much enough and the core business of TT&T may be disturbed from the long-distance communication via the Internet that will be charged as same as local telephone call.

3. Since the year 1996, TT&T has started to provide publicly a data communication network, leased line, as a value-added service. The telephone network is utilized with some investment for additional equipment. Some TT&T's employees were separated from the core business as a business unit to conduct this value-added service, namely a digital data network or leased line. Certain specific training was taken place allowing the effective daily operations. To service more effectively, four regional customer-service centers are responsible for its operation and maintenance. Therefore, TT&T can take more advantage from being an existing service provider of leased line.

4. TT&T already had a license for providing cable TV and PCT (personal cordless telephone).

5. TT&T has more readiness in technology available and personnel supporting in 72 provinces of Thailand as well as an up-to-date monitoring system of the network that is very useful for maintenance function.

Weaknesses

1. Even though TT&T are providing leased line service, the growth of our customers can be said as quite stable because of a limited investment due to the economy slump, an inadequate sales-force team, and lacking of marketing strategy.

2. Certain limitations from the Concession of 1.5 basic telephone line are applied inevitably with the leased-line service. So, TT&T can not develop a new change without permission from TOT.

3. According to Figure 4.23, TT&T gains low market share in the leased-line provincial market (about 9%). The leaders of this business are TOT and CAT (the Communications Authority of Thailand) consecutively. They can take advantage over

TT&T from their own backbone network, which allows TT&T to use in some routes under their consideration. Often, the route that is required from TT&T customers is not allowed to lease from TOT.

4. Even though TT&T is allowed formally from TOT to conduct PCT as a value-added service of basic telephone network, the PCT investment of covering total service area in provincial Thailand is very huge. Besides, the PCT project in Bangkok and metropolitan area provided by Telecom Asia (TA) company has faced many difficulty including both financial and technical terms. In addition, the demand of PCT in the rural market can not be expected to be good as the demand in Bangkok.

5. To provide cable TV in provincial Thailand is costly, especially the charge for the imported programs. UBC, the first market-leader, can take more advantage on its customer base, its broadcasting network, and its cost-effective programs than other firms. Moreover, there are some local illegal companies that are serving their customers the improper cable TV with the extreme low cost due to an unpayment for license.

6. TT&T has no right to build a transmission network among provinces. So, there is some difficulty in network management.

The External Environment

1. Economy Issue

Opportunities

1. Due to the positive trading balance, more stable baht value, trends of decreased interest rate and inflation, the investors are going to be more confident for the recovery of Thailand economy. The more the confidence of Thailand economy, the more the interest rates decrease, resulting in more liquidity in financial system. Eventually,

firms will invest more in the way to enhance their profitability, including the investment in telecommunication system.

2. Some business types are continually growing even in the economy recession such as agriculture, exports, and travelling. Their businesses have been operated mainly in provinces throughout Thailand with high traffic of data communication exchange that can be the opportunity of TT&T to provide them a data communication network.

Threats

1. Because of the current economy recession, the investment of private sector is definitely diminished. Firms will revised their expenses and then unnecessary expenses are eliminated unhesitately. Probably business may develop downsizing strategy referring to massive lay off from the companies to recreate an organization that produces the same or better products and services for less cost. The high cost telecommunication service may be replaced by the lower ones to support the cost-effective strategy.

2. From the world economy that Yen was strongly devalued combining to a trend of Yoan's devaluation, the second crisis of economy may happen resulting in the difficulty of Thailand economy recovery. The expense and investment of firms and people will be minimized again. The aggregate buying power will decrease causing the inhibition of business growth.

2. Technology Issue

Opportunities

1. High-speed transmission media that can handle higher volume and then reduce the cost per bit shows an upward trend of usage. For instance, the cost per bit of data can be lower via satellite link than via leased line if a firm uses the satellite link 100% of the time.

2. There are some new technologies that are popularly using in other countries. In the future, Thailand may adopt those technologies. TT&T can provide such technologies under the product development strategy. The technologies are :

ISDN: Integrated Services Digital Network allows the integrated transmission of voice, data, and video communications over the same media. Thus, ISDN enhances the concept multimedia, allowing the reception of many various types of input.

ATM: Asynchronous Transfer Mode can seamlessly and dynamically switch voice, data, images, and video between users. ATM can combine LANs that operate in different speeds. ATM technology parcels information into uniform "cells", eliminating the need for protocol conversion. ATM can transfer data between computers from different vendors at any speed the network handles.

FR: Frame relay is a higher speed, higher quality, less expensive, and higher network utilization variant of package switching. It's a shared network service that packages data into "frames" that are similar to packets, but it does not perform error correction. FR is not recommended for any transmission that is sensitive to varying delay such as voice or digital video traffic. FR works successfully only over reliable lines that do not require frequent re-transmission because of error.

3. In the low frequency, low-volume communications, employing the Internet is certainly adequate and more cost effective than building their own networks or leasing the lines. People can use e-mail and an available data base all over the world to gain easy access to information resources. Many businesses may provide value-added service via the Internet. For instance, an airline allow passengers see which seats are available an airplane, and a bank may provide account balances and transaction histories online. Combining with

the existing telephone network, there is a high potential of fast Internet-market growth the TT&T may take advantage in.

4. Leased line can communicate high-frequency and high-volume data over long distance as same as the satellite link with the lower expense. So, it is more cost-effective for a telecommunication of large-scaled business to switch from the satellite usage to leased-line usage. On the other hand, the small and medium companies that have a potential of growth, they can enhance their efficiency by using the leased line instead of a traditional modem through a telephone line in their low-frequency and low-volume communications.

Threats

1. The more efficiency of telecommunication system, the more the investment. Even the satellite is cost effective for transmitting large quantities of data over long distance that is typically used in large, geographically dispersed organizations, the cost of investment is enormous comparing to other systems.

2. Even though the new advanced telecommunication services of ISDN, ATM, and FR are interested to invest in. But it takes long time from now that few demand from the target market today will increase to reach the expected demand level reflecting a break-even point. From the TT&T's market survey data, there is only one business company from 331 companies that is currently employing Frame Relay.

3. Although the Internet can reduce the communication costs and accelerate the distribution of knowledge; there are two major threats for TT&T to be the Internet service provider. Firstly, the telecommunication method in the future seems to require more security, especially in business sector. Firms may not allow outsiders to see the confidential information such as company strategic business plans, profit reports, product

development information, pricing data, marketing plans, and so on. But the electronic links that such information will be transmitted tend to be exposed to attack from the thieves. Secondly, with the compatible software and microphones attach to the computer, long-distance and international conversations via the Internet connection may be conducted instead of using a basic telephone line that TT&T is providing today. Consequently the revenue of TT&T, that more than 30% is generated from long-distance and international calls, will be obviously decreased.

3. Customer-Oriented Issue

Opportunities

1. From the survey results, there are a number of businesses in provincial Thailand that require a reliable support of long-distance data communication network to increase the efficiency and effectiveness of their daily operations. The three major medium mostly used are on-line modem, satellite, and leased line. Moreover, the operations could be further optimized if information were exchanged between organization. For example, airline industry connects to travel agencies to provide real-time seating information from different airlines. Hotels have joined together to provide a reservation network. Credit card companies access thousands of bank account daily to determine the credit worthiness of credit applicant.

2. To compare among the three major technologies based on customers' consideration, there are three interesting factors concerned as costs, security, and ease of use.

2.1 Total costs should include costs for development, operations, maintenance, and overhead. To be accept, a telecommunication service has to be cheaper than the alternatives. On-line modem is the cheapest service whereas satellite is the most expensive one. For very low cost, many users will even accept lower quality.

Underestimating the cost of telecommunications or uncontrollable telecommunications costs are major cause of business loss.

2.2 Security for payments over the network is very important particularly for financial transactions like remote banking. Security also refers to a reliable quality of network. Users don't want others to listen in their conversations or read their e-mail. The most two secure telecommunications are satellite and dedicated leased lines. In contrast, the least secure system is on-line modem via a telephone line that can be tapped at several locations.

2.3 Ease of use: Customers may require a service that has to be easy to acquire and understand, easy to use through man-machine interface, and the billing has to be clear and understandable. Among those three services, the on-line modem seems to be the most basic service that users can easily understand.

4. Master plan for Telecommunications Development (Politics Issue)

In Thailand, three major entities under the ministry of Transport and Communications (MOTC) are responsible for radio communications and telecommunications services. The Post and Telegraph Department, PTD, is responsible for radio communication activities dealing with radio frequencies and domestic Communications via satellite. Telecommunications services in Thailand are provided by two state enterprises; the Telephone Organization of Thailand (TOT) and the communications Authority of Thailand (CAT). The TOT takes care of domestic telephone service while the CAT focuses on international services. The private sector can only operate within the industry if they work in conjunction with one of the state enterprises through collaborated partnership in form of Build-Transfer-Operate (BTO) Contract.

The Master Plan for Telecommunications Development was finally approved by the Cabinet on November 4, 1997 for telecommunications liberalization. There are four important policy elements of the Master Plan for Telecommunications Development.

1. Liberalization

According to the Master Plan for Telecommunications Development, the step-by-step liberalization approach is planned to conduct. At first, domestic telecommunications will be liberalized, after that the complete liberalization following WTO commitments will be started in the year 2006.

To ensure that promotion competition in telecommunications business will be on the free and fair basis, the National Communications Commission (NCC) will be established as independent regulatory body. The NCC involves assigning frequencies for the benefit of the public, supervising and regulating radio and television broadcasting and telecommunications activities.

Schedule for liberalization:

Establishment of the NCC	October 1998
Announcement rules & regulations for competition	August 1999
Open for competition	October 1999
Open for full competition	2006

2. Privatization of TOT and CAT

According to the Master plan, before transforming TOT and CAT into a TOT Company Limited and a CAT Company Limited, holding company for TOT and CAT will be established by both the Ministry of telecommunication and the Ministry of Finance. All their shares are held by the Ministry of Finance.

The TOT Company Limited and the CAT Company Limited shall seek their strategic partner to hold the shares of each company not exceed 25% with the invitation of international bidding. Each company will invite private placement to hold its shares not more than 22% and shall allocate shares to their staff not less than 3%. The Ministry of Finance will takes its proportion of shares in each company less than 50% to expedite the transformation into a private business status. Consequently, both companies will turn to be a public company.

To maintain the TOT and CAT staffs, they will be assigned to work with newly established companies with their remuneration benefits and welfare not less than their existing rights. The TOT and CAT companies shall adjust the benefits of their staffs to be in line with the general private business after the privatization with the consideration under the companies' financial status and labor legislation.

Schedule of Privatization:

Registration for holding company	January 1999
Holding company establishment	January 1999
Strategic partner seeking	April 1999
Employee stocks distribution	April 1999
Private placement	October 1999
Public placement	After October 1999
Registration for TOT Plc. And CAT Plc.	After October 1999

3. Pricing Structure

Since an existing pricing structure doesn't relate to costs and investment, the Master plan has a policy of adjudging the price structure of six telecommunications types; they are;

1. Domestic fixed-line telephone both local and long distance

2. Payphone
3. International phone
4. Mobile phone
5. Internet service
6. Interconnection

Before liberalization, all pricing structure of the 6 types of telecommunication services shall be adjudged relating to their costs and investment. After liberalization, the service provider shall define their price under the frame determined by the NCC.

4. Concession conversion

After the concession conversion that shall be requested by the contractor, its result must support fairly the competition after liberalization. People who use such services shall receive more effective, lower tariff and more diversified services. The state enterprise shall receive the equal or more benefits than stated previously in the concession. The less benefits shared to state enterprise can be accepted if people obtain more suitable benefits as a compensation. However, the performance of contractor's company shall be taken into consider that the company can pursue their businesses after the conversion.

The four policy elements of the Master plan as a political issue cause both opportunity and threat of TT&T in providing another potential telecommunication service in addition to a basic fixed-line telephone.

Opportunities

1. Before liberalization, TT&T can pursue the value-added service providing of data communication network (DCN) by separating the division that operates this service to be a subsidiary. In doing that, management can gain more convenient and speedy in making a decision. The separated business can finance itself. Additionally, the regulation

and limitation from the Concession that are the obligations of a fixed-line business of TT&T will not be applied to DCN service directly except for the pricing structure only.

2. A number of competitors in providing DCN will not easily increase until opening the liberalization. Therefore, the competitive marketing strategy can be determined with less awareness of new competitor's entrance.

3. After liberalization, TT&T as a network provider can negotiate directly with the service provider without TOT and CAT involvement. The pricing structure can be re-developed. Cost leadership strategy can be promoted. No revenue sharing need to be given to the TOT and CAT public companies. The competition shall be complete. TT&T can operate any telecommunication service such as Internet, DCN, satellite, cellular phone, or pay TV, and need not to transfer the asset to TOT following the contract in the concession.

4. After liberalization, TT&T can improve, develop, or expand the network independently without asking for the permission from TOT.

Threats

1. Before liberalization, TT&T has no right to provide other telecommunication services without permission, except for a basic telephone service, cable television, and personal cordless telephone (PCT).

2. Before liberalization, TT&T cannot perform the cost leadership strategy in any telecommunication service. The TOT and CAT are responsible for determining the tariff of all services that all operators have to follow.

3. The opportunities after liberalization that mentioned above will not happened exactly following the schedule from the Master Plan of Telecommunication Development because it is showed presently that many actions were significantly late.

4. After liberalization, even though TT&T can provide any telecommunication service desired such as satellite, Internet, or Pay TV the existing service provider can take advantage more in their own customer awareness, current customer base, experience of the service operations, staff skills, and technology used. TT&T has to take long time to catch up and then overcome the competitive advantages of the existing service provider that mentioned above.

5. After liberalization, there will be more competitors in data communication business, leading to more difficult in performing the business.

6.2.3 Select the Highest Potential Service

Eventually, when all the components of SWOT analysis are determined, it has a potential for TT&T to gain enormous benefits from being a ***leased-line*** service provider after taking all the opportunities and improving or eliminating all the weaknesses.

According to Figure 4.21, on-line modem, which uses basic telephone line, shows the higher percentage of data communication usage than leased line and satellite. TT&T can not provide any service to reinforce the on-line modem usage more than the telephone line. But when the companies that are using on-line modem have more volume of data or needs more speed and security, they have to change to a new system that has more capacity such as satellite and leased line. In term of cost, leased-line service gains more advantage than satellite due to the lower cost. The companies that can not fight with the economy crisis might switch to use the system that is less expensive as leased line.

Therefore, leased line seems to be the most interesting service that TT&T can serve the customers.

Combining to an existing transmission and outside plant network and the existing aspect of providing leased line as value-added service, TT&T obtains more confidence to pursue the investment of the service by the year 2001, which is expected to be the year of economy recovery stage. To success in such business, the marketing strategy, which is the weakness of TT&T, should be improved and the concept of separating the business of leased line service into an independent company should be realized.

In addition, the trend of better economy situation establishes the trend of increased investment, especially in business sector. That makes the reality of their telecommunication investment, which is TT&T's opportunity in providing leased line. Moreover, after liberalization, TT&T can eliminate all the limitation leading to the freedom and complete competition in price and service, the exceptional of revenue sharing to TOT, and the independence in expanding or renting the network.

Eventually, leased-line service shows the highest potential for TT&T. The feasibility study explained in the next issues can be the tools for management to make a decision whether TT&T should do this business or not.

6.2.4 Feasibility Study of Leased-line Service

6.2.4.1 Market study

The marketing section explains how the business of leased-line service intends to manipulate and react to market conditions. If a market need in leased-line service is not exist, the engineering and financial study is not necessary to be established. The most two important issues that market study should addressed are market opportunity and sales

forecasts. In addition to the market opportunity of leased-line service that is explained earlier, its sales forecast will be developed and explained in the next paragraph in order to fulfill and strengthen a financial study, which will be made after that.

Sales volume of leased-line service will be forecasted based on the market survey's results as shown in Table 6.5. First of all, a number of business companies at the end of year 200 that uses leased-line is forecasted. According to Table 4.1, a number of 331 sampled business companies have occupied 3,215 TT&T's fixed-line telephones. Combining with the fact that 11% of total TT&T customers are business companies, an amount of companies at Dec'2000 can be calculated to be 13,032 companies. Although the result from Figure 4.21 shows that 17% of sampled business companies are using leased-line service, 17% should not be multiplied by 13,032 directly to obtain an amount of companies using leased line. Because the 17% value came from the four sampled provinces, which have the highest movement of business activity. Thus, 12%, the value forecasted by TOT in 1995, will be used instead of 17% to compensate the other provinces that have less business growth, and then 1,564 companies are forecasted to use leased-line at the end of year 2000.

	Total TT&T service lines	Business lines (11%)	Amount of companies (=bus lines*331/3,215)	Amount of companies using leased line (12%)
Current (actual)	1,109,511	122,046	12,565	1,508
Dec'2000 (forecast)	1,150,752	126,583	13,032	1,564

Table 6.5 *Calculation of companies using leased-line*

The growth of leased-line usage is forecasted in conservative way. A Table 6.6 below presents a growth of TT&T leased-line customers. The growth in 1997 of 297% should not be taken into account due to the beginning of TT&T's leased-line project. So the percentage of 70 seems to be the suitable growth used in financial study in the year 20001 and 20002. After that, the growth will decrease to be 50% due to the higher intensity of leased-line usage.

	1995	1996	1997	1998
Accu. TT&T's company using leased line (companies)	0	44	172	296
Increased amount (companies)	0	44	128	124
% growth	N/A	N/A	291%	72%

Table 6.6 *TT&T's leased-line status*

Finally, the TT&T's market share of leased-line service will be forecasted. According to Figure 4.23 TT&T has gained 9% market share of leased-line business. Since the competitors such as TOT, CAT, UCOM, and DATANET are assumed to pursue their leased-line business in the same growth rate of TT&T, the market share of every competitor will be forecasted to be constant at current value. Thus the value of 9% TT&T's market share will be used in the financial study throughout the 6-years project.

6.2.4.2 Engineering study

The engineering study must explain how the leased-line service will be created and how much it costs. Two major issues are involved. They are service development and service maintenance.

Service development is not a difficulty of TT&T because we have provided leased-line since year 1996. The main hardware and software of the system have been already invested and installed. The transmission and outside plant network are available from the TT&T's fixed-line network. The additional equipment will be installed following the application of new customers. It includes NTU, JADE, and AS200. NTU is equipment designed to connect a user's data terminating equipment to a digital network. JADE connects customer equipment to HDSL module in the AS200, which provides circuit switching and multiplexing facilities in a networking environment. The AS200 in customer premises is connected to the public data network via 2.048 Mbps and 128 kbps trunks. The average investment for NTU, JADE, and AS200 at the exchange rate of 36 baht/US$ is about 149,832 baht per one additional circuit of service.

Service maintenance will support customers after they have purchased the leased-line service. Presently, TT&T has monitored fault of the leased-line service from the network management system as same as of fixed-line service. Its center, namely ROMC (Regional operation and maintenance center), located on four big provinces of Thailand; Phitsanulok, Nakhon Ratchasima, Chonburi, and Surat Thani. The cost of maintenance will be placed on the manpower for operating only leased-line service at 22 operation & maintenance centers and 4 ROMC. One engineer with 20,000-baht salary is required for each 35 additional circuits whereas one technician with 16,000-baht salary is recruited to take care of each 25 circuits. Both salaries are set to increase 5% annually. Also, the expenses for repair & maintenance and administration overhead will charge TT&T at 3% annual investment and 10% of total salary respectively.

6.2.4.3 Financial study

Before making a decision of investment, a credible, comprehensive anticipated financial performance should be available. Revenue, expenses, and investment will be projected so that the final results of internal rate of return (IRR) and net present value (NPV) will be used to support convincingly the decision-making. To obtain an adequate additional investment of leased-line service equipment, TT&T must wait until an appearance of economy recovery signal expected to be the year 2000. At that time, TT&T financial situation seems to be better. The investment that breaks event point is more than two years could be approved from the management. Likewise, other businesses might have more potential to accelerate their business growth by adding more investment of their communication system such as leased line. By using leased line, it can help them eliminating barriers of geography and time, enhancing the productivity, and enabling their management to speed up the decision making. Therefore, the financial study for the 6 years projection is developed as shown in the Table 6.7.

	Assumption	2001	2002	2003	2004	2005	2006
Total Companies	13,032						
Total Companies using Leased line (12%)	1,564	2,659	4,520	6,780	10,170	15,255	22,882
%Growth of Companies using Leased line		70%	70%	50%	50%	50%	50%
Total Companies using TT&T's Leased line (9%)	141	239	407	610	915	1,373	2,059
%Market Share	9%	9%	9%	9%	9%	9%	9%
Additional leased-line circuit	**0**	**99**	**168**	**203**	**305**	**458**	**686**
Accumulated Revenue		**12,469,028**	**33,666,374**	**59,406,010**	**98,015,463**	**155,929,643**	**242,800,912**
Total Revenue		12,469,028	21,197,347	25,739,635	38,609,453	57,914,180	86,871,270
Monthly Revenue	9,879 baht/circuit	11,680,772	19,857,312	24,112,450	36,168,675	54,253,012	81,379,518
Installation Fee	8,000 baht/circuit	788,256	1,340,035	1,627,186	2,440,778	3,661,168	5,491,751
Revenue Sharing (18%)		**2,244,425**	**3,815,522**	**4,633,134**	**6,949,702**	**10,424,552**	**15,636,829**
Operating Expenses		**4,626,552**	**7,972,533**	**9,817,860**	**14,942,451**	**22,753,343**	**34,664,989**
Engineer	1 person/35 circuits	3	5	6	9	13	20
Technician	1 person/25 circuits	4	7	8	12	18	27
Salary Growth of Engineer	Growth of 5%	20,000	21,000	22,050	23,153	24,310	25,526
Salary Growth of Technician	Growth of 5%	10,000	10,500	11,025	11,576	12,155	12,763
Salary of Engineer		675,648	1,206,032	1,537,690	2,421,862	3,814,433	6,007,732
Salary of Technician		472,954	844,222	1,076,383	1,695,304	2,670,103	4,205,413
Leased-line rental expense to TOT	25% of mthly Rev	2,920,193	4,964,328	6,028,112	9,042,169	13,563,253	20,344,880
Repair & Maintenance	3% of Investment	442,897	752,926	914,267	1,371,400	2,057,100	3,085,650
Administration Overhead	10% of Salary	114,860	205,025	261,407	411,717	648,454	1,021,314
Net Cashflow from Operation		**5,598,051**	**21,878,319**	**44,955,015**	**76,123,310**	**122,751,747**	**192,499,094**
Investment (exchange rate 36 baht/US$)	149,832 baht/circuit	**14,763,247**	**25,097,519**	**30,475,559**	**45,713,339**	**68,570,008**	**102,855,012**
Net Cashflow before Tax		**-9,165,196**	**-3,219,200**	**14,479,456**	**30,409,971**	**54,181,739**	**89,644,082**
Tax	30%	0	0	4,343,837	9,122,991	16,254,522	26,893,225
Project Free Cashflow		**-9,165,196**	**-3,219,200**	**10,135,619**	**21,286,980**	**37,927,217**	**62,750,858**
IRR		***93%***					
NPV @ 14%		***57,214,794***					

Table 6.7 *Financial study of leased-line project*

The revenue part calculated from sales forecast in the market study includes monthly revenue which is 9,879 baht/circuit and installation fee of 8,000 baht/circuit. However, 18% of both revenue sources will be shared to TOT as stated in the Concession contact. The operating expenses refer to salary, leased-line rental expense to TOT, repair & maintenance expense, and administration overhead. The investment is estimated to be 149,832 baht/circuit as mentioned in the engineering study.

After replacing all the assumptions in the Table 6.7, IRR equals to 93% with a positive NPV of 57.2 MBt. Thus, the leased-line investment project should be accepted since the opportunity cost of capital at 14% is less than IRR.

However, the uncertainty of the exchange rate, which is the key factor of investment value, should be taken into account. A variety of exchange rates are replaced in the model and the result is shown in Table 6.8 below.

Baht/US$	36	38	40	42
IRR	93%	80%	68%	53%
NPV (MBt)	57.2	50.2	43.1	32.7

Table 6.8 *IRR and NPV against a variety of exchange rates*

It is shown from Table 6.8 that the more the exchange rate, the less the acceptable level of this leased-line project.

6.2.5 Strategies for driving the leased-line business

6.2.5.1 BCG matrix

According to the concept of BCG matrix, a portfolio management strategy used for investment in new products, leased-line service is located in the "Question mark" quadrant as shown in Figure 6.4.

Question mark represents that the leased-line service has low market share in high-growth markets resulting from some failures in the competition. The price may be too high than the substitute products such as Internet and on-line modem. The access channel may be limited or sales-force may be less effective. To increase the market share that being lower than TOT and CAT, the appropriate marketing strategy should be developed and implemented, based on customer orientation.

	High market share	*Low market share*
High market growth		*leased-line service*
Low market growth	*fixed-line*	*PCT, cable TV*

Figure 6.4 *The BCG Matrix of TT&T's product*

6.2.5.2 A diversification strategy from the product-market growth matrix

Generally, there are two terms involving new and existing customers; customer acquisition and customer retention. Both terms involve directly to a percentage of market share. Customer acquisition refers to the attraction of new or former customer away from competitors as well as the attraction of new customers into a market. Customer retention refers to a process of satisfying the existing customers, creating their loyalty, and changing that loyalty into repeat purchases. With a diversification strategy, TT&T can increase a customer acquisition and customer retention by improving the quality of leased-line service as new product and targeting precisely on business of insurance, bank, wholesales, and factory as new customer segments. The customer satisfaction that is increased from the improved quality of service will build up the loyalty, increase the switching barriers, and retain the market share. Emphasizing on customer root need can develop totally new market segmentation with an existing technology and then obtain an additional market

share. How the customers' competitive position could be enhanced by telecommunications should be understood. The existing telecommunications technology of the new segments should be audited periodically by the market survey, as well as the major communications functions of each segment. Then, the weaknesses of their communications network can be supported by TT&T service. It is a further benefit for TT&T if the long-range business plans of such segments are known.

So far, the survey results from the two previous chapters are combined and studied for the advantages of formulating marketing strategies and searching for the marketing opportunities. The strategies are developed in two aspects; the marketing mix of four Ps and the improvement of customer satisfaction. The SWOT analysis shows that leased-line service is the highest potential telecommunication-service for TT&T. Then the feasibility study is generated before an explanation of the recommended strategies.