



Diversification into Business Unit by Egco's Mis

By

Ms. Mananee Patayacheva

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

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

March 1999

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Project Title	Diversification into Business Unit by EGCO's MIS
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The Graduate School of Assumption University has approved this final report of the three-credit course, CE 6998 PROJECT, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer and Engineering Management.

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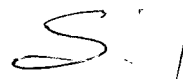
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ABSTRACT

The policy of the executive management of EGCO about the diversification into a business unit of its' current MIS division has been investigated for possibility. It was found that though the MIS division of EGCO is a service unit, and has experience in servicing the information system in the energy related business, this unit is not ready for business competition without careful improvement in various dimensions. Yet when investigating its' current status strategically and operationally, more conditions granted by EGCO executive management will be needed to escort this division through the process of diversification into business. These will be such as the customers of the new MIS unit must be all companies in EGCO and its' related business old and new. In the first two years, EGCO must allow the MIS unit to exercise charging-out at all services, support funds by EGCO will be needed for the next 4 years.

The current MIS division is not ready to serve IS customers competitively in the normal market. Its MIS staff will need more experience and training and more staff should be recruited to serve the current customers which are EGCO through and itself subsidiary. Certain MIS services required by the customer are not possible this MIS unit alone, the policy to seek joint venture with other potential consultant companies must be done. Since the procedure to diversify this MIS division into business units will involve a lot of factors and activities, the conceptual plan of diversification should be developed. This project proposes such a plan and it is supposed to offer the readiness of MIS division to enter the competitive business within 5 years.

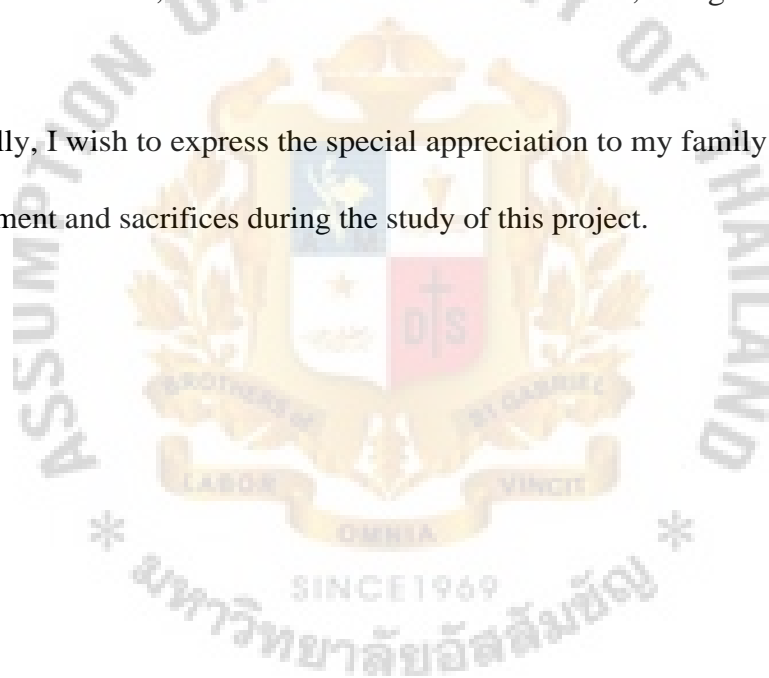
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I. INTRODUCTION

1.1 Significance of the Project

The Electricity Generating Public Company Limited (EGCO) has plans to diversify each of its departments into business units where each of them can generate income to support themselves while EGCO is still their mother company. The top management of EGCO stated the policy that the MIS division is one of the units which will be transformed into a business as well. Yet MIS division is not ready to be transformed into a business without modifying its organization, processes and management.

The project is intended to perform a study to identify the plan to diversify the MIS division of EGCO into a business unit corresponding to the top management's policy. The study will use the management survey of EGCO and strategic analysis as an approach and it will also use the management information service view in designing the MIS division as a profit center unit for EGCO.

After finishing this project, we will identify factors of success ,vision and strategy of the new business and suggest an appropriate plan toward diversification. The results of this project can serve as the information for executive management decision in developing the existing MIS division, transforming it into a business unit in the future. This project is also useful for a person who wants to study the diversification into business units of MIS in the future.

1.2 Objectives of the Project

- (a) To study the current system of EGCO, its environment, the top management vision and strategy in diversifying EGCO's departments into a business

units and to identify the appropriate policy in converting the MIS division into business unit for EGCO.

- (b) To study the role of MIS division as a business unit which should support EGCO and its subcompanies efficiently, and be self reliant at the same time. This study will need to identify the strengths, weaknesses, opportunities and threats of the MIS division to get the appropriate vision and strategies for the new MIS unit that EGCO needs.
- (c) To design and to develop the plan for implementing the new MIS unit for EGCO and to recommend the appropriate plan to diversify the current MIS division into a new business unit for EGCO.

1.3 Background of the Project

The Electricity Generating Public Company Limited (EGCO) is a company whose business involves the generation of electric power for sale to Electricity Generating Authority of Thailand (EGAT). EGCO is a cooperated company consisting of many departments working together. They have the characteristics of service and support working. EGCO has plans to diversify each of these departments into business units which can generate income to support themselves while EGCO is still their mother company. Some of these units or departments can easily be transformed into business units because their functions are involved directly in producing products and service to the market in their nature. Other units are not ready to be transformed into business without modifying their organizations, processes and management. This division is one of the later cases, because it is a supporting unit to help other departments under EGCO.

The MIS division reports to EGCO administration. The top management of EGCO has stated the policy that the MIS division should be transformed into a business

unit in some way. The MIS unit will still support other departments and companies under the EGCO group which has already diversified into business units and also can seek to sell its service to outsiders for profit as well. However, the MIS division at present is not organized for business and profit making.

This project is intended to perform a study to identify the best alternative to diversify the MIS division of EGCO into business units corresponding to the top management policy. The study will use the management survey of EGCO and strategic analysis as an approach and also use the management information service view in designing the MIS division as a profit center unit for EGCO.

1.4 Scope of the Project

This project will study the diversification into business units of EGCO's MIS. This will include the reviewing of the current situation, vision and strategy of EGCO and MIS, collecting data by interviewing the executive management and the concerned officers personnel who are working with MIS division to identify the key factors of success. The result of this project will characterize the appropriate vision and strategy for the new business unit. And this project will also be the master plan for MIS diversification.

II. COMPANY INFORMATION

2.1 Company Background

Electricity Generating Public Company Limited (EGCO) was established in May 1992 by the state-owned enterprise, Electricity Generating Authority of Thailand (EGAT) under Thai Cabinet resolution, as the first major step in the privatization of the electricity generating industry and EGCO became the first Independent Power Producer (IPP) in Thailand. It is the largest private sector power generator and was listed on the Stock Exchange of Thailand as "EGCOMP" with a market capitalization of Bahts 49,673.58 Million or US\$ 1,117.77 Million as of 20 February 1998.

EGCO was successful in undertaking and expanding its business in electricity, energy and energy related businesses and established subsidiary and joint venture companies as following:

2.2 Company

Electricity Generating Plc. (EGCO), Major shareholders are EGAT and CLP Power Projects (Thailand) Ltd., a subsidiary of CLP Power International Ltd., Hong Kong, one of the largest investor owned electric utility business in Asia. The company has a resolute purpose to develop power business such as Independent Power Producer-IPP, Small Power Producer -SPP, operation and maintenance in power plants together with other development of energy resources both domestically and abroad. As a holding company it consists of subsidiaries which have their own independent managerial structures resulting in expansion and efficiency of operation.

2.3 Subsidiaries

Structured as a holding company, EGCO owns principal subsidiaries in electricity,

energy related businesses as following:

2.3.1 Rayong Electricity Generating Company Limited (REGCO)

REGCO was established on June 1, 1994 to acquire the 1,232 megawatts- Rayong combined cycle power station from EGAT. The Rayong power station comprised 4 units of combined cycle power plants generating and supplying electricity to EGAT.

2.3.2 Khanom Electricity Generating Company Limited (KEGCO)

KEGCO was incorporated on February 20, 1995 to acquire the 824 megawatts power station from EGAT. Khanom Power Station is the largest generating capacity power station in Southern Thailand, consisting of 2 units of thermal power plant and 1 unit of combined cycle power plant.

2.3.3 EGCO Joint Ventures and Development Company Limited (EGCO JD)

EGCOJD was set up on September 4, 1995 to jointly invest in the Small Power Producer (SPP) projects as well as energy related business with leading companies, both domestically and internationally.

2.3.4 Amata-EGCO Power Company Limited (Amata-EGCO)

Amata-EGCO was established to construct a cogeneration power to supply electricity and steam to factories in the Bangpakong Industrial Park II and EGAT with the generating capacity of 165 megawatts. The power plant is located on km. 57, Bangna-Trat Hiway. The overall project is now completed and is synchronized with the EGAT grid since June 30, 1998. The installation of 2 units comprising of gas turbine generators with total capacity of 110 megawatts and steam turbine generator with the capacity of 55 megawatts.

2.3.5 EGCO Engineering and Service Company Limited (ESCO)

ESCO was established on September 8, 1995 to provide operation, maintenance

and construction services to IPP and SPP power plants as well as petrochemical, oil-refinery, metal industries by utilizing sophisticated management, technology and equipment, as qualified operation and maintenance staffs are anticipated to be required.

2.3.6 EGCO Mining Company Limited (EGCO Mining)

EGCO Mining was established on November 7, 1996 to undertake fuel supply for the business that especially coal mining and other energy related business for EGCO. The current activity of the company is the exploration of coal mining concession in South Kalimantan, Indonesia, which is the joint investment among Asia Energy Development Company Limited, J.B. Energy Company Limited and SCF Finance and Securities Public Company Limited and EGCO.

2.4 Joint Venture Company

EGCO has been expanding its business in electricity, energy and energy related businesses and established joint venture companies as following:

2.4.1 Thai LNG Power Corporation Limited (TLPC)

TLPC was established on September 28, 1995 aiming to import and supply liquefied natural gas as fuel for electricity generation in industrial factories and the undertaking related businesses to ensure the nation's energy and economic stability.

2.4.2 Bangchak Power Company Limited

Joined Bangchak Petroleum Public Company Limited to construct power plant of 70 MW within Bangchak refinery. The plant is a cogeneration power plant using refinery gas as fuel. Besides, company has signed Memorandum Of Understanding (MOU) with Union Textile Company Limited, Union Energy Company Limited and British Gas Company Limited on October 31, 1995, to develop cogeneration power

plant generating power and steam, with the total capacity of 100 MW using natural gas as fuel.

2.4.3 CMESCO Energy Service Company Limited (CMESCO)

An affiliated company of CMS Generation Investment Company and EGCO Engineering & Service Company Limited provides services which include consultation and cooperation with the ongoing preparations for and performance of the operation and maintenance of power plant projects. The Company business also undertakes the provision of operation and maintenance services for other **IPP** projects in Thailand. CMESCO had an initial registered capital of Bahts 1 million.

2.4.4 ESCO Wood Company Limited

The Company has primary objectives to carry on the business of the repair of components for the industrial gas turbines of power generation plants in Thailand. The workshop will provide various maintenance services of hot gas paths up to gas turbine blades depending on customer requirement.

2.5 EGCO's Business Growth

Thailand's economic crisis has gradually sprawled throughout the country and caused a lack of confidence from foreign investors. As a result, EGCO has been impacted by the crisis, leading to slow growth rate and decrease in power plant investment. The trend of the company's growth depends on several factors as following:

2.5.1 Power Industry in Thailand

In 1997, the country has drastically been impacted by the crisis, leading to the slow growth rate and a severe decrease in Gross Domestic Product (GDP). Definitely, the country's economic turmoil has affected energy demand and consumption in all

sectors, which usually are approximately 25% higher than the country's GDP. And many factors that EGCO should be concerned about are as following:

- (a) Electricity Demand
- (b) Electricity Production Capacity
- (c) Load Forecast

In Summer 1997, the report of the peak power production and purchase by Electricity Generating Authority of Thailand (EGAT), a major electricity producer and purchaser, aggregated 14,506.3 megawatts, up by 8.99 % from the same period of the previous year. As stated, the country's economic turbulence during the second last quarter of the fiscal year 1997 has dropped energy demand and consumption. Electricity demand forecast next 12 years from EGAT as shown in Figure 2.1. It means the electricity business is continually increasing.

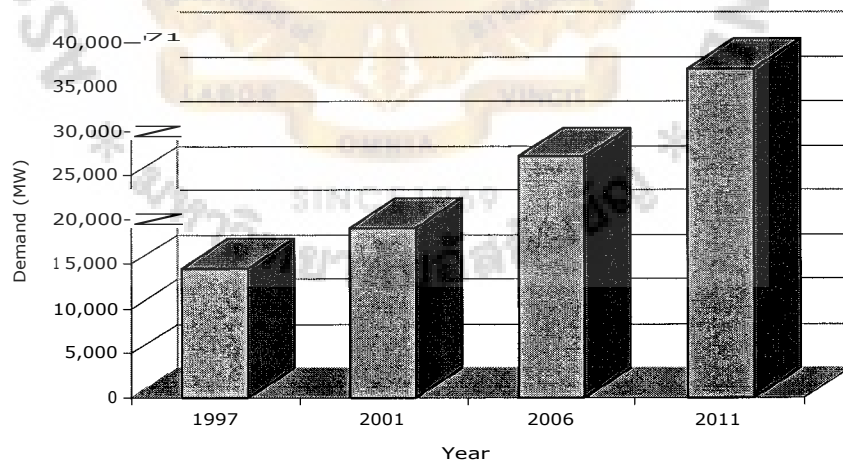


Figure 2.1. Electricity Demand Forecast.

From Table 2.1, EGAT's present generating capacity recorded at the end of December 1997 was 17, 403.6 MW. composed of hydro power plants, combined cycle

power plants, gas turbine & diesel power plants and power purchases according to the following generation mix:

Table 2.1. Generating Capacity Mix at the End of December 1997.

Fuel	MW	Percentage(%)
Hydro power plants	2,873.67 MW	16.51
Thermal power plants	6,517.50 MW	38.40
Combined cycle power plants	4,816.60 MW	27.68
Gas turbine power plants	886.00 MW	5.09
Power purchases	2,292.70 MW	13.17
Diesel & renewable	17.13 MW	0.1
Total	17,403.60 MW	100.00

The new load forecast from 8th National Economic and Social Development Plan (NESDP) made in September 1997 owing to the country's economic crisis can be summarized as shown in Table 2.2

Due to the impact of economic crisis on Thailand, Thai Growth Rate sharply fell by below 1% at the end of December 1997. Therefore, the growth has reached at the rate below 0% for a couple years. The influence of the country's economic crisis still extends to the investment plan in Independent Power Producers (IPPs) and especially Small Power Producers (SPPs) whose electricity is sold not only to EGAT but also to other industries. Having signed the Power Purchase Agreement with EGAT with total 5,000 MW, seven IPPs are confronted with financing problems, causing delay in and cancellation of some projects.

Table 2.2. Load Factors Forecast.

Fiscal Year	Peak Demand (MW)	Energy (GWh)	Load Factor (%)
1997	14,506	92,725	72.97
2001	19,049	124,233	74.45
2006	27,076	181,232	76.41
2011	37,047	249,045	76.74

From the aforementioned information, Electricity demand in Thailand shows potential growth. As one of the electricity suppliers to EGAT, EGCO as well as its related business will also experience growth. Consequently MIS business which follows EGCO core business will have a potential future.

2.6 EGCO's Investment Trends

Being identical to other companies operating in Thailand, EGCO is definitely effected in terms of growth by such economic crisis.. Since 1996, Thailand's GDP has dropped sharply resulting in the fall of electricity demand in all sectors. Therefore, EGAT's postponement of all IPP phase 2 and the following round of SPP bidding impedes EGCO's scheduled bidding of those two programs.

Still, holding onto its aim to grow in electricity market in region and internationally, EGCO shall undergo a joint venture plan in both IPP and SPP granted projects together with an investment in captive plants and Biomass projects.

With the intention to develop power industry, EGCO puts its aim in neighboring power markets namely Laos, Myanmar, Vietnam, and Indonesia.

2.6.1 EGCO 's Market Segmentation by Geography

EGCO focuses its investment in both domestic and international markets. From Figure 2.2, EGCO contributes 90% of its investment to domestic business

and 10% to the international business.

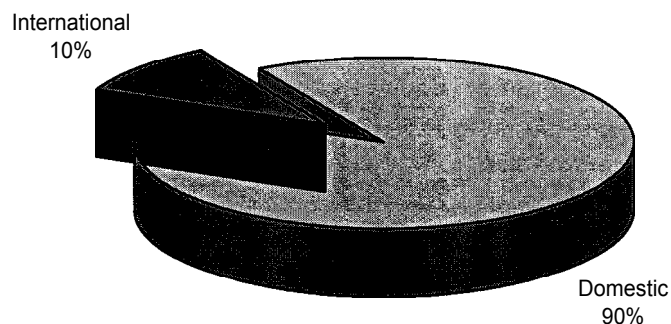


Figure 2.2. Marketing Segment by Geography.

2.6.2 EGCO 's Market Segmentation by Product/ End Markets

EGCO focuses its investment in the energy related business. From Figure 2.3, EGCO contributes up to 60% of its investment to power plant business and 25% to the operation and maintenance which is the related business.

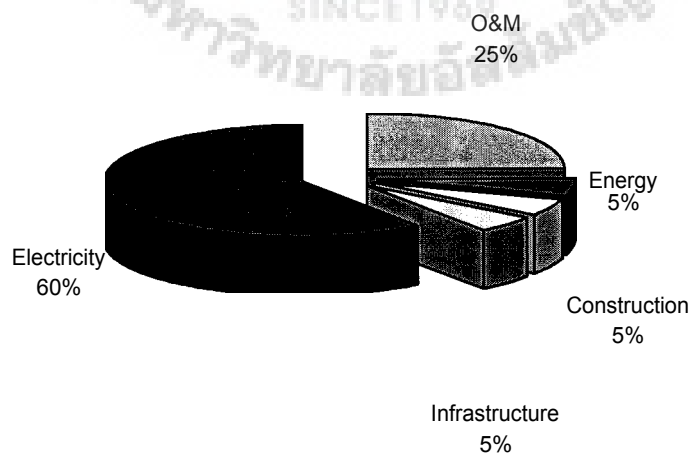


Figure 2.3. Marketing Segment by Product.

2.7 EGCO Potential

In conclusion EGCO has potential in these following businesses:

2.7.1 Power Plant Development

As the government has a policy to encourage private companies to invest in the power generation business, ECO has the opportunity to expand its investment into SPP, IPP and the privatization scheme of EGAT power plant. More over EGCO plans to invest in the neighboring countries as well.

2.7.2 Energy Related Business

Other than the power plant development, EGCO still has potential in the energy related business such as the exploration and excavation of coal, and the operation and maintenance of small power plants.

2.7.3 Diversification into Business Unit of Service Provider

Diversification plays supporting roles in EGCO. The service providers can adopt their experience and sell the service to other companies. One example of a service provider is the legal division which has expertise in the power purchase agreement. Other than the legal division, there are divisions that can be diversified to generate income such as Public Relations Office and Management of Information System (MIS).

2.8 EGCO Capital Raising

EGCO has potential in these following business:

2.8.1 Fund Management

EGCO and subsidiaries have long term capital raising plans with fund mobilization through capital market and financial money market, both domestic and overseas. Nevertheless, EGCO does not have the policy to raise funds as a recourse

method but prefers the project finance method of financing. Therefore, this method will not effect any existing projects or other projects.

2.8.2 Asset Management

It can be classified into 2 types as ccurrent asset management or treasury management, which normally it is short term-investments. And fixed asset management which is applied in procedures of making decisions to set the property fund.

2.8.3 Treasury Management

Regarding the current economics situation, EGCO will manage fund by emphasising on high liquidity and security more than maximizing the return on investment.

All these investments are considered by the qualification of the financial institutions or companies including the market and economic situations such as:

- (a) Being a strong financial status company or blue chip company
- (b) Being an economic sector business / a creditability business
- (c) Giving the appropriate return on investment
- (d) Being a good financial ratio company
- (e) Considering local and overseas market situation

The investment will be strongly considered and it will have to provide the company the best benefits.

Even if EGCO is financially strong and has a good line of credit, when it comes to big investments, EGCO will scrutinize the investment thoroughly. On the other hand, EGCO is ready to financially support its subsidiaries.

2.9 Organization Information

All of EGCO employees can be divided into three lines of work

2.9.1 Organization Structure

The line that works directly under the managing director, the line of new business ventures, and the line of financial and accounting. as shown in Figure 2.4

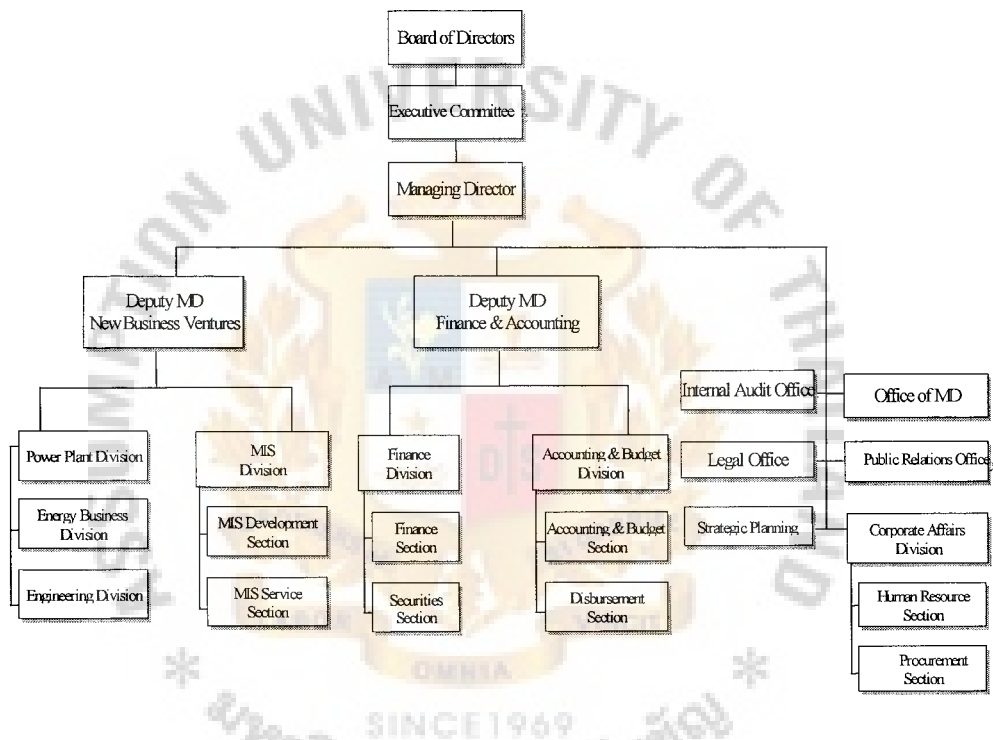


Figure 2.4. Organization Chart.

2.9.2 Division of Managing Director Function

The division that works in the line of managing director consists of Corporate affairs division, Internal audit officer, Legal office, Office of MD, Public relations office and Corporate strategic planning office.

Figure 2.5 will show the total number of staff that work in the line of MD.

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2.9.3 Division of New Business Venture Function

The division that works in the line of new business venture consists of energy business division, Power plant business division, Engineering business division and MIS division

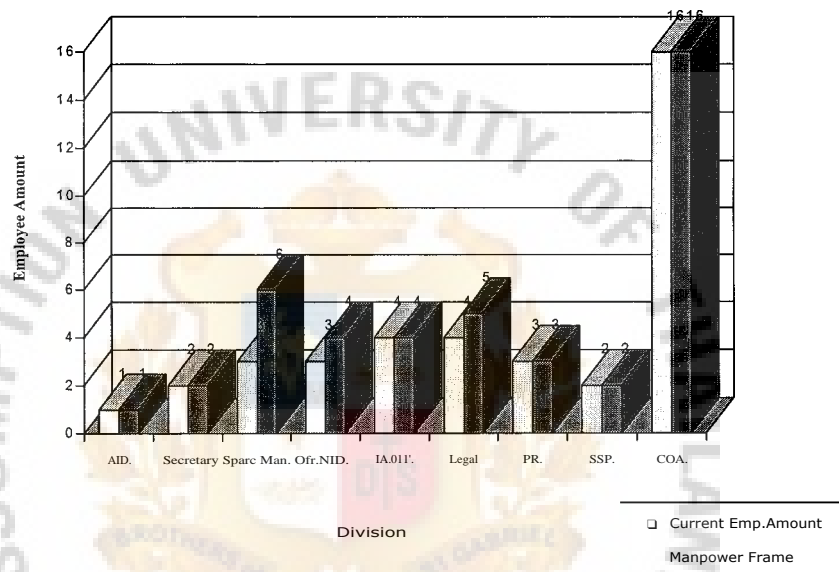


Figure 2.5. Number of Employees under Managing Director's Function.

Figure 2.6, will show the total number of staff that work in the line of new business venture respectively.

2.9.4 Division of Finance and Accounting Function

The division that works in the line of finance and accounting consists of Finance division, Accounting and budget division.

Figure 2.7 will show the total number of staff that work in the line of finance and accounting.

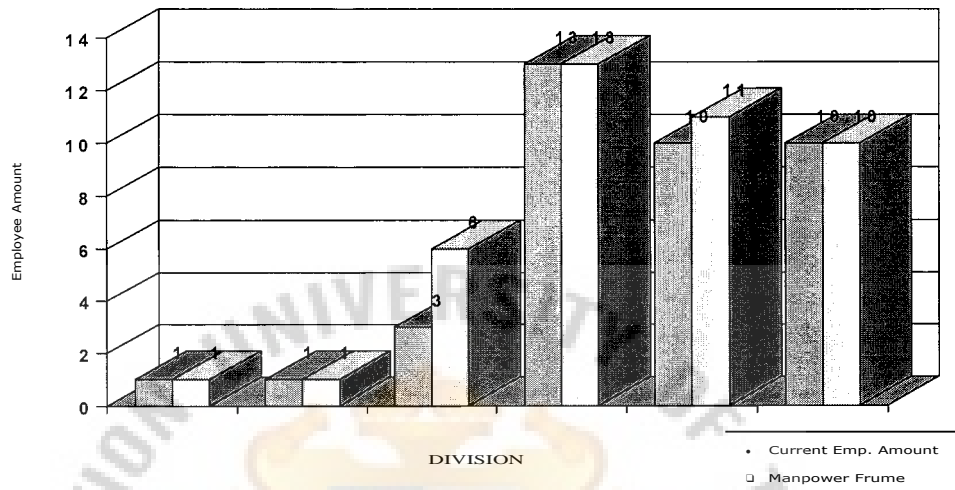


Figure 2.6. Number of Employees under New Business Venture's Function.

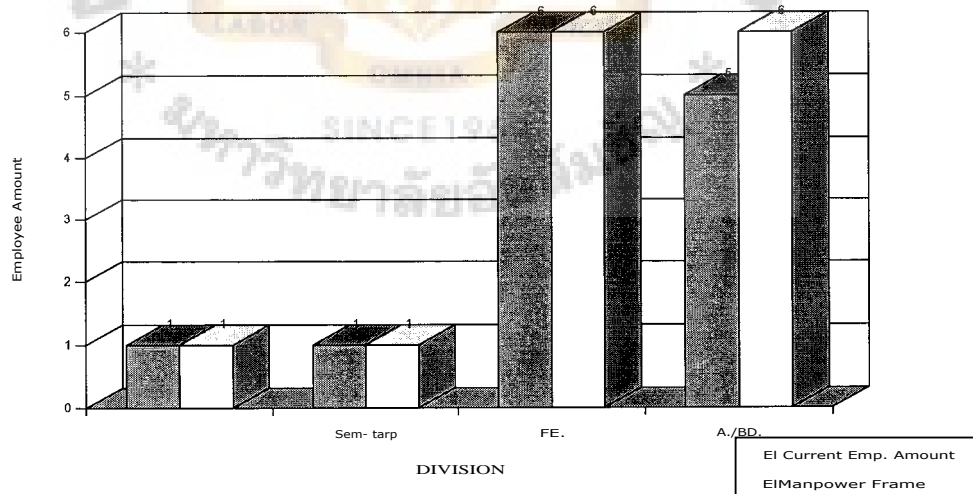


Figure 2.7. Number of Employees under Finance and Accounting's Function.

2.9.5 Number of Employees

The number of EGCO employees in the past two years was quite stable. Each division had only little expansion. Consequently, this situation has made the overall system of EGCO function stable, compared with the first 3 years of the establishment when the number of employees increase substantially.

In the IT service point of view, a constant number of end user means constant tasks to perform in each function.

The largest age group of EGCO employee belongs to the age of twenties. The second largest is the thirties. Both groups represent users that are ready to learn and use new Information Technology. The rest of the employees belong to the group of forties and fifties. Although this group contributes to just small proportion of the employee population, the middle and top management belongs to this group. MIS should provide Information Technology to help them in business decision making.

2.10 Strategic Analysis

The project will analyze the current strategic situation of EGCO to review the current system, environments and directions of company. Especially the executive policy that is related to the MIS division and diversification into business units of MIS.

The current situation of EGCO was analyze by several resource of information such as news, financial investor analysis, messages from EGCO executive management and internal information.

Here, EGCO strategic situation is focused on company's vision, mission, objectives and SWOT analysis.

2.10.1 Company's Vision & Mission / Objectives

EGCO 's vision & mission / objectives was set up from executive management who analyzed the company's internal capability and its external situation.

2.10.2 Group' s Vision

"To maintain leadership market share in Thai Independent Power Producer and expansion in infrastructure business in Thailand & Asia Pacific region concerning the interest of shareholder Value."

From EGCO's vision statement, MIS division can apply role of MIS as a back up unit to serve and help business development units develop the business units in Thailand and the Asia Pacific region. MIS division should provide effective information of business as a common weapon for helping business development units in acquiring and operating the projects.

Besides being a back up unit, deversification into business unit by MIS in the future, should offer a chance to provide service to the new business of EGCO as the customer. This includes the Thai independent producers and related business in Thailand and the Asia Pacific region as well.

2.10.3 EGCO Group' s Mission

EGCO has set up its mission rely on company vision, statement of the executive management and existing factors, as follows:

- (a) To operate and develop power plant business
- (b) To operate power plant operation & maintenance businesses
- (c) To develop new business relating to the energy sector
- (d) To develop new business relating to infrastructure project
- (e) To diversify service provider unit into business units.

From the EGCO group mission, the statement shows other than power plant business that EGCO has a potential to develop, related businesses also could be developed. EGCO has investment opportunity to expand business to other areas that EGCO has potential and enough capability to develop into projects.

Due to the EGCO plans to diversify into business units of service provider units, the causes show EGCO has not only limited its business in energy and related business but it has tried to expand other businesses that EGCO has potential to develop as well.

Moreover the broad mission statement is a advantage for MIS and service provider units into diversifying business units. Because if the service providers have enough capability and would like to transform the business unit, EGCO encourages them to diversify into business units as well.

2.10.4 EGCO 's Objective for the Year 1999

EGCO has set up objectives for the year 1999 to rely on existing factors and Investment Guidelines for business development in EGCO Group. The objective were stated as follows:

- (a) Acquire Ratchaburi Power Plant.
- (b) Acquire domestic bio mass project in Small Power Producer.
- (c) Acquire international project in Independent Power Producer.
- (d) Acquire domestic or international project in Energy Business.
- (e) Accelerate O&M business investment.
- (f) Pilot project in diversification into business of MIS

From the statement of objectives, EGCO has been concerned about the economic crisis, leading to the slow growth rate and decrease in power plant investment and the trend of company's growth to others businesses as well.

If EGCO can acquire the projects or the new companies, MIS business unit will provide service to them as a customer. Other than the power plant business that MIS business unit can expand service to, related businesses as well, such as electricity and steam in production process, oil-refinery, water utility business, rice mill business, nature energy business or co-generation business and so on can be expanded.

2.11 SWOT Analysis

SWOT analysis is a technique for getting a quick overview of the company's strategic situation which includes company's internal capability (its strengths and weaknesses) and its external situation (reflected in part by its opportunities and threats).

This analysis emphasizes on overall corporate aspect and division aspect (core business and supporting divisions which require budgets in operations).

2.11.1 Strengths

During the past 5 years of operation, EGCO was successful in undertaking and expanding its business because it has good strengths as follows:

- (a) **Financial Strength** (Compared only to domestic company) EGCO is a holding company that has good financial credibility. Many things can support this statement such as: In 1997, the total assets of EGCO and its subsidiary companies equaled Bahts 45,591.51 million. The operating revenue and others totaled Bahts 8,867.36 million. Major assets comprised property, plant and equipment equalled Bahts 29,806.26 million or 65.38% of total assets.
- (b) **Available Technical Expertise:** EGCO has qualified operation and maintenance staffs that have more specific experience to operate and

maintain power plant. At present all staff can provide operation and maintenance service to other power plants.

- (c) Good working type of service the service provider units in EGCO have more specific experience and qualified skill in power plant development such as legal unit, public relations units and MIS unit. The service provider units can adopt their experience and sell the services to other companies.
- (d) Flat organization. Refer to Figure 2.4 EGCO is characterized as a flat organization because EGCO has only 5 levels of function, staff, section, division, deputy of managing director, managing director. The advantage of the flat organization is the flexibility in management and decision making.
- (e) Useful experience of information system: EGCO has effective Information Technology to provide standard IT solutions as a common weapon to support business and executive requirement.

From the strengths as listed above, EGCO has opportunities to acquire new businesses that come to MIS customers. Besides, EGCO can be financially strong and have good working type of service provider, but when it comes to diversification into business unit EGCO does not have experience to transform business function competitively. Also MIS need to study and identify the plan to diversify its into business units.

2.11.2 Weaknesses

For successful business development, EGCO should decrease weakness in many groups in order to

- (a) Plan and Strategize
- (b) Working and man power

In the group of plans and strategizing, EGCO has main weaknesses with regard to the investment decision making. Because the company's investment strategy was on a conservative basis to maintain credibility and confidence among company's investors, so the executive management has been mostly aware of risk investment and it does not have clear project feasibility to make decision of investment. Besides investment strategy, the executive management should get more potential in business development market to operate and maintain business with joint venture. The project can summarize the weaknesses as follows:

- (a) Slow decision making at board levels.
- (b) Inefficient decision-making process.
- (c) Need more cooperation at top management level.
- (d) Lack of investment guideline.
- (e) Lack of business connection at operation level.
- (f) No Linkage between holding company and subsidiaries companies specifically in driving business growth companies (ESCO & EGCO Mining).
- (g) Need for speeding up strategic partner selection to strengthen O&M business growth.

EGCO should eliminate or decrease the groups which are weak to improve the acquiring of project development. MIS unit has been effected by this weaknesses to provide service to the new EGCO business project. Because EGCO does not have a new project, MIS should not have it too.

In term of working and man power, EGCO has main weaknesses regarding the lack of experience in acquiring new projects. Because most of the business development

members do not have experience in developing businesses before. Especially the operation members are relatively young and most have just graduated with master degrees. Besides experience, the business development unit does not have good support from related units because of lack of internal cooperation. The project can conclude the weaknesses of the group as follows:

- (a) Lack of experience in international business development
- (b) Lack of energy expertise in energy business division
- (c) Lack of business process working
- (d) Lack of continuity in business development process
- (e) Conflict in internal cooperation

EGCO should eliminate or reduce the group of the weaknesses to improve acquirement project development processes.

MIS unit should be concerned about all of the weaknesses which contribute to unsuccessful business development. MIS should study the weaknesses and be aware of them that they should not occur with MIS unit.

2.11.3 Opportunities

The Thai government has enhanced private participation policy in the energy sector so EGCO has more opportunities to acquire privatized power plant. EGCO put great emphasis on opportunity finding and the feasibility study of prospective projects had continued along with fostering domestic and foreign partners. In light of the medium and long term investment, EGCO had high potential to undertake power plant business and related business, gas, bio-mass, mining both domestically and internationally such as Burma, Laos, Vietnam, Indonesia, rely on EGCO expertise in power and energy business including those related to the business area.

International projects have more probability to succeed because many countries in the Asian region have under supply of electricity and then EGCO has the potential to develop them. Besides, the operating and maintenance business has more opportunity to acquire. Because other IPP and SPP businesses do not have qualified staff to operate and maintain the power plant, EGCO groups have qualified operation and maintenance staffs to provide operation and maintenance services by using sophisticated management, technology and equipment. The project can conclude the opportunities as follows:

- (a) Thai government has enhanced private participation policy in energy sector.
- (b) Current under supply electricity in Asian region such as Burma, Laos, Vietnam.
- (c) Relative slow growth in O&M businesses.

2.11.4 Threats

Thailand's economic crisis leading to the depreciation of the Bahts, financial predicament, stagnation of exports and political instability, has gradually sprawled thought out the country and caused a lack of confidence from foreign investors. As a result, a liquidity problem in Thailand resulted from several monetary withdrawals from the country. In 1997 to the present, the country has drastically been impacted upon by the crisis, leading to the slow growth rate and a severe decrease in GDP. Definitely, the country's economic turmoil has affected energy demand and consumption in all sectors, the growth rate of which usually is approximately 25% higher than the country's GDP.

The changing economic situation in Thailand has a certain impact on EGCO's business growth.

2.12 Conclusion of EGCO's Current Status

From the information that was seen in this chapter, EGCO's current status can be concluded as follows:

EGCO has been impacted upon by Thailand's economic crisis, leading to slow growth rate and decrease in power plant investment. The trend of company's growth should be concentrated in small businesses with less risk investments such as domestic bio-mass business, O&M business investment instead of independent power producer (IPP) investment.

Other than investment in small businesses, EGCO still has a good technical expertise which should encourage the expansion of business in this field. EGCO also has a good service provider unit, legal division, public relations office and MIS division, which are able to support EGCO and sell energy to other companies. Besides the diversification of each of these departments into business units where each of them can generate income to support themselves, it will expand the career path of the staff as well.

EGCO is financially strong and is a good working type of service provider, but when it comes to diversification of business units, EGCO does not have experience to transform business function competitively. Also EGCO will need to study and identify the plan to diversify its organization into business units.

In order to be successful as a business company , the staffs of EGCO should have the capability and effectiveness to perform their business's specific objectives to increase the effectiveness of working and advantages to doing business, the management should encourage employees to have more skilled experience by studying or training

III. IT INFORMATION

As a newly established company, EGCO has no existing IT system. It is a good chance to optimize the overall IT investment across the EGCO enterprise by carefully setting up an IT strategy from the beginning.

3.1 Information System Development

It is generally understood that investment in Information Technology (IT) is relatively high. This investment will not include only the capital cost of hardware and software but also the cost of operation, maintenance, training and management. It can be a huge waste if the system fails to improve the business operation. Naturally, once the main IT is adopted, the business operation is almost committed to hinge on it for a long time no matter what the diversification of the business will be.

Therefore EGCO's IT is not only to support the enterprise-wide business operation and its continuing growth but also to avoid any negative Information system (IS) utilization experiences.

Therefore, EGCO had to develop an enterprise for information technology strategy and plan. Formerly, the business vision and strategy of EGCO has been thoroughly studied and an enterprise business model was formulated. EGCO enterprise has two distinctly different business system characteristics which require different IT strategy focus on knowledge process and operational process of working. The result of these IT strategy is the vision or direction for IT development. It is the solution for the enterprise IT architecture model and Information System (IS) projects development. It includes the guideline to organize MIS staff capabilities and IT resources.

Before the operational project was developed in 1994, MIS division and an IT consultant firm had defined standards of integrated application solution. Software package used in the project was selected by using several issues of concern as follows:

3.1.1 Selected Criteria

A number of key selection criteria have been raised in order to evaluate and select the most effective and efficient package for the whole enterprise as following:

- (a) Key application functionality and modules supporting all of the possible business operations
- (b) Compliance to standard
- (c) Platform independently
- (d) Common user interfaces
- (e) Extendibility and scalability

3.1.2 Key Technology Standards

Technology standards have been raised in order to evaluate and select the most effective and efficient package for the whole enterprise as following:

- (a) Client/server architecture
- (b) Open systems standard for operating system
- (c) Data communication standard
- (d) Database standard

Before this operational IS project actually started, the basic IT infrastructure had already been provided among EGCO group. EGCO has facilitated the personal computer (Windows based) work-stations to communicate with each other on a local area network (LAN) in each company. These (de facto) standard technologies primarily

served the office automation applications and would be eventually responsive to those coming operational IS.

The evaluation process mainly concentrated on application systems selection. The database system was eventually driven by the selected application system and had to comply with the standard. Several potential vendor's applications were identified and assessed. In addition to those selected criteria, vendor profile, site visit and site reference information were also taken into consideration.

Consequently, a single integrated application software (SAP R/3) consisting of several modules which supports all possible routines within the enterprise as well as an alliance relational database running on standard platform (UNIX based server and client-server architecture) was finally selected. The implementation project was started by out-sourcing to an international consulting firm.

According to technical design, the application together with the database are resident on a single server located at EGCO office, Bangkok. This server was connected to the subsidiary companies network via satellite communication. This additional infrastructure was virtually procured and set up in the early stage of the implementation.

The implementation team has been set up jointly with the consultant. Senior management and key users were the important members while the standard implementation methodology and experiences of consultant played important roles. The strategy for implementation was to utilize the available functionalities of the software with minimum modification of the core coding, in order to reduce the consequent supporting and upgrading problems.

3.1.3 Experiences of IT Development

Since EGCO was a new company and did not have any previous systems to be

considered. The migration to the powerful and sophisticated IS for the users who have generally worked with manual procedure is an easy task. However, certain experiences have been obtained from the implementation, during which strong support from management, users buy-in and skill of the implementing teams were the important key success factors.

Some business processes have to be optimized between the business practices provided by software package and the existing ones. The most crucial and challenging part was to manage the change of some existing process and work habit in order to gain higher degree of manageability and information security. Data preparation and conversion are also important issues to be carefully managed. The data preparation is a highly time consuming task for users, it has to be done on time and this is obviously the additional task to their daily operations.

Sharing experiences with consultant during the implementation is also very useful for EGCO IT staff. A well defined implementation methodology and management can be used as a guide-line for other future IS developments. In addition, the post support and maintenance procedures have been adopted and efficiently carried out by our IT staffs.

3.1.4 Benefits of IT Implementation

The result of this implementation eventually meets the target. It improves the operational efficiency, streamlines business processes, optimizes resource utilization and provides greater information availability.

With the integrated application, single source of data across all applications solution, duplication of work and data redundancy were eliminated, and the single platform which handles all the modules serving enterprise-wide business can be

efficiently managed, operated and maintained. These can naturally incur the lowest overall information technology investment.

The experiences gained during the implementation are virtually invaluable and our staff implementation skill have been significantly improved. They were able to successfully implement the financial and material management systems for newly established subsidiary company, ESCO, in 1997 within a few months.

3.2 IT Existing System

EGCO was a new company and has strong support from executive management. EGCO's MIS has been successfully implemented in the first year. At the same time, IT systems in the head quarters, IT system were also expanded in subsidiaries.

The main existing IT system in EGCO consists of 3 parts, IT applications and softwares, IT hardwares and IT infrastructure as follows:

3.2.1 IT Applications and Softwares

In order to improve operational efficiency, EGCO has facilitated the personal computer that uses Windows application based, specific applications and office automation applications as following:

- (a) Operating system
- (b) Financial information systems
- (c) Logistics information systems
- (d) Plant maintenance information systems
- (e) Human resource management systems
- (f) Document management systems
- (g) Office Application
- (h) Workgroup management information systems

(i) External information systems

Many operating systems are used in the system area:

- (a) HP-UX 10.01
- (b) Windows NT 4.0
- (c) Netware 3.12
- (d) Microsoft Windows 95

Several modules of financial information system of SAP R/3 Release 3.were used as follows:

- (a) General Ledger
- (b) Accounts Payable
- (c) Budgeting, Cost Management
- (d) Internal Order and Fixed Assets
- (e) Accounting

Two modules of logistics information system SAP R/3 Release 3 were used as follows:

- (a) Material management
- (b) Purchasing

SAP R/3 Release 3.0F is used in two modules of Plant maintenance information systems as follows:

- (a) Plant maintenance management
- (b) Project system

Lotus Notes 4.6 Thai is used in several modules of human resource management systems as follows:

- (a) Employee profile

- (b) Leave
- (c) Appraisal
- (d) Training

Lotus Notes 4.6 Thai is used in several modules of document management systems as follows:

- (a) Incoming/ Outgoing systems
- (b) Orders and regulations systems
- (c) Group and board meeting systems
- (d) Personal information systems

Microsoft application is used with standard of office automation

- (a) Word processor: Microsoft Word for Windows 95
- (b) Spread sheet : Microsoft Excel, Lotus 123 for Windows 95
- (c) Presentation : Microsoft Power Point for Windows 95

Workgroup management information systems are consist of:

- (a) Workgroup system: Lotus Notes 4.6
- (b) Electronic mail: Lotus Notes Mail
- (c) Workgroup scheduling: Lotus Notes Calendar

External information systems are consist of:

- (a) Stock, News, Financial Information: Bisnews, Internet
- (b) Business News and Report, etc.: Lexis-Nexis, Internet

3.3 IT Hardware

According to technical design, the applications and softwares are run on several system at EGCO office. For the effectiveness of IT system, each has many details in them as follows:

3.3.1 UNIX System

UNIX system has 2 servers to run SAP application.

- (a) Production server : HP9000 model H70 with 2CPU, 720 MB memory
 - System software HP-UX 10.01
 - Application software SAP R/3 Release 3.0F
 - Database system Oracle database version 7.2.3
- (b) Development server : HP9000 model D250 with single CPU, 256 MB memory
 - System software HP-UX 10.01
 - Application software SAP R/3 Release 3.0F
 - Database system Oracle database version

3.3.2 Netware System

Client-server architecture of the NetWare system is used to connect work stations to each other on local area network. NetWare systems are used in 4 companies. Namely, EGCO, REGCO, KEGCO and ESCO as follows:

- (a) EGCO (Bangkok) COMPAQ Proliant PENTIUM-166,64 MB memory
- (b) REGCO (Rayong) COMPAQ Prosignia PENTIUM-60, 64MB memory
- (c) KEGCO (Khanom) COMPAQ Prosignia PENTIUM-166,64 MB memory
- (d) ESCO (Rayaong) COMPAQ Proliant 2500 PENTIUM-166,64MB memory

3.3.3 Lotus Notes System

Using Windows NT 4.0 based for 3 companies, EGCO, REGCO and KEGCO as following:

- (a) EGCO (Bangkok) COMPAQ Proliant 2500 PENTIUM PRO 2
CPU, 128 MB memory

- (b) REGCO,ESCO(Rayong) COMPAQ Proliant PENTIUM II ,128 MB
memory
- (c) KEGCO (Khanom) COMPAQ Proliant PENTIUM II , 128 MB
memory

3.3.4 Local Area Network

Using client-server architecture to connect work stations to each other on local area network(LAN).

- (a) Topology: Ethernet
- (b) Protocol: IPX.SPX, TCP/IP

3.3.5 Wide Area Network

Using satellite communication connection among the head office and subsidiaries.

- (a) Bangkok-Rayong: VSAT 64 Kbit Channels (8 Kbit voice channel x 2,
48 Kbit Data Channel)
- (b) Bangkok-Kahnom: VSAT 64 Kbit Channels (8 Kbit voice channel x 2,
48 Kbit Data Channel)

3.4 IT Infrastructure

EGCO has infrastructure which connects between client and server in head office and is communicated among servers at the head office and the subsidiary companies via satellite communication shown as Figure 3.1.

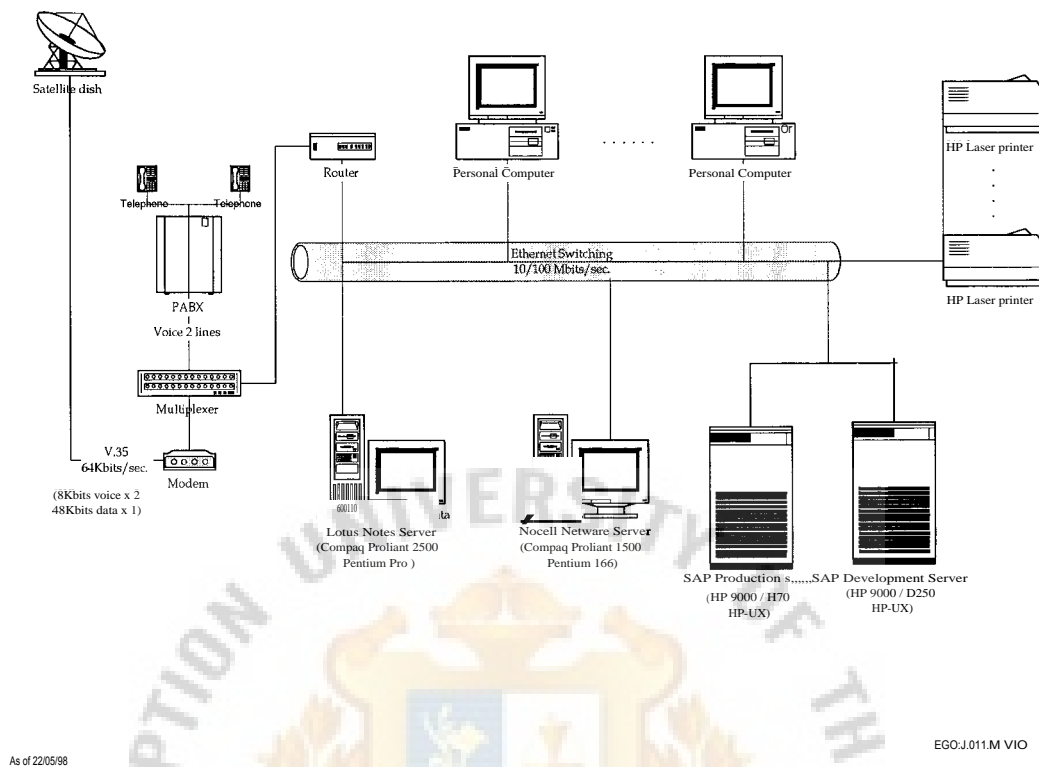


Figure 3.1. IT Infrastructure.

3.5 MIS Organization Information

MIS division has been working in the line of new business ventures that develop and provide service of IT systems for management, EGCO and subsidiaries.

3.5.1 Roles and Responsibilities of Current MIS Division

All the roles and responsibility are served to EGCO and subsidiaries as follows:

- Provide IT plan and manage information system to support company or business objectives.
- Implement information system, computer system, office automation system, and communication system efficiently.
- Provide effective support and service of information system.

(d) Provide information system maintenance with safety and correctly.

3.6 Organization Structure

MIS staffs are organized in three lines of work. The line that works directly under MIS division, the line of development section, and the line of service section as shown in Figure 3.2

MIS Organizations have **10** members to work together in different function.

- (a) MIS division manager 1 person
- (b) Development section manager 1 person
- (c) Service section manager 1 person
- (d) System analyst 2 persons
- (e) IS engineer 4 persons
- (f) System engineer 1 person

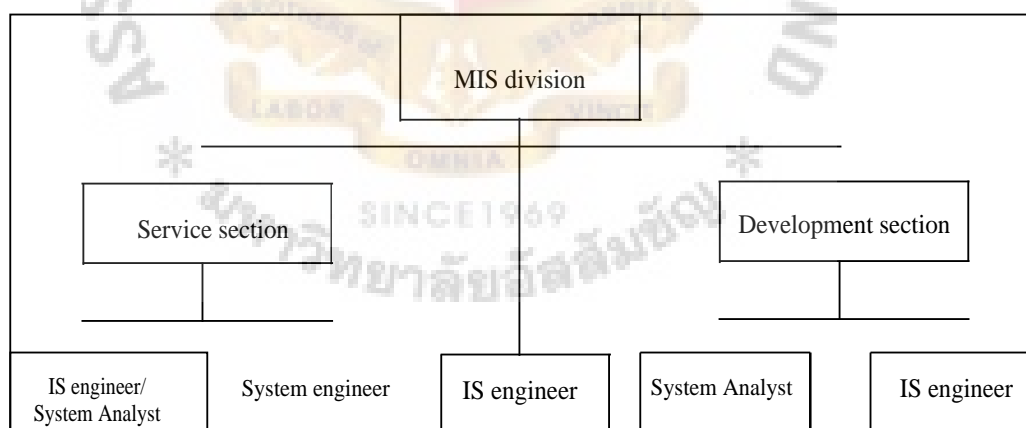


Figure 3.2. MIS Organization Chart.

St. Gabrids

3.7 IT Staff Information

All of MIS staff that works together in different functions consists of 7 men and 3 women. The mean range age is between 25 to 45 years old. They are all graduates at least with bachelor degree.

3.7.1 Staff of MIS Division

All of the staff is listed in Table 3.1.

Table 3.1. Current MIS Staff.

Position	Member Name	Initial Name
MIS Division	Mr. Kiatichai Sijjitsong	KT
IS Engineer	Mr. Thawee Pramepracha	TP
Development section manager	Ms. Photchanan Somphakdee	PNS
System analyst	Ms. Prapapan Vanapongrungreng	PV
IS engineer	Mr. Manorot Vitayapiphat	MV
	Mr. Pichaiyut Chainit	PC
Service section manager	Mr. Wutirat Chugsangsatitporn	WC
System Analyst	Ms. Mananee Patayacheva	MAP
IS engineer	Mr. Kamol Thamjaras	KAT
System engineer	Mr. Boonchot Boongue	BB

3.7.2 Staff Roles and Responsibilities

All MIS members have been working in with roles and responsibilities as shown in Table 3.2. Most of the time, members in each line will work across among other lines that have similar roles and responsibilities.

Table 3.2. Main Roles and Responsibilities.

Position	Initials	Mainly roles and responsibility
MIS division	KT	<ul style="list-style-type: none"> • Plan and manage IS in terms of its fit with company and subsidiary. • Control ,monitor and improve service and usefulness of IS and office automation
IS engineer	TP	<ul style="list-style-type: none"> • Provide and manage appropriate IS • Plan and define MIS standard and procedures
Development section manager	PNS	<ul style="list-style-type: none"> • Provide appropriate technology and develop IS • Improve and expand IS to increase effectiveness of working
System analyst	PV,MAP	<ul style="list-style-type: none"> • Develop appropriate system among users requirements for increase performance of work by analysis of business process
IS engineer	MV,PC	<ul style="list-style-type: none"> • Develop appropriate system among users requirements for increase performance of work

Table 3.2. Main Roles and Responsibilities.(continued)

Position	Initials	Mainly roles and responsibility
Service section manager	WC	<ul style="list-style-type: none"> • Support and maintenance IS to EGCO and subsidiaries
IS engineer	KAT	<ul style="list-style-type: none"> • Study and implement IS • Administrative and maintenance IS and communication system
System engineer	BB	<ul style="list-style-type: none"> • Study standard application • Support daily operation and maintenance IS, HW

3.7.3 Education Backgrounds

All MIS members have minimum gradual levels in bachelor degree in related fields such as computer science, engineering and accounting information system as shown in Table 3.3.

Table 3.3. Education Background.

Initial Name	Education
KT	<ul style="list-style-type: none"> • AIT (Energy Technology) • KMIT-T (Mech Engineering)
TP	<ul style="list-style-type: none"> • KMIT-L(IT Management) • KASET (Computer Engineer)
PNS	<ul style="list-style-type: none"> • AIT (Computer Science) • Thammasat U.(Computer Science)

Table 3.3. Education Background.(continued)

Initial Name	Education
PV	<ul style="list-style-type: none"> • Chulalongkorn U. (Accounting Information System) • Thammasat U. (Accounting)
MV	<ul style="list-style-type: none"> • Assumption U. (Computer Science)
PC	<ul style="list-style-type: none"> • Thammasat U. (Computer Science)
WC	<ul style="list-style-type: none"> • KASET (Electric Engineering)
MAP	<ul style="list-style-type: none"> • UTCC (Computer Science)
KAT	<ul style="list-style-type: none"> • UTCC (Computer Science)
BB	<ul style="list-style-type: none"> • Rachapat Chachoenysao (Electric Engineering)

3.7.4 Work Experience

From Table 3.4, most of MIS staff have experience in computer related field. But some of them do not have work experience at all.

Table 3.4. Member's Work Experience.

Initial Name	Work Experience
KT	<ul style="list-style-type: none"> • Manager Monitor & Evaluate (EGAT) - 10 years
TP	<ul style="list-style-type: none"> • IT Supervisor (Loxley) - 3 years
PNS	<ul style="list-style-type: none"> • Computer System Assistant (AIT) - 2 years
PV	<ul style="list-style-type: none"> • Accounting Officer (PTT) - 2 years
MV	<ul style="list-style-type: none"> • No experience before
PC	<ul style="list-style-type: none"> • No experience before
WC	<ul style="list-style-type: none"> • Engineer (EGAT) - 4 years

Table 3.4. Members Work Experience.(continued)

Initial Name	Work Experience
MAP	<ul style="list-style-type: none"> • Training Officer (Olympia Thai) - 1 years • IT Engineer (HP) - 1 years
KAT	<ul style="list-style-type: none"> • System Engineer (Olympia Thai) - 1 years • System Engineer (Duty Free) - 1 years
BB	<ul style="list-style-type: none"> • System support (Powell Computer) - 2 years

3.7.5 Training

Due to some members not having work experience in computer or related field, EGCO will provide training to build skills up to improve knowledge and increase the performance of working. From Table 3.5, member training was provided from EGCO over the last 3 years.

Table 3.5. Member Training.

Initial Name	Training
KT	<ul style="list-style-type: none"> • Concise MBA • Concept of executive information system • Effective package software selection • The year 2000 challenges & solutions • CEPSI — Asia • English conversation
PNS	<ul style="list-style-type: none"> • Concept of executive information system • IT Project management • Data communication system • SAP - Financial & accounting module • SAP - Advance R/3 system management

Table 3.5. Member Training.(continued)

Initial Name	Training
PV	<ul style="list-style-type: none"> • SAP - Financial & accounting module • SAP - HR seminar • English conversation
MV	<ul style="list-style-type: none"> • Telecommunication • SAP — Logistics module • SAP - Plant maintenance module • SAP — Advance R/3 system management • SAP - ABAP/4 DW report • SAP — Workbench organization, transport system and upgrading • English conversation
PC	<ul style="list-style-type: none"> • SAP — Introduction to ABAP/4 • Notes — Application development I,II • Notes — Lotus Script • English conversation
TP	<ul style="list-style-type: none"> • IT operation seminar
WC	<ul style="list-style-type: none"> • Concise MBA • Grid management • TCP/IP • Windows NT 4.0 • Notes — Lotus domino • Notes — Application development I,II • Notes — System administration I,II • English conversation
MAP	<ul style="list-style-type: none"> • SAP — Logistic module • Notes — Application development I,II • IT service & support management essential • English conversation

Table 3.5. Member Training.(continued)

Initial Name	Training
KAT	<ul style="list-style-type: none"> • Telecommunication • Design & engineering in Thai • Notes - System administration I • SAP - System administration and UNIX • English conversation
BB	<ul style="list-style-type: none"> • Netware administration • Windows NT administration • Internet working • English conversation

3.7.6 Task Assignment

MIS staff had been assigned to work in various tasks as shown in Table 3.6

Table 3.6. Task Assignment.

Task		Development Section					Service Section			
		TP	PNS	MV	PV	PC	WC	MAP	KAT	BB
Office Automation										
Ms. Office							/	P	/	/
SAP										
Financial,Accounting			P		/					
Logistics				P		/				
Plant Maintenance				P		/				
Application										
Treasury			/		P					
Executive Information System			/		P	/				

Table 3.6. Task Assignment.(continued)

Task		Development Section				Service Section			
Lotus Notes									
Business Development Knowledge		/		/	/		P		
Document Management					/		P		
Enterprise Information					/		P		
Human Resource				/			P		
Engineering Information									
GT Pro & Heat balance	/								
Autocad	/								
External Information									
Lexis-Nexis		P			/				
Bisnews						P	/		/
Internet									
Server, E-Mail, WWW		/				P			
Web Page		P							
Add on		P		/					
Technical Infrastructure Support									
Network, Satellite Communication						P		/	/
System Administrative									
SAP Unix Server			P					P	
Netware File Server						/		/	P
Lotus Notes Server						P		/	/
Fax Server						/			/
User and Operational									

Table 3.6. Task Assignment.(continued)

Task		Development Section				Service Section			
PC/ Peripheral Maintenance/Upgrade	/								P
Help Desk/ Trouble Shooting	/					/	/	P	/
Software Upgrade and configuration	/					/		P	/

P = Primary Responsibility

3.8 Interview

For the success of MIS unit diversification, the opinion of key persons concerning MIS diversification should present facts of services and MIS division in current situation. These views should help identifying the key factors of success in diversification of MIS business unit. The interview of these staff had been made with the following results.

3.8.1 Objectives of Interview

This objective of interview is to collect the end users point of view as follows:

- The direction of MIS in the current situation and its diversification into business units.
- Accounting and finance view towards diversification into business units
- Human resource view to diversification into business units.
- The IT capability in the current situation.

This project is intended to get related point of view by interviewing key persons. Interviewing will focus on three groups of peoples. These are executive management, MIS members and concerned officers who are working with the MIS division.

Method of data collection is to design the questions that need to be asked to the concerned person about diversification into business unit of MIS. Completed questions will be sent to interviewees before interview process occurs.

3.8.2 Resolution of Interview

The resolution of interview presents the opinion of interviewees about MIS unit diversification into business, fact about MIS status and services in current situation and the key factors of success for diversification MIS business unit.

3.8.3 Executive Committee and Deputy Managing Director-Finance

Mr.Machima Kunjara Na Ayudhya, Executive Committee and Deputy Managing Director-Finance, expressed some ideas and recommendations as follows:

MIS should be diversified into business unit in order to:

- (a) To expand the career path of the officers. The nature of MIS task is computer supporting service. Such service is marketable to the other companies.
- (b) To make a clear cut between the investment in IT and the revenue and benefit from the investment.

Moreover to make the new business unit self-sustainable, the effective work force is required. The joint venture between EGCO, MIS and IT consultant like IBM or Andersen consulting, should reinforce the strong points of the work force. Also, MIS management should participate in the new business unit even if the master company supports the new venture financially.

3.8.4 Executive Committee and Deputy Managing Director-New Business Ventures

Dr.Siwanan Na Nakorn, Executive Committee and Deputy Managing Director-New Business Ventures, expressed some ideas and recommendations as follows:

MIS unit is viewed as a tool that increases productivity of the company. Currently, MIS has the capability and effectiveness to perform the internal work and should bring the experience to be implemented in similar business. The advantage of the current MIS team are the experience in the fully integrated system work and the service oriented mind.

In order to be successful as a business unit, MIS member should be truly professional, systematic and be able to maintain current customer satisfaction as well as productivity and cost effectiveness.

Moreover, MIS unit can join the IT consultant for the new business unit and MIS should bring the concept of outsourcing into the business. The potential clients will be the EGCO subsidiaries , and EGCO joint venture company or the related business clientele.

3.8.5 Summary of Executive Management View

The resolution of executive interview about MIS diversification into business unit can be summarized as follows:

- (a) MIS division should diversify into business unit and serve EGCO subsidiaries, EGCO joint ventures and related businesses.
- (b) MIS business unit has an opportunity to provide its service to EGCO partners. MIS should form a joint venture with IT consultant firms.
- (c) The effectiveness and the standard of work should be improved.

- (d) The new business unit should be able to distinguish between its investment and revenue and should have its own accounting system.

3.8.6 MIS Team Interview

This project has interviewed 4 persons from 3 lines of work ,MIS division, development section and service section. MIS members expressed some ideas and their opinions about diversification into business as follows:

- (a) Manager-MIS Division
- (b) Manager-Development Section
- (c) IS Engineer (Development Section)
- (d) IS Engineer (Service Section)
- (e) Support Engineer (Service Section)

Mr.Kiatichai Siljitsong, Manager-MIS Division, expressed some ideas and recommendations as follows:

When the top management has the policy of diversification, MIS division should internally prepare itself for transformation. The preparation should be divided into stages.

The advantage of being a business unit is that MIS unit will be more flexible in making decisions and working. Also the career path of the MIS members will be expanded. MIS members should be trained to improve their business competitiveness. A joint venture with IT consultant should be established.

Mrs. Photchanan Somphakdee, Manager-Development Section, expressed some ideas and recommendations as follows:

All of MIS should be clarified to all MIS members. The MIS personnel should be trained to fit the diversification. The incentives and benefits for all personnel should be as same as which the MIS division is with the mother company.

Mr. Manorot Vittayapiphat, IS Engineer, expressed some ideas and recommendations as follows:

In order to make the diversification a devisable choice to the MIS members, goal and career path for each member should be clarified. MIS member should be sufficiently trained. The strong point of MIS team should be to reinforce the increase and the attractiveness of MIS servicesto the potential clients.

Mr. Kamol Thamjaras , IS Engineer, expressed some ideas and recommendations as follows:

MIS division should analyze its current weak points. The improvement should be made both in operation and management level. The strong point should be developed to attract the customer. The working environment and incentive should be understandable to all of division staff to encourage the transformation.

Mr. Boonchot Boongue, Support Engineer, expressed some ideas and recommendations as follows:

The direction of diversification should be clear and solid. The career path should also be clarified. The weak as well as the strong point of the MIS should be reinforced.

3.8.7 Summary of MIS Staffs Views:

The resolution of executive interview which MIS diversification into business unit should summarized in order that:

- (a) The goal and direction of diversification should be clarified to MIS members. The management, incentive and decision making of the new business unit should be flexible as an encouragement.
- (b) Members should be trained to improved their skill and prepare for the diversification, the joint venture with IT consultant should be established

3.8.8 Concerned Officers Personnel Interview:

Five persons from four functions of working ,end users, strategic planning, business development and human resource had been interviewed. Concerned officers personnel expressed MIS service in current status, some ideas and key factors of success which diversification into business units as follows:

- (a) Deputy Managing Director-Finance and Accounting- KEGCO/Acting Manager-Accounting and Budget Division
- (b) Deputy Managing Director-Finance and Accounting- ESCO
- (c) Senior Strategic Planning
- (d) Business Development Manager

Mrs. Daranee Sriwattana , Deputy Managing Director-Finance and Accounting- KEGCO/Acting Manager-Accounting and Budget Division,expressed some ideas and recommendations as follows:

The support that MIS has been delivering to EGCO is acceptable both in the basic service and in the SAP service. When MIS diversifies to a business unit there should be standard figures to measure the quality of work and the service charges. These figures should be acceptable to both client and MIS division . MIS division has not delivered a lot of service to KEGCO so far. One reason is that most of the computer service is the kind of basic operating which KEGCO staff can handle. If MIS unit is diversified, it

should be able to convince KEGCO that the service from MIS will justify the service charges.

Ms. Warunee Tantiwong, Deputy Managing Director-Finance and Accounting-ESCO ,expressed some ideas and recommendations as follows:

The basic operating support from MIS is satisfiable, but more application such as database should be implemented to increase effectiveness.

If MIS transforms into business unit, EGCO subsidiaries must be convinced that they will receive good support from MIS at the price that satisfies both the client and MIS. The current service of MIS should be classified into a group of tasks. The new business unit may serve a specific kind of task while some of the basic service should be out-sourcing.

Mrs. Veerasa Attanan, Senior Strategic Planning, expressed some ideas and recommendations as follows:

The standard of service from MIS unit is satisfiable. The decision making support tools ,database, is not sufficient. The quality of service and service charge should be justifiable to the client.

Mrs. Pariphat Booranasin,Business Development Manager, expressed some ideas and recommendations as follows:

The basic support from MIS is satisfiable. However the application to decision support system is not sufficient.

3.8.9 Manager-Corporate Affairs Division

Mr.Piniyos Sa-udaum, Manager-Corporate Affairs Division, expressed some ideas and recommendation as follows:

The employee development plan in 2 years of EGCO.

- (a) Develop team working
- (b) Develop thinking process and mind
- (c) Follow a learned profession in market

Opinion for diversification of MIS

- (a) Good Point: Generate income to company
- (b) Weak Point: More competitors in business area
- (c) Technology can change rapidly
- (d) Big investment

Considerations for the diversification into MIS business units:

- (a) Market Segment
- (b) People
- (c) Economics
- (d) Timing
- (e) Economic recovery

Performance measurement after diversification into MIS

- (a) Quantity of customer
- (b) Income
- (c) Profit and Loss

Incentive system

- (a) Same standard of job level and appraisal with EGCO

IT in the present

- (a) Tools to increase productivity of work
- (b) Tools to increase efficiency to make decisions

3.8.10 Summary of Concerned Personnel Officers Views:

The resolution of concerned personnel officers whose MIS diversification into business unit should be summarized in order to:

- (a) The support from MIS should be able to match customer satisfaction level.
The customer relationship should be maintained.
- (b) The service charge should be justifiable with the service delivered.

3.8.11 Conclusion of Views:

All points of view on diversification into business unit of MIS can be concluded in order as:

MIS division should diversify into business unit and serve EGCO groups, EGCO partners and seek to sell its service to related business. The executive management should clarify vision and direction of diversification to the leaders of MIS's unit members. If MIS division should be diversified into business units the effectiveness and the standard of work must be improved. Members should be trained to improve their skill and prepare for diversification. The joint venture with IT consultant like Andersen consulting should be established. Service supported by MIS unit should be standardized to reflect the quality of work and the service charge. The service provided by MIS division should be able to match customer satisfaction level.

3.9 Strategic Analysis

This project will analyze the current situation of MIS in EGCO and review the current system, environment, directions of MIS division and the concerning factors of diversification into business units.

The current situation of MIS division was analyzed from several sources of information such as company policy and company information. Views from EGCO executive management and the existing internal factors were also investigated.

As well, the IT strategic situation was studied focusing on MIS' s vision, mission, objective by using external and internal audit checklist and SWOT analysis.

3.9.1 MIS' s Vision & Mission /Objectives

The vision of EGCO executives is to position MIS as a contributor to the business. This refers to an anticipated image of the future organization as seen in the minds of the executives. This image must be articulated and shared by all of the MIS team who participate in producing efforts. The visions paint a shared picture of the future of the organization and establishes direction and values.

3.9.2 MIS' s Vision Framework

"The future MIS organization will be transparent to the operation of EGCO business. Built around the core business process, the technologies infrastructure will be modularly constructed to adapt to the evolution of the marketplace. MIS will equip EGCO business process families with tools upon which they may compete from a position of strength. Information necessary for the efficient operation and control of the business will be collected, processed and stored so as to provide information as a business asset. These features shall be accomplished with minimal cost and maximum benefit to the business operation and EGCO customers. MIS would expand strong products to external related businesses when the economic recovery is experienced."

3.9.3 MIS Division' s Mission

Formerly, MIS division had set up missions relying on the company's vision, and direction of executive management and existing factors as follows:

MIS organization will provide EGCO customers with a technological base required to effectively conduct business easily from an advantageous position. MIS division will expand MIS service to related business and anticipate the future needs of EGCO customers and deliver superior capabilities through the monitoring and selection of sound application of information technology. MIS division efforts will be judged by the contribution toward achieving the business's critical measures of success and expectations.

3.9.4 MIS 's Objective for the Year 1999

MIS has set up objectives for the year 1999 relying on existing factors, mission and objectives of EGCO group as follows:

- (a) Implement a cost-effective technology architecture that is flexible enough to rapidly adapt to the business dynamics and scalable by extending out and contracting out to satisfy the demand for customers requirement in case that we can not develop in our own capability.
- (b) Develop cost-effective techniques and tools that will allow rapid response to required changes to IT application portfolio.
- (c) Drive the best practices process models by anticipating the future information needs of the business and deliver the necessary technology and applications.
- (d) Manage information assets in a fashion that will provide a competitive advantage.
- (e) Study the possibility and direction of diversification into business units.

3.10 External Audit Checklist

External audit checklist is analyzed to find the impact of existing IT from external environment. The objective of external audit checklist is to consider issues such as economic, market and competitors in the market. These factors should be concerned by MIS division before the diversifying into business unit is made.

3.10.1 Economics-External Audit Checklist

Thailand has been impacted on by the economic crisis. Many companies have decreased IT staffs headcount by using outsourcing policy. EGCO has a plan to provide IT service to other businesses, so EGCO can consider this situation as an advantage of higher marketing opportunity in selling MIS service from this new MIS business unit.

Yet, by the same situation, EGCO should consider the crisis as a disadvantage. Because business transaction process has decreased while most companies try to cut their expenses, this will in turn cut fewer market in MIS business.

3.10.2 Market- External Audit Checklist

Knowing which existing IT capability area should provide service to the market is essential before going ahead with diversification to business unit. MIS division should define the market area in IT sector before entering into business.

From Table 3.7, EGCO' IT capability had been compared with the existing capability in the market. The analysis shows information in 2 dimensions in this table, IT capability criteria in the vertical column and IT capability area horizontally.

The service scope of IT capability area is described as follows:

- (a) IT services & supports
- (b) IT Infrastructure
- (c) IT Solution

- (d) SAP consulting
- (e) SAP implementation
- (f) SAP Training

IT services & supports focus on end users computing such as

- (a) Setup & installation of new computer system
- (b) Support & maintenance of end user computing

IT Infrastructure focuses on hardware platform, intranet infrastructure, and communication backbone infrastructure such as:

- (a) Cooperate network design & implement
- (b) Support & Maintenance

IT Solution focus on implementation cycle of application except SAP as follows:

- (a) Analyze information system requirements
- (b) Implement information system to satisfy requirement

SAP consulting focus on apply SAP to business process as follows:

- (a) Analyze business process
- (b) Provide design for business function

SAP implementation focus on SAP implementation cycle not including analyzing business processes as follows:

- (a) Coding Program — ABAP
- (b) Implement function of each module

SAP Training focus on transferring knowledge and experience of SAP implementation to external personnel by providing training courses as follows:

- (a) Share experiences on implementation of SAP
- (b) Share knowledge of SAP functions and implementation methods.

Table 3.7. MIS' s Segment Attractive Analysis in the Existing Situation.

IT capability area	IT			SAP			
IT capability Criteria	Service & Support	Infrastru cture	Solution	Implement ation	Consultant	Infrastruct ure	Training
Fit our abilities	high	medium	medium	High	medium	Low	high
Expand to subsidiaries	low	low	medium	Medium	medium	low	high
Cost	medium	high	medium	High	medium	high	medium
Competitive situation	high	high	medium	Medium	high	low	low
Profit Potential	low	medium	medium	High	high	high	medium
Market	high	high	medium	Medium	medium	medium	high

The results of analysis in each cell were categorized into 3 levels, high, medium, low. The meaning of each level is describe as follows:

- (a) High means the area where EGCO's IT organization has more advantage service in its operation area. The area should focus on products which can be sold to MIS's customers. Because MIS unit has good capability in the area to operate compared with existing market standards.
- (b) Medium means the area where EGCO's IT has moderate capability to operate compared to existing market standard. However if EGCO intends to provide the service, the capabilities of MIS is necessary to be improved in that criteria.

- (c) Low means the area where EGCO's IT has a disadvantage as compared to existing market standards. The area should not focus on product which is sold to customers. Because MIS unit has not enough capability to operate it.

From Table 3.7, we can conclude the service area of MIS unit is in 3 groups, in order:

- (a) More advantage service in service area such as IT service and support, SAP implementation and SAP training
- (b) Moderate capability to operate service area comparing to existing market standard such as IT solution and SAP consultant.
- (c) Disadvantage of service area as compared to the existing market such as IT infrastructure and SAP infrastructure.

MIS new business should serve fully EGCO subsidiaries, While EGCO groups will still be regular MIS' s customer. Since MIS staffs have experience to implement IT solutions in energy business. EGCO target of business investment will be identify in 2 groups of customers from EGCO as follows:

- (a) EGCO groups - EGCO, subsidiaries and joint venture company
- (b) Energy-related -business and external market- SPP, IPP utility business.

3.10.3 IT provider Competitor in the Market

In the IT market, there are many IT service providers which have far more experience in certain areas than the existing MIS division. Especially IT consulting firm like Andersen consulting which is currently the main implementation teams on IT solution for EGCO.

EGCO should seek joint venturing with consulting firms like Andersen consulting to share benefits. For example, the consulting firm can serve new expanding energy

related business projects by using EGCO channel while EGCO will have good technical experience in joining the consultations in those projects.

3.10.4 Internal Audit Checklist

Internal audit checklist is analyzed from the internal current IT situation of EGCO. The objective of internal audit checklist is to consider issues such as management, organization and capability of MIS members. These are the factors that MIS division should be concerned with before the decision on diversification into business units.

- (a) Executive and MIS management
- (b) Organization structure and staff condition of MIS division
- (c) Organization culture of MIS division
- (d) Skills of IT staff
- (e) Working procedure:

Current MIS situation has good support from top management for IT investment. But in the part of diversification into business unit MIS has only the statement from executive management introducing only ideas with no further guideline there. The direction of diversification should be clarified to MIS division and staffs such as:

- (a) Goal of diversification into the business unit of MIS
- (b) MIS diversification's objective (target) of the executive management
- (c) Policy and direction of MIS diversification in MIS management
- (d) The management, incentive career path and roles of MIS unit members.

The current views of MIS organization structure and staff are as follows:

- (a) Flat organization, as seen in Figure 3.2, MIS division has been characterized by flat organization because MIS division has only 3 levels of management

namely staff, section and division. The advantage of flat organization is the flexibility in management and decision making.

- (b) Working independence between 2 sections. Each section has in dependent working styles. And each section does not have good coordination with each other. Working in MIS division as a team is not good. For effectiveness of team work, management should clarify this problem.
- (c) Younger staff. The age range of MIS staff is 25 - 30 years old as seen in Figure 3.3. Most of them do not have enough experience in IT implementation and IT business development.

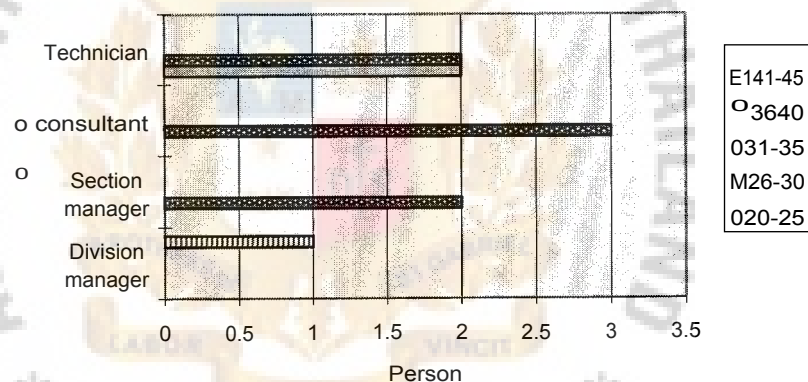


Figure 3.3. The Age Range of MIS Staff.

- (d) Unclear job description for each other. The current job descriptions are not clear for roles and responsibilities of each member. Some functions and tasks are still duplicated from each other.

MIS business unit in the future should still be a flat organization structure. MIS management should solve the problem about working independently and encourage team work. This problem should be improved before diversifying into business units.

Besides, MIS division has younger IT staff who are not clear about their own job descriptions. MIS management should clarify roles and job descriptions for them. They should need more improved mentioned IT skills and experience to effectively work in MIS division and MIS's new business units more efficiently.

The MIS organization culture has been analyzed with the following results. Implementing of IS projects in EGCO involves many process steps to operate, such as planning, application development, technology development. IT staff in each function will work across these processes among other functions to complete the project.

For successful project implementation, the matrix organization should be provided in MIS division, because it will provide flexibility in the work process. The matrix organization should be characterized in MIS business unit in the future too.

The current view of IT skills of staff are as follows:

- (a) Good IT experience in utility business.
- (b) Good experience in working with consulting firms.
- (c) Lack of business process implementation skills.
- (d) Lack of management skill at management levels.
- (e) Not enough experience in project development teamwork among MIS staff members.

Current IT staffs need more IT skills and experience. MIS management should focus on promoting IT skill and experience for IT staff. It helps IT staffs to qualify in IT work.

The current situation view of staff skills are as follows:

- (a) None of working standard procedures.
- (b) Not enough effort provided at the planing phase before working.

- (c) Not enough quality control in work process.
- (d) Lack of reporting and tracking systems.

Before the IS project actually starts, IT staff should investigate and study details of implementing thoroughly with enough time. Planning process and working standard procedure should be provided in the MIS division and the MIS business unit.

3.11 SWOT Analysis of MIS Division

We have to provide the information of strengths, weaknesses, opportunities and threats by analyzing from external and internal audit checklists as follows:

3.11.1 Strengths of MIS Division

From external and internal audit checklist analysis, we can see the strength of MIS division as follows:

- (a) MIS division is supported strongly by executive management.
- (b) IT staff have IT solution experience in utility business.
- (c) Be able to leverage SAP across in similar type of businesses to gain benefits of implementation and economy of scale.
- (d) Service oriented mind of MIS staff members
- (e) The parent company and its subsidiaries are the customers on hand

3.11.2 The Weaknesses of MIS Division

From external and internal audit checklist analysis, we can divide the group of weaknesses into 2 groups, IT staff and working of MIS division, as follows:

IT staff of MIS division:

- (a) Most of them are young without enough experience
- (b) Do not know enough IT knowledge & skill
- (c) Lack of experience in business idea & process

- (d) Middle management are not compatible in business environment
- (e) Middle management do not have experience enough in management and administration skill

The working of MIS division

- (a) IT is not a core business of the company
- (b) Does not have a clear measurement system
- (c) Lack of implementation and business application guidelines
- (d) Experience only as co-ordinator in implementing system but has never conducted whole processes of implementation using its own capability
- (e) Lack of team work

3.11.3 Opportunities of MIS Division

From external and internal audit checklist, we can conclude the opportunities of MIS division, as follows:

- (a) Since there is the encouragement of utility investment industry, this in turn can bring more customers into the competitive market
- (b) Change of leveraging IT system across in energy related businesses
- (c) Big market share in similar energy related business can be obtained via EGCO channel
- (d) Be able to join with existing IT partner to increase business market and gain more experience for IT staff
- (e) At the time of economic crisis, it is easier to hire qualified personnel at cheap price and be selective

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3.11.4 Threats

From external and internal audit checklist analysis, we can divide threats into 2 groups, economic situation and competitors, as follows:

Economic situation

- (a) IPP & SPP project investment, in Thailand has slowed down due to the decrease in demand on utilities according to the economic slow down.
- (b) Opportunity in joining with EGAT to invest IPP and SPP project will be decreased.
- (c) Scale of project in joint venture is not sufficient enough.

Competitors

- (a) To implement IT for SPP and IPP, this can be a competitive market for the same industry
- (b) To join the existing IT consultant is not the best alternative. They can turn themselves to be your competitor at any time.
- (c) Experience and reliability of implementation team is not highly competitive in the market.

For successful diversification into business units, MIS unit should find the appropriate approaches towards transformation. The important strengths and opportunities of MIS division encourage the decision for the new business unit to be self-sustainable. The weaknesses and threats of MIS division show that the MIS new business units should be a long target for MIS division. But it can be accomplished with careful planning, strong support, staff effort and full cooperation from them. MIS new business unit does not necessarily need improvement of all the weaknesses.

MIS business unit still has opportunities to provide IT service to EGCO partners. Be able to join with IT consulting firm like Andersen consulting, This new unit should gain more experience and IT capability for its staff in doing business. Besides, new qualified IT staff are easier to hire in times of economic crisis. All of these will make the MIS new business unit be more self-sustainable.

3.12 Conclusion of IT Current Status

From the information in this chapter, we can conclude that., the diversification into business unit of MIS division is clear cut in supporting the investment in IT and gaining the revenue and benefit from the investment of it. The nature of MIS's task is to be a service provider to EGCO. MIS staff have experience of implementing IT solution in energy business with service oriented minds. Such services and experiences are marketable to others companies.

The MIS's diversification objective must be clear, communicated appropriately to all levels of management and be understood. The attitude of top management and MIS staff about the diversification and the potential change must be supportive during planing and, once decided upon, unequivocal in determination to implement. The culture of the organization must be able to accommodate change.

The result of economic crisis, which has impacted on EGCO, is the leading to slow growth rate and decrease in power plant investment. The trend of company's growth should be changed to concentrate in small businesses. MIS new business has received pros and cons from this crisis.

The new MIS business should still be EGCO subsidiaries. Diversification into business unit by MIS should be transformed step by step to increase readiness for it has many points to be improved. MIS division should maintain current customer(EGCO

groups) satisfaction and gain new customer by expanding IT service to energy related business.

In order to be successful in new business unit, MIS members should have the capability and effectiveness in performing their business functions. To increase the effectiveness of working and gain advantage in doing business, the management should encourage employees to gain more experience to compensate lacking skill via studying or training. MIS new business units can be joint venture activities with IT consulting firms to reinforce MIS work force capability.

In doing so, the diversification will need careful planning. This project is intended to propose such a plan. It should cover at least 3 years where in each year, the MIS division will be diversified to be a real business unit. The plan should include the new organization improvement, the personnel improvement, the policy and management's necessary procedures.

IV. STRATEGIC DIVERSIFICATION

4.1 The Advantage of Diversification into Business Units

From the previous chapter, it can be concluded that the direction of MIS division is to be diversified into business units. So the MIS division will have to prepare itself to be an effective MIS business unit in the future.

At first the diversification into business unit of EGCO's MIS was initiated by the EGCO executive management. They foresee the advantage of transforming MIS division to MIS business unit and expected that the diversification of MIS's EGCO can be beneficial as follows:

- (a) To generate income for EGCO company
- (b) To make a clear cut distinguishing between the investment in IT and the revenue and benefit from this investment.
- (c) To be more flexible in management and decision making.
- (d) To gain business experience and improve IS development skill of MIS staff
- (e) To expand the career path of the officer.

Diversification into business units by EGCO's MIS is not ready to be immediately transformed at this time. Because current MIS division has provided service only for EGCO and its subsidiaries. There are many factors of limitation in transforming to MIS business units. The examples of limitation can be concluded as follows:

- (a) Existing work force in some areas is not yet qualified to providing service.
- (b) The number of available staff and their skills and experiences to provide service to others related business, are not enough and not performable.

- (c) All MIS management and staffs have no skill and experience in running a business unit.

Successful diversification to MIS business unit should follow a step by step structural development as MIS unit grows and expands. Beginning with the structure of existing organization, MIS unit can become improved and get larger. With continuous improvement and success, MIS unit can expand its business to the external customers.

The reason of this approach is to prepare MIS division to gain effectiveness and be self-sustainable as a MIS business unit. The activity of preparation is the improvement of IT capability of IT area that should provide service to customers and decrease weakness of current MIS division as stated in chapter 3

4.2 Strategic Analysis

MIS new business should still be an EGCO subsidiary and still support all IT functions of EGCO. EGCO groups will also be the MIS' s customer. MIS unit may provide a specific kind of service or normal service by using its own capability or by using outsourcing or join IT consulting firms like Andersen consulting. Since, MIS staff have experience in implementation IT solution in energy business, the new business of EGCO shall become the MIS unit's customers.

From the information above, we can see that the target market of MIS unit is:

- (a) EGCO
- (b) EGCO groups , EGCO's subsidiaries and joint venture companies
- (c) External market, mainly these energy related businesses - SPP, IPP and utility businesses.

The ratio of target market of MIS unit mostly concerns EGCO and EGCO group because MIS unit has more IT work experience. As seen in Figure 4.1

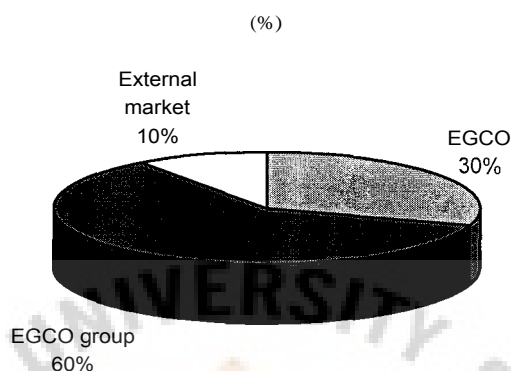


Figure 4.1. The Ratio of MIS's Unit Customer Target.

In the future, the customer target of MIS unit will focus on 3 groups, EGCO, EGCO groups and external markets. Service was provided by MIS unit should be different for each group.

4.3 Service Providing for EGCO

Since the MIS new business will be an EGCO subsidiary and still support all IT functions for EGCO, It should provide appropriate IT system to EGCO as a common weapon. We have reviewed the current IT system and can foresee new IT system from user requirement as follows:

- (a) Information system strategy plan development support
- (b) Information system management support
- (c) Development support
- (d) Operation support

4.4 Information System Strategy and Plan Development Support

IS strategy and plan has important roles of the MIS unit in helping the top management of EGCO in strategic plan development. The value of MIS unit depends on its measurable impact on the company. This has two dimensions, from its impact on the company in future (the plan) and from the results of implementing the plan (feedback and management control). If business plans and IT strategic plans are interlocked, IT is likely to be well aligned with the business. Its effective implementation will depend on the consensus and commitment of executive management to the strategic plan and to the planning processes.

MIS new business unit must have the role of this part as its main mission. MIS unit should provide IS strategy plan for EGCO and EGCO groups in the same direction to serve the company's vision, mission and objective correspondingly.

Hence, the roles and responsibility of MIS unit should also define the strategic plan and direction of MIS new business to make it successful and self-sustainable in the new business.

The main activities will be in order to:

- (a) To follow up new IT for use in EGCO business
- (b) To study vision and strategy of EGCO and its subsidiaries to identify IS strategies that matches their needs.
- (c) To design IS strategy for EGCO and EGCO groups
- (d) To create and review corresponding MIS master plan for EGCO and EGCO groups

- (e) To evaluate the IS project in MIS master plan to fit with company or business unit objectives.
- (f) To re-evaluate IT requirements of the new business.
- (g) To define strategy for MIS unit to survive in the market such as finding new customer, maintain current customer and MIS member.

4.5 Information System Management Support

It focuses on implementation plan and planning process of the MIS unit. Main roles and responsibilities are:

- (a) Create and review MIS annual plan
- (b) MIS staff management
- (c) Quality control

The main description of each responsibility will be in order to:

4.5.1 Create and Review MIS Annual Plan

Objective: To provide company executives with a perspective of annual MIS operations.

Main activity:

- (a) Develop MIS short and long range plan
- (b) Revise annual MIS plan
- (c) Assess the impact of applications on a set of business processes which give a measure of its value.

4.5.2 MIS Staff Management

Objective: To maintain the skills and numbers of IT staffs required by project implementation plan.

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Main activity:

- (a) Plan for MIS staff education and training requirement
- (b) Conduct training and education for IT staff
- (c) Personnel evaluation
- (d) Recruitment

4.5.3 Quality Control

Objective: To develop IT standard of working through solving MIS management and to provide an annual objective evaluation of the MIS support services in order that continuous improvement can be measured quantitatively.

Main activity:

- (a) IT policy and working procedure
- (b) Operating evaluation and end user survey

4.6 Development Support

The main roles and responsibilities are:

- (a) Executive management support
- (b) Software development support
- (c) Technical development support
- (d) User service improvement support
- (e) Research & development activity

The main description of each responsibilities will be in order to effect:

4.6.1 Executive Management Support

Objective: To implement new system support executive management decision making in business development.

Main activity:

- (a) Provide IS system to serve decision making by executive management, in the form of Decision support system (DSS), Executive information system (EIS)

4.6.2 Software Development

Objective: To implement new system support business development unit as common weapon focusing on knowledge and process or operation of IT for EGCO and subsidiaries.

Main activity: Software development is concentrated in SAP and Lotus notes application

- (a) Gather user requirement
- (b) Feasibility study
- (c) Analyze user requirement
- (d) Provide solution and design
- (e) Coding program
- (f) Testing
- (g) Convert data
- (h) Training

4.6.3 Technical Development Support

Objective: To provide infrastructure for EGCO and link all companies together.

Main activities:

- (a) To provide backbone networking system to improve and provide linkage among new subsidiaries and legacy systems

- (b) To provide new hardware platform for EGCO
- (c) To setup computer system for EGCO and new subsidiary

4.6.4 User Service Improvement Support

Objective: User service shall be responsible for providing MIS training, operating support and other MIS assistance to the company's computer users. To provide and carry out plans and techniques that will result in continuous annual improvement of the quality and quantity of MIS support services.

Main activities:

- (a) To attempt to identify the needs of computer users and develop the services that will meet those needs.
- (b) To provide advisory consultant to all EGCO and all subsidiaries by introducing the proper use of existing hardware and software.
- (c) To provide for continuous attention to improving the MIS support services for all companies and theirs users.

4.6.5 Research & Development Activity

Objective: Study and follow new technology and apply them within the existing company system

Main activities:

- (a) To follow new technology trends in the market and relate them with the existing IS in EGCO
- (b) To investigate and apply new solutions to improve existing IS capability
- (c) To develop and find new system to fit with user requirement

4.7 Operational Part

Main roles and responsibilities are:

- (a) Software support & maintenance
- (b) Technical support & maintenance
- (c) End user support

4.7.1 Software Support & Maintenance

Objective: To maintain and collect the problem of the existing application systems and to improve capability of existing application system in EGCO and subsidiaries.

Main activities: Existing application system has two components. There are SAP system and Lotus Notes system.

- (a) To respond to the problem of implementing the system
- (b) To define trouble shooting solutions
- (c) To collect and maintain the system by reviewing user requirement
- (d) Refreshes training
- (e) To investigate additional system requirement to improve capabilities of work

4.7.2 Technical Support & Maintenance

Objective: To maintain IS infrastructure and communication system in EGCO for use with efficiency.

Main activities:

- (a) Network and infrastructure supporting and maintenance
- (b) Central computer system in EGCO supporting and maintenance which are used among EGCO and subsidiaries.

- (c) Computer system in EGCO supporting and maintenance
- (d) Recommend and advise solutions for maintenance of computer and infrastructure in subsidiaries.

4.7.3 End User Support

Objective: To provide MIS support service for the company and its users with quality and quantity.

Main activities:

- (a) Software packages and back office supporting and maintenance
- (b) Desktop publishing support and maintenance
- (c) Office automation system support and maintenance
- (d) User activity training
- (e) Collaborate information availability

4.8 Classification of Service Area

The service product for both, EGCO groups and external markets should be the same, because it is the service that MIS unit has IT capability to operate, compared to the existing market standard.

This project focuses on 2 groups of IT capability area as shown in Table 3.7. They are the service product at the high and medium levels. If the service area was classified as high, MIS unit should focus on this area as the first priority to operate and sell its service to customers. If the service area was classified as medium, MIS unit should focus on the area as the second priority to operate and sell its service to customers. Here in the second priority area, MIS unit should provide time to improve IT capability

before selling it to the customer. If the service area was classified as low, MIS unit will have a lot of disadvantages when comparing its' service to existing market standard.

4.8.1 The High Service Area

It's the first priority service. The IT capability of MIS unit ready for service is:

- (a) IT service and support
- (b) SAP implementation
- (c) SAP training

4.8.2 The Medium Service Area

It's the second priority service. The IT capability area of MIS unit will need more improvement for service is:

- (a) IT solution
- (b) SAP consultant

The roles and responsibilities of MIS unit in EGCO should be some part of the service to EGCO groups and external market too, such as technical development, software development. It depends on MIS unit capabilities and user requirements.

Some IT capabilities of MIS staff need to be improved in order to meet the standard requirement of the potential customer. MIS unit still maintains all user requirements by using outsourcing strategy or joint venture with other expert consultants. Yet MIS members strongly need to have training courses on project management and project co-ordination.

4.9 Approach of MIS Diversification in Differentiating Stages

For successful business units, the appropriate strategy of diversification into business units of MIS should follow a step by step process. MIS division should

maintain current end users as customers on hand. After MIS division is capable of performing the competitive work and be able to maintain existing customer satisfaction, then it can expand the clientele to external market and related business such as IPP, SPP, utility businesses and so on.

The differences transformation of MIS unit is divided into three stages:

- (a) Stage-I: Focus on increases the efficiency and capability in the prioritized area. The time frame of this stage should be two year period.
- (b) Stage —II: Through exclusive agreements, MIS unit will service EGCO 's subsidiaries as the focused business area, as stated formerly. Here the MIS unit should provide its service for some service charge. For other business areas, the MIS unit will play a role of project coordinator or project manager by outsourcing or joining with the IT consultant partner to fulfill any service requirement. The service rendered to EGCO is still free of charge. The time frame of this stage should be two year period.
- (c) Stage- III: The MIS unit should be ready to compete with other service providers for service to EGCO 's subsidiaries as well as to the external clientele of similar businesses. The time of this stage should be after five years of self improvement.

4.9.1 Corporate Customer Target Plan

In the future, the MIS unit will focus on 3 groups of customers: EGCO , EGCO subsidiaries and related business areas external market. Here in Table 4.1, is shown the projection of the amount of expected group of customer that MIS unit will provide service to in each year. The amount of each customer group comes from all units which

each company should have each year. This projection had been derived from the EGCO's investment trend.

The amount of customer target projection can be used to estimate IS service requirement from MIS unit. The service activities from such estimate can in turn be used to estimate workforce requirement in each year that MIS unit should provide to serve these customers.

Table 4.1. Amount of Customer Target Projection.

Target Market	1 st year	2 nd year	3 rd year	4 th year	5 th year
EGCO	1	1	1	1	1
Subsidiaries					
REGCO	1	1	1	1	1
KEGCO	1	1	1	1	1
ESCO	1	1	1	1	1
External market	0	0	0	0	2
Total unit	4	4	4	4	6

Amount of customer target unit projection shown here will relatively foresee the requirement of service from different transformation of MIS unit in each stage as follows:

Stage-I: In the 1st year and the 2nd years the MIS unit has four customers in its target plan to provide IT service. The targeted customers are EGCO, REGCO, KEGCO and ESCO.

Stage —II: In the 3rd year and the 4th year, MIS unit will serve three of EGCO 's subsidiaries in focused business areas and fully service IT fully to the mother company, EGCO.

Stage- III: In the 5th year, the MIS unit plans to have three EGCO groups as its customer and will acquire two external markets to expand IT service areas and still fully support IT service to EGCO.

4.10 The Amount of IS Systems in Corporate Customer Target Projections

Table 4.2. MIS Service Activities Requirement Projections.

MIS Service Activities	1 st year	2 nd year	3 rd year	4 th year	5 th year
IS strategic plan development support	1	4	4	4	6
IS management support	1	1	4	4	6
Development support	7	7	4	5	7
Operation support	4	4	4	4	6
SAP consultant	0	0	0	0	2
SAP implementation	12	3	2	3	3
SAP infrastructure	1	1	1	2	3
SAP training	1	2	1	1	4
IT infrastructure	3	4	4	4	6
IT solution	2	2	2	2	4
IT service and support	4	4	4	4	6
Total	26	32	30	33	53

In Table 4.2, the IS service provided for each customer can be viewed in forms of projects. The estimation here shows the number of IS service projects provided to EGCO customer target projections.

We can estimate amount of IS systems which the MIS unit will have to implement in each year for its' customers. This amount of IS systems can be estimated from the past experience and trend of business growth. The detail of IS projects estimated was shown in the table in Appendix A.

The number of the 5th year is higher than other years because MIS unit will expand its' service to the external market this year.

The example of IS project estimation that the MIS unit provides to customer projections in the 1st year as shown in Table 4.3.

Table 4.3. Example of MIS Service Activities Requirements Projected in the 1st Year.

Target Market	The 1 st year				
Service area	EGCO	REGCO	KEGCO	ESCO	External Market
IS strategic plan development support	1	0	0	0	0
IS management support	1	0	0	0	0
Development support	4	1	2	0	0
SAP consultant	1	0	2	1	0
SAP implementation	1	0	0	0	0
SAP infrastructure	1	0	1	0	0
SAP training	0	0	0	1	0
IT infrastructure	1	0	0	0	0
IT solution	1	1	0	1	0
Operation support	2	0	0	0	0
IT service and support	1	1	1	1	0

The result of IS project is estimated from the project in the past and trends of the business growth. The details of IS project estimation are:

- (a) MIS unit only provides IS strategic plan development support and management support to EGCO, because MIS unit does not have experience enough to provide service to all.
- (b) MIS unit provides 4 projects of development support in EGCO such as Knowledge management support, Power operation system , Asset management system and Service level agreement system. In REGCO and KEGCO, the MIS unit will provide office automation systems to them such as document management system.

4.11 MIS Staff Workforce Requirement

From Table 4.2, we can estimate the workforce requirement of the MIS staff to each MIS service activity in each year, systems implementing each year. The estimate of MIS staff man year of each MIS workforce type. Past data of workforce type contribution helps us in estimating the amount of man year from Table 4.2. We can summarize the ratio of contribution workforce type shown in Table 4.4.

Here we know the estimated man year of each workforce type required each year. Hence we have the MIS manpower requirement estimation for the next five years based on the customer projection in Table 4.1.

Table 4.4. Ratio Contribution Workforce Type.

Function	IS strategic plan development support	IS management support	IS training	SAP consultant	SAP implementation	SAP infrastructure	SAP training	IT infrastructure	IT support	IT Operation support	IT a.
MIS manager	0.15	0.15	0.05	0.10	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Service section	0.10	0.10	0.10	0.05	0.05	0.10	0.00	0.10	0.10	0.20	0.15
Development section	0.15	0.10	0.10	0.15	0.15	0.10	0.15	0.15	0.15	0.10	0.10
System analyst	0.10	0.10	0.15	0.20	0.15	0.10	0.10	0.10	0.20	0.10	0.15
Programmer	0.05	0.03	0.30	0.20	0.40	0.00	0.30	0.00	0.30	0.20	0.15
System administration	0.05	0.03	0.10	0.10	0.10	0.10	0.05	0.10	0.10	0.10	0.30
Technical support	0.05	0.03	0.05	0.10	0.10	0.20	0.00	0.25	0.15	0.20	0.10
Technical_Analyst	0.10	0.10	0.10	0.10	0.05	0.15	0.00	0.15	0.10	0.10	0.10

Table 4.5, shows the man year workforce requirement of IS project implementation each year comparing the 2 criteria is MIS function, the other is service area.

Table 4.5. MIS Staff Workforce Requirement Projection.

Workforce Type	1 st year	2 nd year	3 rd year	4 th year	5 th year
MIS manager	1.70	2.55	2.30	2.45	3.95
Service section	3.60	3.75	3.40	3.65	5.55
Development section	3.50	3.80	3.35	3.55	6.40
System analyst	7.70	8.40	7.00	7.80	12.80
Programmer	5.52	6.22	4.62	5.32	8.68
System administration	2.87	3.12	2.67	2.97	4.68
Technical support	4.12	4.47	4.22	4.57	7.03
Technical Analyst	3.20	3.40	3.05	3.35	5.20

The result of the MIS workforce in the 1st year and the 2nd year, are higher than the number of the current workforce in MIS division. The current MIS division can provide service with the number of MIS workforce less than the workforce requirement. The strategy for MIS management can be conducted by working overtime, working jointly with outsourcing party, working by assigning personnel assistants etc. In case that some services are still conducted by using external IT consultants, these services are IS strategic plan and management, development support.

Table 4.6, shows man year workforce requirement of the division manager is 1.75. The result calculated from ratios of service activities work force time with IS project in each customer unit projection.

Table 4.6. Example of the MIS Manager Workforce Requirement Projection in their^t Year.

Target Market Service area	Ratio	1st year				
		EGCO	REGCO	KEGCO	ESCO	External Market
IS strategic plan	0.15	1	0	0	0	0
Development support						
IS management support	0.15	1	0	0	0	0
Development support	0.05	4	1	2	0	0
SAP consultant	0.10	1	0	2	1	0
SAP implementation	0.05	1	0	0	0	0
SAP infrastructure	0.05	1	0	1	0	0
SAP training	0.05	0	0	0	1	0
IT infrastructure	0.05	1	0	0	0	0
IT solution	0.05	1	1	0	1	0
Operation support	0.05	2	0	0	0	0
IT service and support	0.05	1	1	1	1	0
Total workforce requirement projection of MIS division in the 1 st year						1.75

4.12 Total MIS Staff Workforce Requirement

We conclude the total man year workforce requirement of MIS staff to IS system implemented in each year in Table 4.7 . This table shows the existing man year of each function. The number of new MIS staff to be recruited each year, and the total amount of workforce type required in that year.

The results of projection area of Table 4.7 are existing workforce, recruit workforce and require workforce. The meaning of each area is described as follows:

- (a) Existing means the number staff of IT function in current MIS division.
- (b) Recruit means the number of new IT staff that should increase in the year to provide IS system to customers. In case of recruitment, MIS unit shall recruit from the internal or external IT staff
- (c) Required means the number of enough staff required in each year to provide IS system to customers

Table 4.7. Total Workforce Requirement.

Type	Workforce	1 st year	2 nd year	3 rd year	4 th year	5 th year
MIS manager	Existing	1	2	2	2	3
	Recruit	1	0	0	1	0
	Required	1.75	2.55	2.30	2.45	3.95
Service section	Existing	1	2	2	3	3
	Recruit	1	0	1	0	0
	Required	3.60	3.75	3.40	3.65	5.55

Table 4.7. Total Workforce Requirement.(continued)

Type	Workforce	1 st year	2 nd year	3 rd year	4 th year	5 th year
Development section	Existing	1	3	4	4	6
	Recruit	2	1	0	2	0
	Required	3.50	3.80	3.35	3.55	6.40
System analyst	Existing	2	6	6	8	12
	Recruit	4	0	2	4	0
	Required	7.70	8.40	7.00	7.80	12.80
Programmer	Existing	1.5	1.5	3.5	4.5	8.5
	Recruit	0	2	1	4	0
	Required	5.52	6.22	4.62	5.32	8.68
System administration	Existing	1.5	1.5	2.5	2.5	4.5
	Recruit	0	1	0	2	0
	Required	2.87	3.12	2.67	2.97	4.68
Technical support	Existing	1.5	1.5	2.5	4.5	6.5
	Recruit	0	1	2	2	0
	Required	4.12	4.47	4.22	4.57	7.03
Technical Analyst	Existing	1	2	3	3	5
	Recruit	1	1	0	2	0
	Required	3.20	3.40	3.05	3.35	5.20

The number of new the MIS in each year does not necessarily equal the number of workforce requirement, because attempting to recruit to fill up workforce requirement completely incurs high cost. MIS staff should help each other, work overtime or transfer knowledge together to build up skills and work across functions. Here we see that policy about human resource management like team working or manpower mobilization should be exercised to accommodate overwork appropriately.

In the 4th year, the MIS workforce is less than the MIS workforce requirement in the 5th year. This MIS workforce requirement should be higher than existing workforce for motivating and activities of MIS staff.

The function which needs recruitment depends on the importance of that function. Example in the 1st year should need recruitment on the management of MIS division instead of recruiting technical support or programmers. Because the function of managing MIS division is necessary to manage overall unit and uses long time to transfer knowledge to others.

The organization and number of new MIS staff will be arranged for the appropriate man power in each year. We can investigate these in part 4.10.

4.13 Training Plan for IT Staff

Training is important for IT staff to improve IT service capability and related skill to provide service to customers.

The training course of functions is not the same, because of it's differences in roles and responsibility. We can divide the MIS staff into 3 groups, namely the executive management level, middle management level and operation level.

4.13.1 Executive Management Level

The level of executive management consists of the IT director and the assistant IT director, Division manager and assistant manager and includes the staff who acts in the same position.

The responsibility of executive level is overall control and management of the MIS unit. They should have knowledge about related administration and management skills. The technique of each function is not necessary to handle.

The training course of executive management level should be carried out in order to have:

- (a) Strategic management
- (b) Strategic analyst and planning
- (c) General management
- (d) Human resource management
- (e) Cost and risk management

Each year, executive management level should be educated and the training should not be less than 5 days. The course for each year should be selected from lacked skills and the improved skill of executive management. The average price of each course is 50,000 Bahts and it will last for 5 days.

4.13.2 Middle Management Level

The level of middle management consists of section manager and staff who acts in the same position. It includes a senior consultant who acts as project leader.

The responsibility of management level is control and management in each function. They should have knowledge about related management and skill techniques of function.

The training course of the management level should aim to improve:

- (a) General management
- (b) Human resource management
- (c) Project management and project control
- (d) General techniques in function

In each year, the staff in this level should be educated and trained for not less than 10 days. The course of each year should be selected from lack of skill and skill improvement of middle management. The average price of each course is 30,000 - 50,000 Bahts and it will last for 5 days.

4.13.3 Operation Level

The level of operation level consists of senior consultant, consultant and technician.

The responsibility of operation level is to handle in technical function such as development function, analyst function or technical function. They should have knowledge about skills of the techniques of each function and related skills. Besides, operation staff should be educated about team working too.

The training course of operation level will consist of:

- (a) Basic skills of techniques
- (b) Advance skills of techniques
- (c) Team working

Each year, the staff at operation level should be educated and seek training is not less than 15 days. The course of each year should be selected from skill lacked and improved skill of middle management. The average price of each course is 20,000 - 30,000 Bahts and it will last for 5 days.

4.14 Expenditure of IT Staff/Year

From Table 4.8, we can estimate expenditure of IT staff in each year. The estimation of expenditure of incentives for each IS staff. Past data of incentive contribution helps us in estimating the incentive expenditure.

Table 4.8. Expenditure of IT Staff/Year.

Position	Estimate incentive/year			
	Salary	Bonus	Stock option	Total
IT director	1,800,000	450,000	300,000	2,550,000
Assistant IT director	1,200,000	300,000	200,000	1,700,000
Division manager	960,000	240,000	160,000	1,360,000
Assistant MIS division	840,000	210,000	140,000	1,190,000
Section manager/manager	660,000	165,000	110,000	95,000
Senior consultant	420,000	105,000	70,000	595,000
Consultant	300,000	75,000	50,000	425,000
Technician	240,000	60,000	40,000	340,000
Sale	240,000	60,000	40,000	340,000
Administrator	216,000	54,000	36,000	306,000
Total incentive expenditure of IT staff				9,741,000

4.15 The Detail of Improving Stage of Transformation of MIS Unit (StageI)

In the stage, MIS unit is still a division of EGCO and support EGCO and subsidiaries, namely REGCO, KEGCO and ESCO. MIS unit should internally prepare itself to transform into a business unit. The effective work force is required for such transformation. Skills lacked should be improved by following the service provided area (Table 4.3). MIS unit should have benchmarks to measure the quality of work. The service charge will be on the basis of considering MIS as a profit center.

4.15.1 Vision of Diversification into Business Units of MIS of Improving Stage

Within 2 years MIS unit shall:

- (a) Have more effective work force in the service area.
- (b) Have a 50 percent reduction in time and cost to deliver new systems.
- (c) Analyze IT cost component for diversification beginning with EGCO and EGCO groups.

4.15.2 Mission of Stage I

- (a) Provide standard IT solutions as a common vehicle to support business and executive requirement.
- (b) Drive the best practices process models by anticipating the future information needs of the EGCO business and delivering the necessary technology and applications.
- (c) Provide appropriate IT solutions for EGCO and EGCO groups.
- (d) Study IT cost component information, in order to be able to determine product costs and profit margin.
- (e) Reinforce the strong points and improve weak points of the work force.

(O Educate IT staff about transformation process through application of technology.

4.15.3 Objective of Stage I

- (a) To increase efficiency of IT system and develop IT solution for EGCO and EGCO groups.
- (b) To prioritize value of IT solution for the customer.
- (c) To achieve greater visibility of IT costs.
- (d) To increase awareness of efficiency and cost conscious on MIS division and to demonstrate to users their progress in these areas.
- (e) To maintain the skill and number of MIS staff required by the operating plan.

4.15.4 Expected Benefits of Stage I

- (a) To increase the capabilities of core business functions through technology.
- (b) To maintain the motivation and morale of MIS staff.
- (c) To provide a better understanding of the business aspects of information technology and develop skills in its use application, for example in project management or project co-ordination.
- (d) To ensure better money value
- (e) To introduce the budget constraints and profit margin as a performance target.

4.16 Strategy of Stage I

Upon the success of this stage, the MIS unit will concern several issues such as:

4.16.1 Information Strategy and Plan

Unity information system strategy should be developed for EGCO and EGCO groups to serve the company's vision, mission and objective. The MIS unit has an important role on Information system strategy and plan .The value of MIS unit depends on its measurable impact on the company. This value has two dimensions, from the future impact on the company (the plan) and from the results of implementing the plan (feedback and management control). The effectiveness of implementation will depend on the consensus and commitment of executive management to the strategic plan and to the planning processes.

The direction of diversification should be clarified to all the MIS staff The MIS staff should understand and agree in the transformation of the business unit.

The roles and responsibilities of MIS will be defined by the strategic plan that will lead the direction of diversification to a successful for business unit.

4.16.2 Product and Business Sectors

Since the MIS new business will be an EGCO subsidiary and still serve full IT functions to EGCO, It should provide an appropriate IT system to EGCO as common weapon. We review the current IT system and foresee new IT system from user requirement as follows:

- (a) Information system strategic plan development support
- (b) Information system management support
- (c) Development support
- (d) Operation support

The description of service provided to EGCO and it's subsidiaries is as shown above.

4.16.3 For the MIS Unit Organization in Improving Stage

We adjust the current MIS organization to show the functional structure instead of position structure as seen in Figure 4.2.

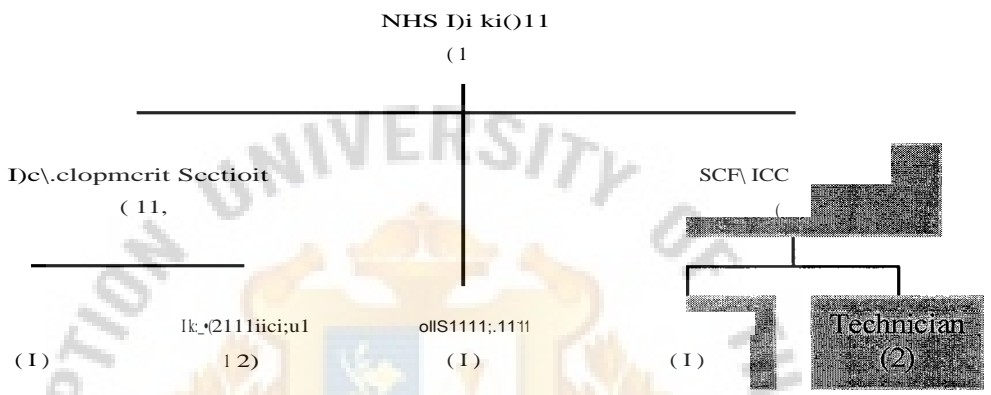


Figure 4.2. Current MIS Business Organization.

We estimated the incentive expenditure of IT staff which MIS division will pay, as seen in Table 4.9.

Table 4.9. Total Incentive Expenditure in the Current MIS Division.

Position	Total expenditure		
	Expense	Person	Total expense
Division manager	1,360,000	1	1,360,000
Section manager/manager	935,000	2	1,870,000
Consultant	425,000	3	1,275,000
Technician	340,000	4	1,360,000
Total incentive expenditure in current MIS division			5,865,000

Here the new MIS business unit, which is organized as the new organization structure in stage I works together in two lines of work. The lines of operation are the line of development section, and the line of service section.

The MIS business unit in the future will still be a flat organization. The MIS management should solve the problem of working independently by encouraging working cooperatively. The matrix organization should be provided in MIS division for flexibility in working and management.

Time frame of each stage is two years. The organization structure is adjusted in the 1st year and the 2nd year.

From the analysis of work force requirement in the first year, The MIS new business structure has similar structure to the existing MIS division structure. We adjust the new MIS organization as seen in Figure 4.2. There will be an increase of new staff in many functions such as assistant MIS division, consultant. Consultant function, which may be system analysis or technical analysis, depending on certain work force requirements. The two functions should transfer knowledge to each other.

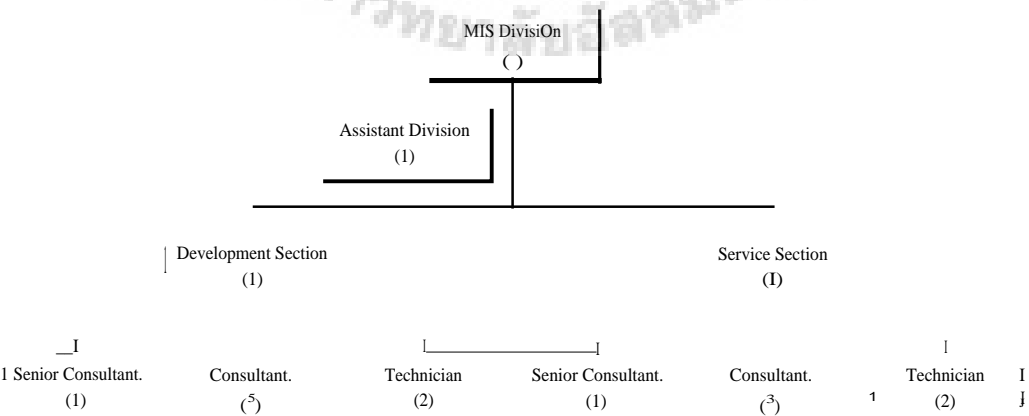


Figure 4.3. The MIS Unit Organization in the 1st Year.

We estimate incentive expenditure of IT staff which the MIS unit will pay in the 1st year, as seen in Table 4.10.

Table 4.10. Total Expenditure of IT Staff in Year 1.

Position	Total expenditure			
	Incentive	Training	Person	Total expense
Division manager	1,360,000	50,000	1	1,410,000
Assistant MIS division	1,190,000	50,000	1	1,240,000
Section manager/manager	935,000	60,000	2	1,930,000
Senior consultant	595,000	90,000	2	1,280,000
Consultant	425,000	90,000	8	3,490,000
Technician	340,000	90,000	4	1,450,000
Total incentive expenditure in the 1st year				10,800,000

From the analysis of work force requirement in the second year, the MIS new business structure is same as that of the first year. It is different only by the number of each function. We adjust MIS new organization as seen in Figure 4.4.

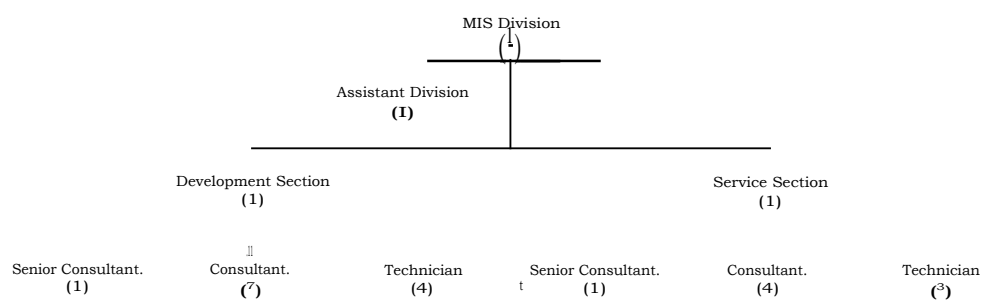


Figure 4.4. The MIS Unit Organization in the 2nd Year.

We estimate the incentive expenditure of IT staff which the MIS unit will pay in the 2nd year, as seen in Table 4.11.

Table 4.11. Total Incentive Expenditure in Year 2.

Position	Total expenditure			
	Incentive	Training	Person	Total expense
Division manager	1,360,000	50,000	1	1,410,000
Assistant MIS division	1,190,000	50,000	1	1,240,000
Section manager/manager	935,000	60,000	2	1,930,000
Senior consultant	595,000	90,000	2	1,280,000
Consultant	425,000	90,000	11	4,765,000
Technician	340,000	90,000	7	2,470,000
Total incentive expenditure in 2nd year				13,095,000

4.16.4 Roles and Responsibilities of the MIS Staff

First of all, the MIS staff should understand and agree on the idea of transforming to the business unit. The management should clarify the roles and job descriptions of IT staff and should improve IT skill of the MIS staff in order to effectively work in the MIS division and the MIS new business unit.

Current IT staff lack IT skills in various aspects. MIS management should focus on improving the necessary IT skills and the experience of IT staff that are not sufficient. Focusing on some of IT capability is more necessary than improving all IT capabilities. Such areas under focus can help IT staff to be more qualified for IT work.

MIS unit should setup working standard to help IT staff implement projects. IT staff should focus on investigation and study details of project implementation. Planning process and working standard procedures should be provided in the MIS division and MIS business units.

The roles and responsibilities of MIS staff should be :

- (a) To realign IT solutions through MIS members
- (b) To promote movement of personnel across functional boundaries, job rotation.
- (c) To establish personal performance objectives, related to IT
- (d) To build a range of IT competencies and source these competencies from both internal and external resources.
- (e) To contribute process expertise or know-how from within the MIS team.

4.17 MIS Business Unit of the Beginning Stage (Stage II)

At this stage, the MIS division begins to be a business unit under EGCO. The MIS business unit still supports all IT functions for EGCO. EGCO groups will provide only qualified service from MIS units. MIS units should have benchmarks to measure the quality of work. The service charge will be on the basis of considering MIS as a profit center within EGCO and EGCO groups. The benchmarks as well as service charge should be acceptable to both customer and the MIS.

Some service areas of IT are not competitively marketable. The MIS unit should also maintain all user requirements by using outsource strategy or joint venture with IT consultant to support all customer requirements of IT. The MIS unit will play a

managerial or coordinating roles. Here the MIS staff strongly need to have project management and project coordination skills.

The MIS unit has the exclusive right through the executive management policy, to provide service areas to the EGCO group. The service by MIS unit in each area should be able to convince EGCO groups of the good service. The price of service area should satisfy both the customer and MIS units. MIS new business should maintain good relationship between MIS unit and EGCO group as the customers.

4.17.1 Vision of Diversification into Business Units of MIS in Stage II

After the success of the improvement stage, the following should be realized

- (a) Increase the capabilities of EGCO core business through technology within IT budget and expenditure
- (b) Implement IT business and get charges out from the EGCO group

4.17.2 Mission of Stage II

- (a) To continue the role of the supporting division for EGCO
- (b) To provide service area for EGCO subsidiaries and to use the charging out solution
- (c) To operate and develop appropriate IT solutions as a common weapon to support business and executive requirement of EGCO
- (d) To improve planning and forecasting trends of MIS business units
- (e) To develop IT business of the EGCO group. The role of MIS is the IT provider and EGCO groups are the customers.
- (f) To expand qualification in focus products to joint venture companies.
- (g) To build the MIS image and show it to be reliable in IT solutions

- (h) To minimize skill gaps

4.17.3 Objectives of Stage II

- (a) To improve the plan leading to quantifiable saving in planing time and effort.
- (b) To practice and study business methodology
- (c) To acquire IT projects in EGCO groups
- (d) To provide education and training to the MIS team, both in providing a better understanding of the business aspects of information technology and in developing skills in its application, for example in project management.

4.17.3 Expected Benefits of Stage II

- (a) To control the accountability of MIS for IT expenditure
- (b) To help ensure that better value for money is achieved
- (c) To educate IT staff about transformation process through application of technology
- (d) To increase the capabilities of core business functions through technology
- (e) To maintain the motivation and morale of company employees.

The purpose of charging -out also aims to achieve greater visibility of IT costs. By having a service fee, the management will be able to allocate as well as justify the cost of IT. The capability to allocate IT cost will be useful as management tools in the areas of IT planning processes, project benefits appraisal and management performance measures and cost control.

For management control it may to be desirable to know IT costs by the main business function, or even by business process for those organizations moving into

business process management. In providing this information it is intended that the users will direct their priorities and set their overall demands for IT so that these are in line with their business objectives, with the overall resources at their disposal and with their ability to fund the use of IT. The aims of charge-out are worthy and the concept is straightforward. It requires a simple periodic charge, in line with forecasts, from MIS to the users for their share of the IT services and solutions.

4.18 Strategy of Stage II

There are many key factors, when considered together, will result in IT supporting the real needs of the business. These are:

4.18.1 Strategy Plan

Information system strategy plan will be developed for EGCO by MIS unit to serve EGCO's vision, missions and objectives. The MIS unit should develop its information system (IS) strategic plan development support and involve the information system (IS) support.

In the past, IS strategic plan development and IS management support was developed by external IT consultants like IBM. In this stage MIS unit should provide the strategic plan which will be more conformed to the direction of EGCO.

4.18.2 Product and Business Sectors

The MIS unit has the EGCO group as its customer by using the concept of exclusive rights. This project will estimate the corporate customer target plan in Table 4.1.

The service areas which are provided to the EGCO group are:

- (a) SAP consultant

- (b) SAP implementation
- (c) SAP infrastructure
- (d) IT infrastructure
- (e) IT solution
- (f) IT service and support

The reason of focusing on those service areas are described in chapter III. The others service areas should be handled by outsourcing and joining the IT partners. The solution depends on appropriateness of project implementation.

Although the MIS unit in this stage has exclusive rights by executive management to provide service to the EGCO group. The result from the IS service provided to customers should be able to convince the EGCO group that they receive good service from MIS unit. MIS unit should maintain customer satisfaction by using good service areas and good relationships.

4.18.3 Organization Structure

This stage is an aftermath from stage I. The time frame of this stage is two years. The analysis of MIS organization and man power in the 3rd year is presented in Figure 4.5 and the 4th year as in Figure 4.6.

In this stage, the MIS unit, through the exclusive agreement to service EGCO 's subsidiaries, is focused on business areas for some service charge, will still fully provide IT support to EGCO. The service area and work force requirements are similar with stage I. MIS unit should increase new staff by adjusting MIS work force in Table 4.5.

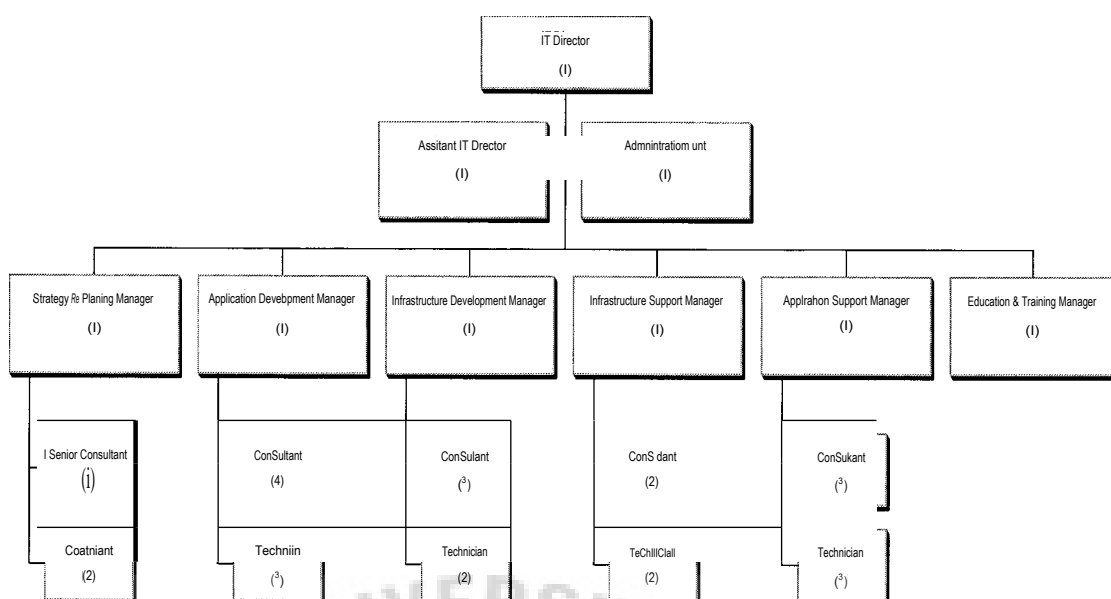


Figure 4.5. MIS Organization in the 3rd Year.

We estimate incentive expenditures of IT staff which MIS unit will pay in 3rd year, as seen in Table 4.12.

Table 4.12. Total Expenditure of IT Staff in Year 3.

Position	Incentive	Training	Person	Total expense
IT Director	2,550,000	50,000	1	2,600,000
Assistant IT director	1,700,000	50,000	1	1,750,000
Section manager/manager	935,000	60,000	6	5,670,000
Senior consultant	595,000	90,000	1	685,000
Consultant	425,000	90,000	14	6,040,000
Technician	340,000	90,000	10	3,490,000
Administrator	306,000	30,000	1	336,000
Total incentive expenditure in 3 rd year				20,571,000

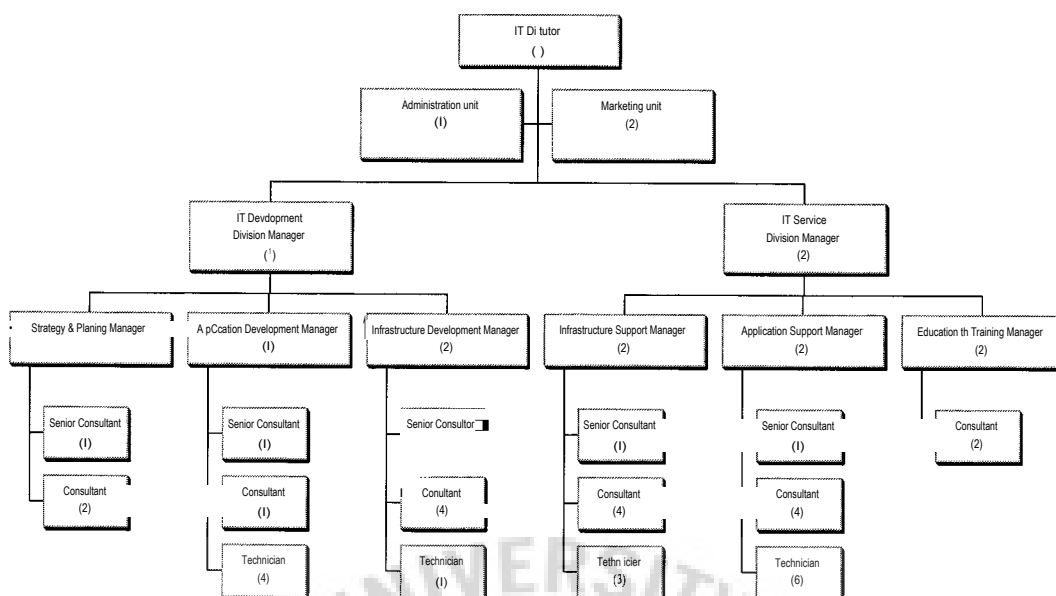


Figure 4.6. MIS Organization in the 4th Year.

Table 4.13. Total Expenditure of IT Staff in Year 4.

Position	Total expenditure			
	Incentive	Training	Person	Total expense
IT Director	2,550,000	50,000	1	2,600,000
Division manager	1,360,000	50,000	3	4,130,000
Section manager/manager	935,000	60,000	10	9,410,000
Senior consultant	595,000	90,000	5	3,065,000
Consultant	425,000	90,000	19	8,165,000
Technician	340,000	90,000	16	5,530,000
Sale	340,000	60,000	2	740,000
Administrator	306,000	30,000	1	336,000
Total incentive expenditure in 4th year				33,976,000

4.19 Stage III: The Full MIS Business Unit

In year 5, the MIS unit will compete with other service providers for service to EGCO's subsidiaries as well as to the external clientele of similar businesses. The MIS unit still provide full IT service to EGCO.

4.19.1 Visions of Diversification into Business Unit of MIS in Stage III

After the beginning stage success, MIS unit shall:

- (a) Be a self-sustainable unit
- (b) Increase capability of service area within budget and IT expenditure

4.19.2 Missions of Stage III

- (a) To continue support IT service to EGCO fully
- (b) To expand IT service area to EGCO group and the external market
- (c) To build MIS unit image and reliability in IT service.

4.19.3 Objectives of Stage III

- (a) To increase efficiency to operate IT system and develop IT solutions for EGCO
- (b) To acquire IT service in EGCO group and external markets
- (c) To gain enough revenue to make it self-sustainable

4.19.4 Expected Benefits of the Stage

- (a) To increase the capabilities of core business functions through technology.
- (b) To maintain the motivation and morale of IT staff
- (c) To have the flexibility in management and decision making of the MIS unit
- (d) To gain revenue among EGCO and MIS units

4.20 Strategy of Stage III

For the success of this stage, the MIS unit will be concerned with several issues.

These are:

4.20.1 Strategy Plan

MIS unit still develops information system strategy to serve EGCO' visions, missions and objectives.

In this stage, the MIS unit will compete with other service providers to acquire EGCO group and external markets as customers. For EGCO group, MIS unit should maintain customer satisfaction by using good service and good relationship. This will introduce long lasting customer values both ways.

Besides, the MIS unit should present a good image to the external market. Image will build confidence in MIS unit as a reputable supplier of the service area. MIS unit should focus on marketing and administrative functions.

4.20.2 Product and Business Sectors

The MIS unit intends to focus on EGCO group and external markets as customers. The service area which is provided to the EGCO group is the same as the stage II. The service areas which are provided to EGCO group and external markets, are:

- (a) SAP consultant
- (b) SAP implementation
- (c) SAP infrastructure
- (d) IT infrastructure
- (e) IT solution
- (f) IT service and support

The other service areas should be handled through outsourcing and joining with IT partners. The solution depends on project implementation.

4.20.3 The MIS Unit Organization in Stage III

The MIS unit at this stage similar with organization in the 4th year, because in year 4, the MIS unit prepares itself to be a full MIS unit. It should have its own marketing and administrative units. Marketing unit focuses on expanding IT service area to the external market. The administrative unit focuses on accounting, financing and administrative tasks by joining the administrative division of EGCO.

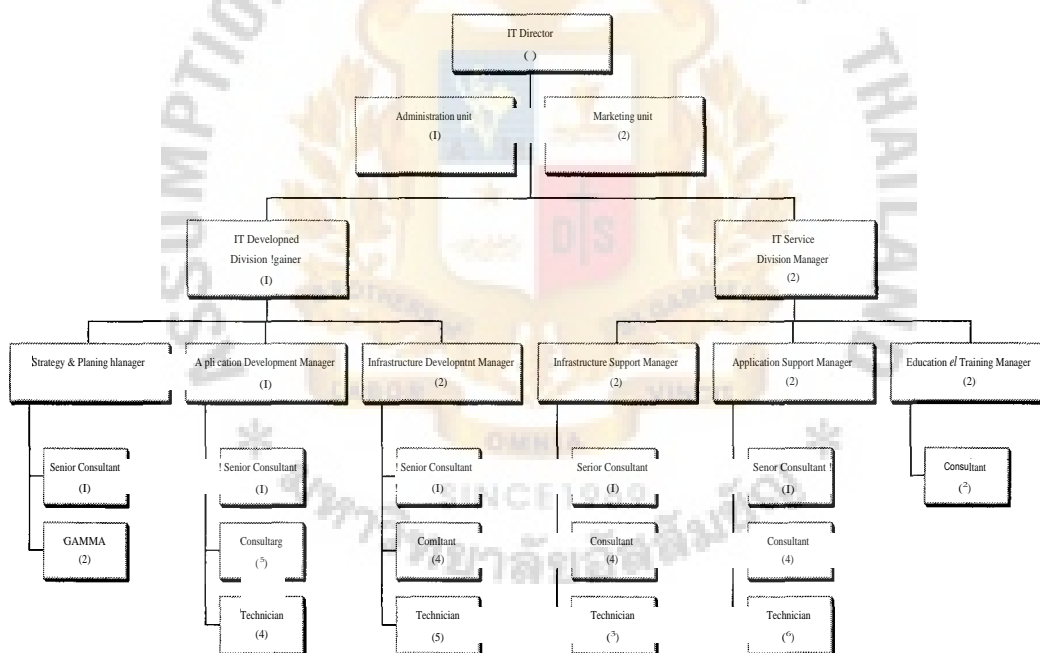


Figure 4.7. MIS Organization in the 5th Year.

5.2 Recommendations

The top management of EGCO has stated that the direction of the MIS division is to be diversified into a business unit. Diversification into business unit of the MIS division is not ready for immediate transformation at the time. Because the current MIS division has experience only in providing service for EGCO and its subsidiaries. MIS staffs have no skill and experience in running as a business unit.

Yet, the MIS staff have the advantage in that the current MIS team is experienced in the full integrated work system and the service oriented mind. So the MIS division will have to prepare itself to be an effective MIS business unit in the future.

Currently the MIS unit is viewed as a tool that increases productivity of the company. So the MIS division should still be an EGCO subsidiary and still support EGCO and other subsidiaries and also, it can seek to sell its service to outsiders for profit as well.

The target market of MIS new business is mostly focused on EGCO, EGCO group and external markets especially energy related business, because the MIS unit has more IT work experience.

For the service products for both EGCO groups the external market should be the same, because it is the service that MIS unit has IT capability to operate, compared to the existing market standard. For EGCO, the MIS new business will provide full IT service.

MIS unit may provide a specific kind of service or normal service by using its own capability or by using outsourcing or joint venture service with IT consulting firms like Andersen consultant company.

Successful diversification to MIS business unit should follow step by step structural development as the MIS unit grows and expands. Beginning with the structure of the existing organization, this MIS unit can gradually be improved and get larger. With continuous improvement and success, MIS unit can expand its businesses to external customers.

In doing so, the diversification will need careful planning. It should cover at least 3 years, where in each year, the MIS division will be diversified to be really a business unit. The plan should include the new organization improvement, the personnel improvement, the policy and management procedures necessary.



APPENDIX A

CALCULATION OF IS SYSTEM IN COPORATE CUSTOMER TARGET

PROJECTION



St. Gabriel's Library

Calculation of IS System in Cooperate Customer Targeted Projection.

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APPENDIX B

WORKFORCE REQUIREMENT IN THE 1ST YEAR

Table B.1. Workforce Requirement in the 1st Year.

Function	person	IS strategic plan development support	IS management support	Development support	IT Operation support	SAP consultant	SAP implementation	SAP infrastructure	SAP training	IT infrastructure Services	IT solution Services	IT service and support
		4.0	4.0	7.0	4.0	0.0	2.0	1.0	1.0	3.0	2.0	4.0
MIS manager	1.0	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Service manager	1.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.2
Development m.	1.0	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1
System analyst	2.0	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.1
Programming	1.0	0.1	0.0	0.3	0.2	0.2	0.4	0.0	0.3	0.0	0.3	0.2
System administration	1.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Technical support	1.0	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.0	0.3	0.2	0.3
Technical Analyst	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.2	0.1	0.1

MIS manager	1.0	0.6	0.6	0.4	0.2	0.0	0.1	0.1	0.1	0.2	0.1	0.2
Service manager	1.0	0.4	0.4	0.7	0.8	0.0	0.1	0.1	0.0	0.3	0.2	0.6
Development m.	1.0	0.6	0.4	0.7	0.4	0.0	0.0	0.1	0.2	0.5	0.3	0.4
System analyst	2.0	0.8	0.8	2.1	0.8	0.0	0.6	0.2	0.2	0.6	0.8	0.8
Programming	1.0	0.2	0.1	2.1	0.8	0.0	0.8	0.0	0.3	0.0	0.6	0.6
System administration	1.0	0.2	0.1	0.7	0.4	0.0	0.2	0.1	0.1	0.3	0.2	0.6
Technical support	1.0	0.2	0.1	0.4	0.8	0.0	0.2	0.2	0.0	0.8	0.3	1.2
Technical Analyst	1.0	0.4	0.4	0.7	0.4	0.0	0.1	0.2	0.0	0.5	0.2	0.4
Total		3.4	3.0	7.7	4.6	0.0	2.1	0.9	0.8	3.0	2.7	4.8

An increase of 20% of administrators and others tasks



APPENDIX C

WORKFORCE REQUIREMENT IN THE 2nd YEAR

Table C.1. Workforce Requirement in the 2nd Year.

Function	person	IS strategic plan development support	IS management support	Development support	IT Operation support	SAP consultant	SAP implementation	SAP infrastructure	SAP training	IT infrastructure Services	IT solution Services	IT service and support
		4	4	7	4	0	3	1	2	4	2	4
MIS manager	1	0.15	0.15	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05
Service manager	1	0.1	0.1	0.1	0.2	0.05	0.05	0.1	0	0.1	0.1	0.15
Development m.	1	0.15	0.1	0.1	0.1	0.15	0.15	0.1	0.15	0.15	0.15	0.1
System analyst	2	0.1	0.1	0.15	0.1	0.2	0.15	0.1	0.1	0.1	0.2	0.1
Programming	1	0.05	0.03	0.3	0.2	0.2	0.4	0	0.3	0	0.3	0.15
System administration	1	0.05	0.03	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.15
Technical support	1	0.05	0.03	0.05	0.2	0.1	0.1	0.2	0	0.25	0.15	0.3
Technical Analyst	1	0.1	0.1	0.1	0.1	0.1	0.05	0.15	0	0.15	0.1	0.1

MIS manager	1	0.6	0.6	0.35	0.2	0	0.15	0.05	0.1	0.2	0.1	0.2
Service manager	1	0.4	0.4	0.7	0.8	0	0.15	0.1	0	0.4	0.2	0.6
Development m.	1	0.6	0.4	0.7	0.4	0	0	0.1	0.3	0.6	0.3	0.4
System analyst	2	0.8	0.8	2.1	0.8	0	0.9	0.2	0.4	0.8	0.8	0.8
Programming	1	0.2	0.12	2.1	0.8	0	1.2	0	0.6	0	0.6	0.6
System administration	1	0.2	0.12	0.7	0.4	0	0.3	0.1	0.1	0.4	0.2	0.6
Technical support	1	0.2	0.12	0.35	0.8	0	0.3	0.2	0	1	0.3	1.2
Technical Analyst	1	0.4	0.4	0.7	0.4	0	0.15	0.15	0	0.6	0.2	0.4
Total		3.4	2.96	7.7	4.6	0	3.15	0.9	1.5	4	2.7	4.8

An increase of 20% of administrators and others tasks



APPENDIX D

WORKFORCE REQUIREMENT IN THE 3rd YEAR

Table D.1. Workforce Requirement in the 3rd Year.

Function	person	strategic plan development support	IS management support	Development support	IT Operation support	SAP consultant	SAP implementation	SAP infrastructure	SAP training	IT infrastructure Services	IT solution Services	IT service and support
		4	4	4	4	0	2	1	1	4	2	4
MIS manager	1	0.15	0.15	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05
Service manager	1	0.1	0.1	0.1	0.2	0.05	0.05	0.1	0	0.1	0.1	0.15
Development m.	1	0.15	0.1	0.1	0.1	0.15	0.15	0.1	0.15	0.15	0.15	0.1
System analyst	2	0.1	0.1	0.15	0.1	0.2	0.15	0.1	0.1	0.1	0.2	0.1
Programming	1	0.05	0.03	0.3	0.2	0.2	0.4	0	0.3	0	0.3	0.15
System administration	1	0.05	0.03	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.15
Technical support	1	0.05	0.03	0.05	0.2	0.1	0.1	0.2	0	0.25	0.15	0.3
Technical Analyst	1	0.1	0.1	0.1	0.1	0.1	0.05	0.15	0	0.15	0.1	0.1

MIS manager	1	0.6	0.6	0.2	0.2	0	0.1	0.05	0.05	0.2	0.1	0.2
Service manager	1	0.4	0.4	0.4	0.8	0	0.1	0.1	0	0.4	0.2	0.6
Development m.	1	0.6	0.4	0.4	0.4	0	0	0.1	0.15	0.6	0.3	0.4
System analyst	2	0.8	0.8	1.2	0.8	0	0.6	0.2	0.2	0.8	0.8	0.8
Programming	1	0.2	0.12	1.2	0.8	0	0.8	0	0.3	0	0.6	0.6
System administration	1	0.2	0.12	0.4	0.4	0	0.2	0.1	0.05	0.4	0.2	0.6
Technical support	1	0.2	0.12	0.2	0.8	0	0.2	0.2	0	1	0.3	1.2
Technical Analyst	1	0.4	0.4	0.4	0.4	0	0.1	0.15	0	0.6	0.2	0.4
Total		3.4	2.96	4.4	4.6	0	2.1	0.9	0.75	4	2.7	4.8

An increase of 20% of administrators and others tasks

APPENDIX E

WORKFORCE REQUIREMENT IN THE 4th YEAR AND THE 5TH YEAR



Table E.1. Workforce Requirement in the 4th Year and the 5th Year.

Function	person	IS strategic plan development support	IS management support	Development support	IT Operation support	SAP consultant	SAP implementation	SAP infrastructure	SAP training	IT infrastructure Services	IT solution Services	IT service and support
		4	4	5	4	0	3	2	1	4	2	4
MIS manager	1	0.15	0.15	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.1	0.05
Service manager	1	0.1	0.1	0.1	0.2	0.05	0.05	0.1	0	0.1	0.1	0.15
Development m.	1	0.15	0.1	0.1	0.1	0.15	0.15	0.1	0.15	0.15	0.2	0.1
System analyst	2	0.1	0.1	0.15	0.1	0.2	0.15	0.1	0.1	0.1	0.2	0.1
Programming	1	0.05	0.03	0.3	0.2	0.2	0.4	0	0.3	0	0.3	0.15
System administration	1	0.05	0.03	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.15
Technical support	1	0.05	0.03	0.05	0.2	0.1	0.1	0.2	0	0.25	0.2	0.3
Technical Analyst	1	0.1	0.1	0.1	0.1	0.1	0.05	0.15	0	0.15	0.1	0.1
MIS manager	1	0.6	0.6	0.25	0.2	0	0.15	0.1	0.05	0.2	0.1	0.2
Service manager	1	0.4	0.4	0.5	0.8	0	0.15	0.2	0	0.4	0.2	0.6
Development m.	1	0.6	0.4	0.5	0.4	0	0	0.2	0.15	0.6	0.3	0.4
System analyst	2	0.8	0.8	1.5	0.8	0	0.9	0.4	0.2	0.8	0.8	0.8
Programming	1	0.2	0.12	1.5	0.8	0	1.2	0	0.3	0	0.6	0.6
System administration	1	0.2	0.12	0.5	0.4	0	0.3	0.2	0.05	0.4	0.2	0.6
Technical support	1	0.2	0.12	0.25	0.8	0	0.3	0.4	0	1	0.3	1.2
Technical Analyst	1	0.4	0.4	0.5	0.4	0	0.15	0.3	0	0.6	0.2	0.4
Total		3.4	2.96	5.5	4.6	0	3.15	1.8	0.75	4	2.7	4.8

An increase of 20% administrators and others tasks

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