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外商在台子公司發展策略之研究 - 以韓國博泰科技為例

Analysis of VATECH's Experience in the Development and
the Future Strategies within Taiwan



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Analysis of VATECH's Experience in the Development and the Future
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ABSTRACT

VATECH CO., Ltd. is an emerging dental and medical imaging device manufacturer focused on developing and producing innovative new dental and medical digital X-ray for improved diagnosis and treatment. Since VATECH Co., Ltd. entered into Taiwan market with its fully-owned subsidiary, VATECH Taiwan in 2007, VATECH Taiwan has enjoyed two consecutive years of success and growth. Over the course of this time, VATECH Taiwan's revenue has soared, while it took the leading position in Taiwan Dental Digital X-ray market in terms of the market share. However, as VATECH Taiwan faces increasing competition and rapid changes in industry boundaries, it must react quickly to maintain its competitive advantage. Furthermore, as a subsidiary company of VATECH Co., Ltd. located in Korea, it needs to play more strategically important roles in order to get sustainable growth.

This paper presents an analysis of VATECH Taiwan, and the Dental Digital X-ray industry in which the company competes. Specifically, it provides a strategic analysis of VATECH Taiwan in order to firstly, assess the external situation and industry and secondly, identify the competencies and key issues associated with the internal analysis of the company. By comprehensively analyzing various elements of the strategic position of VATECH Taiwan, this paper will make recommendations regarding a new strategy for the business to enjoy sustained growth and reach further as a subsidiary company.

Keywords: VATECH business analysis; Dental digital X-ray industry analysis

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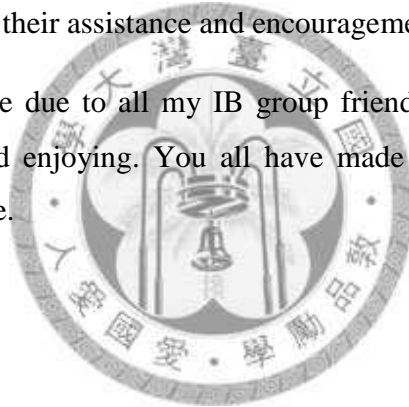


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1. Introduction

1.1. Background

The importance of strategic planning for businesses in today's highly competitive business environment is rather evident. Systematic and strategic planning is a must for companies that intend to become major players in their respective industries. Thompson, Strickland, and Gamble (2008) define strategic analysis as the conjugation of three processes: (1) consideration of the organization's strategic intent; (2) exploration of the opportunities and threats presented in the immediate environment surrounding the organization; and (3) a study of the organization's internal strengths and weaknesses. This definition is very similar or equivalent to the concept of Strength, Weakness, Opportunity, and Threat Analysis (SWOT), plus any effort to define a company's strategy.

On the other hand, strategic planning is defined by Aaker (1988) as the process of increasing a company's ability to anticipate changes that have strategic implication, by focusing on their immediate market environment to achieve an in-depth understanding of competitors and customers. Pearce (1994) defines strategic planning as an on-going process based on the implementation and development of better strategies.

Finally, strategic management is described as the on-going dynamic process (involving both strategic analysis and strategic planning) leading to a set of analysis-driven decisions and actions taken by a firm to achieve its performance goals (Pearce

1994, Peterson 1994). Performance may mean desired level of profits, market share, customer satisfaction, or sales.

1.2. Purpose of the Study

The objective of this study was first to analyze VATECH Taiwan's experience in the development, and second to assist VATECH Taiwan in developing a strategic plan and propose a set of strategic alternatives for their future development.

The strategic plan is a core plan of action based on a competitive force analysis, a SWOT analysis and a company situation analysis. The strategic plan was intended to aid VATECH Taiwan in developing a set of goals and objectives that will start from a small-size profitable company into a larger, more profitable corporation in Taiwan. In the process of developing a strategic plan for VATECH, Taiwan, data and information used to write this study was gathered. This paper will concentrate on focus interviews with key persons in the company used to collect data for the case study and strategic planning process.

1.3. Outline of Thesis

This paper presents a strategic analysis of VATECH Taiwan, and of the industry in which the company competes. By comprehensively analyzing various elements of the strategic position of VATECH Taiwan, this paper will make recommendations

regarding a new strategy for the business to enjoy sustained growth. This paper consists of six chapters. Chapter 1 introduces the purpose of the study and outline. Chapter 2 provides a review of the literature which is the basis of the study. Chapter 3 provides an overview of VATECH, the parent company of VATECH Taiwan. Chapter 4 presents an industry definition and analyzes the key competitive forces that operate within the industry. Moreover, based on the analysis, chapter 4 provides an overall assessment of the attractiveness of the industry and key issues facing companies in the industry. Chapter 5 examines VATECH Taiwan and the value chain, and assesses its internal competitive advantages and disadvantages. Chapter 6 draws from all of the information in the preceding chapters and to make a recommendation based on the analysis. Finally, the thesis is concluded with the conclusion of findings, its limitations, managerial implication, and suggestion for the future research.



2. Literature Review

2.1. Strategic Analysis and Strategic Planning in Strategic Management Research

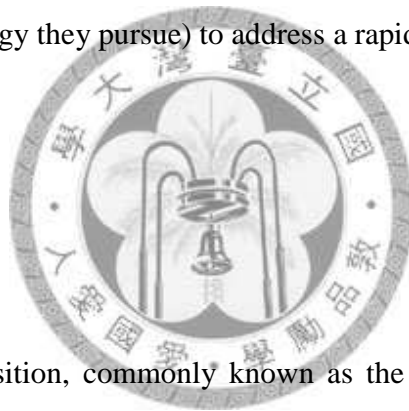
Thompson, Strickland, and Gamble (2008) define strategic analysis as the conjugation of three processes: (1) consideration of the organization's strategic intent; (2) exploration of the opportunities and threats presented in the immediate environment surrounding the organization; and (3) a study of the organization's situation, internal strengths and weaknesses. This definition is very similar or equivalent to the concept of a Strengths Weaknesses Opportunities and Threats Analysis (SWOT) plus any effort to define a company's strategy.

On the other hand; strategic planning is defined by Aaker (1988) as the process of increasing a company's ability to anticipate changes that have strategic implication, by focusing on their immediate market environment to achieve an in-depth understanding of competitors and customers. Also it is defined by Pearce (1994), as an on-going process based on the implementation and development of better strategies.

Finally, strategic management is described as the on-going dynamic process (involving both strategic analysis and strategic planning) leading to a set of analysis-driven decisions and actions taken by a firm to achieve its performance goals (Pearce 1994, Peterson 1994). Performance may mean desired level of profits, market share, customer satisfaction, or sales.

Also, according to Zahra et al. (1993), competitive analysis is a process by which firms define and try to understand their industry; identify their competitors; determine strengths and weaknesses of rivals, and anticipates situations and future moves. According to Beaver and Ross (2000), for small companies, strategic management is often an adaptive process. Such process is carried out to achieve positional and resource advantages. Decisions are taken from day to day, as needed, which is the way for meeting most small environmental changes. The study stresses the importance for VATECH Taiwan, as a small-sized subsidiary company located in Taiwan, in developing a more structured and systematic way of thinking strategically (regardless of what strategy they pursue) to address a rapidly growing industry.

2.2. Value Chain



The value proposition, commonly known as the value chain, is a model that describes a series of activities for diagnosing competitive advantage. The purpose of value chain analysis is to systematically identify appropriate means of differentiation for a firm so that it can provide superior delivered value to its customers (Porter, 1998). When a company competes in any industry it performs a number of discrete but interconnected value-creating activities, such as operating a sales force, or delivering products, and these activities have points of connection with the activities of suppliers, channels, and customers. The value chain is a framework for identifying all these activities and analyzing how they affect both a company's costs and the value delivered to buyers.

Porter also states that value chain (Figure 2.1) is the basic tool for diagnosing competitive advantage and finding ways to enhance it. The value chain disaggregates a firm into its relevant activities in order to understand the behavior of costs and the existing and potential sources of differentiation. A firm gains competitive advantage by performing these important activities in order to understand the behavior of costs and the existing and potential sources of differentiation. A firm gains competitive advantage by performing these important activities more cheaply or better than its competitors (Porter, 1998)

In today's environment, it is becoming ever more critical for firms to develop sustainable competitive advantages. In order for a company to develop this advantage, it must also understand its own resources and capabilities, as well as be able to evaluate these strengths and weaknesses in terms of competitive advantage. Value chain analysis provides a company a systematic technique for scanning their internal organizations. By focusing on competitively relevant strengths and weakness, a firm's management can better see the potential of these resources and capabilities for adding or subtracting value to the firm's processes. This understanding can then lead to generic strategies that will most likely lead to sustained competitive advantage. (Duncan, Ginter, Swayne, 1998)



Figure 2.1. Porter's Value Chain

2.3. Core Competences and Assessment

Traditionally strategic management approaches have focused on the analysis of products and markets as the key to competitiveness and good performance. The emphasis has been on how companies position themselves in relation to products, markets and competitors. In the 1990s, this traditional way of viewing strategy was becoming inadequate. Globalization, deregulation, fierce competition and rapid technological change were presenting problems this approach could not answer. It did not explain for example, how certain companies could diversify successfully into new markets and some not. It did not explain the significance of strategic asset stocks. An additional perspective was however available. This approach received a lot of endorsement by Prahalad and Hamel.

Prahalad and Hamel (1990) see the role of companies as identifying, cultivating and exploiting their core competencies to make growth possible. Competitiveness in the long run derives from an ability to build core competencies more efficiently than competitors and use them to create unanticipated products. Advantage comes from management's ability to consolidate corporate-wide technologies and production skills into competencies that enable individual businesses to adapt quickly to changing opportunities. Corporate structure is a portfolio of competencies, core products and businesses. (Prahalad and Hamel 1990)

Duncan, Ginter and Swayne (1998) present a methodology for systematically analyzing a firm's internal competencies which would best clarify relevant strengths and weaknesses. The methodology includes four steps: surveying potential strengths

and weaknesses, categorizing organizational differences, investigating the source of competitive advantage, and lastly, evaluating competitive advantage. By applying this model to VATECH Taiwan, I can better evaluate the relationship of components of the value chain as contributors to the company's competitive advantage.

More specifically, the methodology involves four distinct steps: surveying potential strengths and weaknesses, categorizing organizational differences, investigating the source of competitive advantage, and lastly, evaluating competitive advantage. In Step One, a comprehensive list of strengths and weaknesses is compiled, regardless of relevance to competitive advantage. This is to enable analysts to cover all aspects of a firm's strengths and weaknesses. Step Two involves categorizing these attributes into either resources or capabilities, and evaluating each on the basis of relevance to competitive advantage. Resources are those assets, either tangible or intangible, that a firm uses to perform work. Capabilities are those attributes that enables a firm to coordinate the above-mentioned resources to produce desired results. The criteria used to judge an attribute's relevance to sustainable competitive advantage involves evaluating each on the basis of its value to the firm, its rarity in the industry, the ease with which it is imitated, and its sustainability. Step three involves determining the source of competitive advantage, such as through cost leadership or differentiation, and finally, Step Four evaluates the firm's competitive advantages in terms of possible strategies.

2.4. Strategic Roles of Subsidiary Companies

For the purpose of this study, it is necessary to say that a subsidiary company is defined as any operational unit of a multinational organization at company level, which is situated outside the parent country. Parent companies can attribute different roles to its subsidiaries. Aspirations of subsidiary companies are substantially supported or inhibited by its roles given by parent companies. In these situations, a subsidiary company can be assigned different kinds of management tasks. These tasks determine the role, and subsequently the strategic importance, of each unit or firm in the corporate structure. Due to an increased need for integration between subsidiaries, brought on by globalization, these roles become increasingly specialized. Some units are assuming the coordinating functions of (regional) headquarters, while others constitute arms-length operations. Several authors discuss these changes in the strategic role of subsidiaries in the light of growth in lateral relations.

In 1984, Perlmutter classified multinational corporations as having an ethnocentric (E), polycentric (P), regiocentric (R), or geocentric (G) philosophy. In terms of a subsidiary company, this corporate classification may well determine the subsidiary management's views about home and host country nationals, and about structures and resources at HQ and subsidiary level. Ethnocentric companies view international operations as secondary to their domestic operations. A company that considers its national base as its top priority will impose its own language on its foreign subsidiaries. In Polycentric companies, strategic decisions are amended to suit the host country culture of each subsidiary, with the primary concern of host country legitimacy

often give more weight that short term profitability. A geocentric company considers its domestic market as belonging to the world market in the same way as any other domestic market. Strategy, product policy and organizational approach are set at regional level, and objectives are negotiated between regional level, and subsidiaries, and between regional and corporate HQs. Finally, geocentric companies attempt to integrate subsidiaries on a world-wide basis through a global systems approach to decision making. In geocentric companies, subsidiaries are not considered as satellites or independent entities but as parts of the whole organization, developed around a combination of local and global objectives (Taggart, 1988).

Another approach defined marketing satellite, 'miniature replica', rationalized manufacturer, product specialist, and strategic independent types of subsidiaries (White and Poynter, 1984). 'Miniature replica' is a unit that duplicates the layout of headquarters, while the strategically independent position is most beneficial to successful internationalization of subsidiary.

Christopher Bartlett and Sumantra Ghoshal divide subsidiaries into four categories: implementer, contributor, strategic leader, and 'black hole' (Bartlett and Ghoshal 1986). In terms of international embeddedness, subsidiaries, in positions of strategic leader or at least as contributor, are in a favorable situation.

In conclusion, when subsidiary companies have strategic capabilities and resources, they are much valuable to the parent companies by full incorporation into the framework of strategic coordination. Without competitive resources or/and capabilities, subsidiaries are more likely to assume the position of implementer, or a satellite.

2.5. Social Capital Theory

Social capital is rooted in economics, sociology, anthropology, and political science. It refers to social trust, norms, and networks that people can utilize for integration to assist the venture performance and internal resources (Stam, 2008). “Social capital theory refers to the ability of actors to extract benefits from their social structures, networks and memberships” (Lin, 2001). The school of thought adopted for the purpose to analyze the development of VATECH Taiwan involves the studies gathered by Greve and Salaff. They believed that there were three phases to identify critical social network activities and characteristics of entrepreneurial firms.

The first phase involves motivation, where it is expected “that entrepreneurs first explore the possibilities of starting their own business within a small circle of close contacts” (Greve, 2003). The small circles of friends are selected carefully as the entrepreneur is not truly willing to commit to the idea until a sense of possible success is felt.

The second phase pertains to planning, where the entrepreneur starts to “prepare for the new venture and acquiring information, new skills, resources, and business relations” (Greve, 2003). During this phase, the entrepreneur seeks to maximize the social network and social capital in order to ensure the success of the venture.

The last phase is split into two parts as it depends on the execution plan of the entrepreneur. It is called the establishment or taking over a firm phase. The

entrepreneur can either choose to start a new firm or take over an already existing firm. Depending on their choice, the entrepreneur's choices will diverge.

In the case of VATECH Taiwan, it has been established that Eun Hwan Cho chose to establish a new office rather than taking over an existing one. During the planning process, it was decided based on “exposure...to new and different ideas” that opening a new office would be preferable as there was not a company in the current market worthy of being taken over (Davidsson, 2003). According to Burt, “Entrepreneurs require information, capital, skills, and labor to start business activities. While they hold some of these resources themselves, they often complement their resources by accessing their contacts. The contacts that lead to successful outcomes are their social capital and they are a key component of entrepreneurial networks” (Burt, 1992).



3. VATECH Background

This chapter introduces company “VATECH”, which is the parent company of VATECH Taiwan. The general history of the company is described, and its current state of the parent company is presented. Finally VATECH’s value chain is briefly introduced.

3.1. General History of VATECH

Based in Yongin-Si, Korea, VATECH Co., Ltd. started out as an industrial X-ray and TFT-LCD business in 1992. In 2002, with the development of the dental digital panorama system, they transitioned their company into a different line of business, a professional dental digital medical device production company. This company developed the first implant and orthodontic detection digital panorama in Korea and launched the world’s first digital panorama, Cephalo, which is a CT combined Implagraphy.

When the company first formed, it was obviously with no knowledge that the Asian financial crisis was just about to grip much of Asia in a few years. This seriously affected the company, which resulted in their strategic and lucrative move towards the dental medical device. Their focus on research and development paid off as they developed cutting edge technology that shifted them from possible setback to definite comeback.

According to 2008 earnings report standard, weights of main products are 59.97% for dental digital panorama (PAX series), 16.44% for dental CT (Implagraphy, VCT, and DCT), 5.06% for dental oral sensor, and 18.53% for etc (software and service). While dental digital panorama offers 2 dimensional images for entire oral illness diagnosis and dental basic diagnosis, dental CT offers oral anatomical 3-dimensional formation as well as tomographic images and gives essential diagnosis information when operating implantation. Price range of main products is different depending on their version; dental digital panoramas are from 90 million won to 200 million won and dental CTs dental digital panoramas are 400 million won to 900 million won. As the company released its PAX series and Implagraphy (convergence type) with outstanding price competitiveness and high capability in 2004, it maintains monopolistic or oligopolistic status with 60% of market share.

Currently in the Korean market, VATECH held 95% of the Dental CT market share and 65% of the panoramic market. Their annual sales to one of their top customers resulted in 150 Dental CT unit exports. Their breadth stretched out to countries as close as Japan and as far as the Middle East and the U.S., adding up to 54 countries and counting (VATECH Co., 1992).

The key events of VATECH's business developments are summarized as Table 3.1.

Table 3.1. Key Events of VATECH's Business Development

Converted into dental medical device business since 2002	
Foundation & Growth stage	The second growth stage
92.04. Vatech system founded	02.03. Launched Korean first Digital Panorama
96.11. Won the Commerce and Industry Minister Prize (Develop new technology of measuring instrument)	03.06. Selected as "Next Generation World-best Product" by the Commerce and Industry Ministry
98.07. Registered as a venture company	04.01. Selected as the Excellent manufacture technology Research Center by the Commerce and Industry Ministry
00.05. Won the technology Innovation Prize from the commerce and Industry Ministry	05.08. Launched world first Digital Panorama/Cephalo/CT combined type
00.07. Developed close examination X-ray device for industrial usage	06.04. Developed & Launched Implagraphy and CT for Dental usage
01.06. Won the IR52 Jang Young-Sil Prize	

Data: Vatech

3.2. Current Status of VATECH

The company started 2009 with aggressive marketing strategy. During International Dental Show 2009, held in Cologne, Germany, the president of VATECH announced the new CI and vision of the company, whose purpose would be to increase the brand recognition.


The VATECH's growth is fueled by increasing demand of clients abroad, which is driven by:

- Increasing demand of Implant due to the aging of baby boomer generation
- Frequent release of new products including next generation digital panorama (PaX-Primo) and 3D viewer program (EZ3D 2009)
- Through strategic alliance with Samsung Electronics, the company commercialized the FPXD (Flat Panel X-Ray Detector) which will drive VATECH's growth of turnover and profit

- Applied technology to new business of FPXD is not only applicable to X-ray for human chest, but also applicable to X-ray for animal chest, mammography machine, movie sensor, and printer
- Better brand image with its aggressive marketing

In 2008, Korean government decided to support and invests a large amount of money into the medical industry including dental machine industry for next 5 years. The official support from the government will dedicate to supporting the company's growth strategy.

3.3. Value Chain of VATECH



A value chain represents a collection of activities that are performed to design, produce, market, deliver and support the development of a product. Value activities are the building blocks by which a firm creates a product valuable to the buyer. In order for a company to derive a competitive advantage, its value chain has to provide lower cost or better differentiation in product commercialization than its competitors. Therefore, a value chain can be used to compare a firm's current position with the strategy selected in order to assess any strategic gaps.

A cost advantage for a firm can come from either reducing the cost of individual value chain activities or by reconfiguring the value chain. A differentiation advantage maybe achieved either by changing individual value chain activities to increase

uniqueness in the final product or by reconfiguring the value chain. The VATECH's value chain is represented in Figure 3.2.

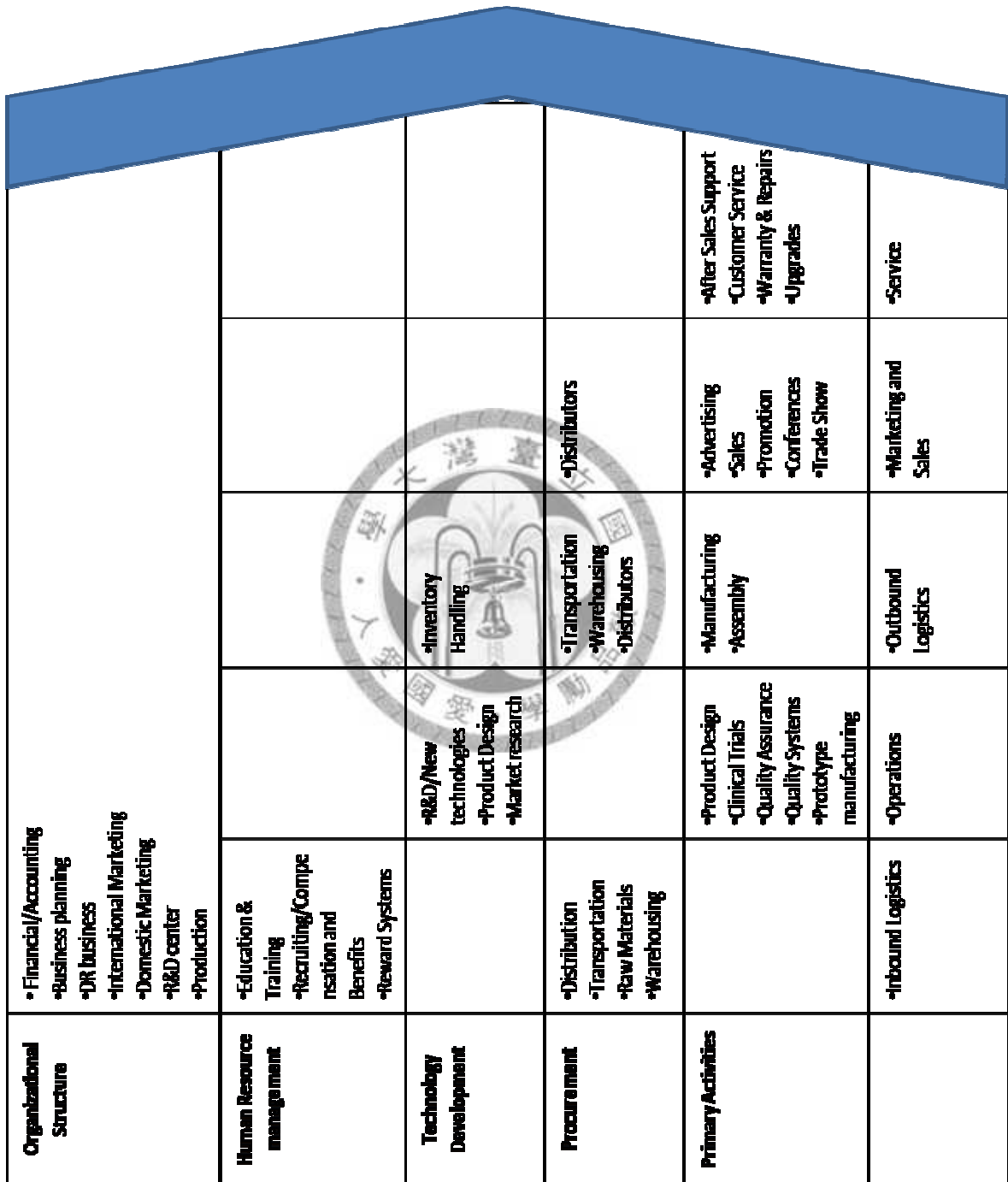


Figure 3.1. VATECH's Value Chain

VATECH is a fully integrated dental X-ray company, which has a product commercialization process that encompasses the length of the value chain, including all support activities.



4. Dental Digital X-ray Industry and Competitive Analysis

The company's internal processes, including the strategic actions, need to be aligned to the company's growth strategy as a reflection of the external environment. In this chapter, the external environment is analyzed to determine what types of strategic actions are needed. This chapter describes the characteristics of the external environment and how they influence the company's strategic action plan.

First, this chapter introduces the industry environment and its characteristics. Second, the level of intensity among competitors and other market players is analyzed using Porter's Five-Forces Model. This analysis will clarify the nature of the competition and the forces shaping the industry. Third, this chapter includes a market analysis focusing on the trends in the industry and driving forces. Forth, a short description of the company's competitors is provided, with the aim of analyzing their strategies and predicted moves. Next, the key success factors will be identified which seem to be critical in achieving sustainable competitive advantage in the dental market. Finally, the chapter concludes by examining factors making the industry attractive or unattractive, and some industry issues / problems.

4.1. Dominant Economic Characteristics of the Industry Environment

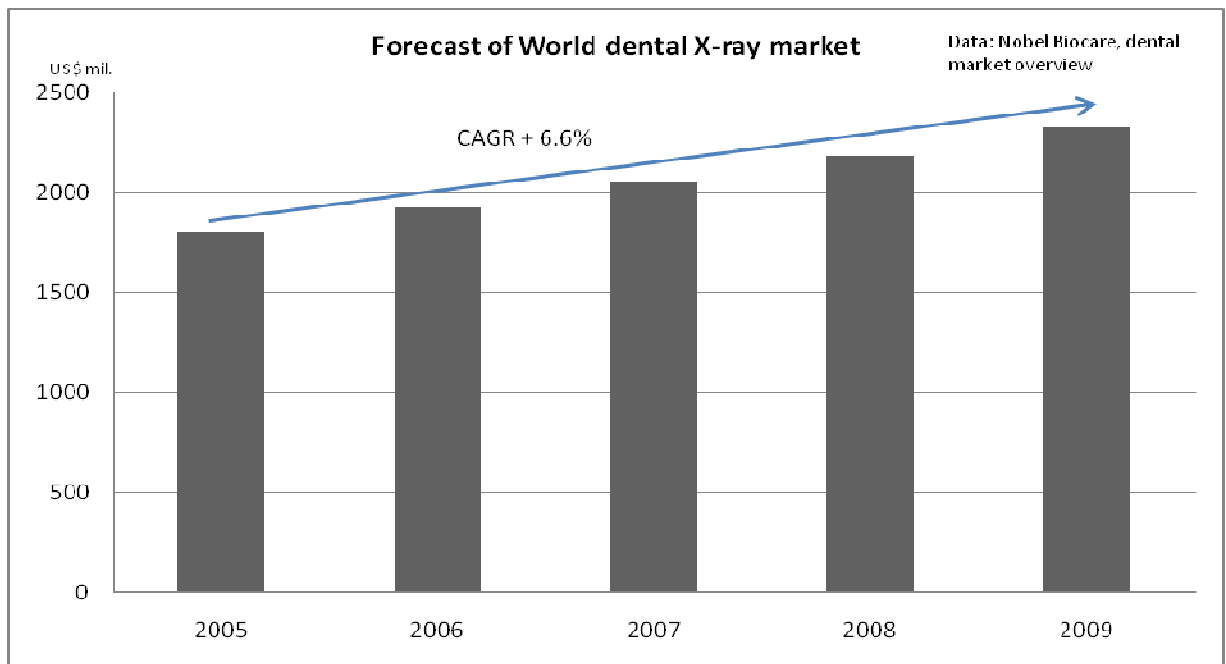
The dental digital X-Ray industry not only includes fundamental studies like biology and medicine, but also IT, machinery, and information and communication technologies. Dental digital X-Ray especially needs semiconductor, device design, image treatment, applied S/W, and more technologies combined for the system device.

Therefore, to enter into the digital X-ray industry, it requires every feature of technologies and an expertise to combine all factors of technologies. A company without these technologies will be limited in their pursuit to develop digital X-ray products and will face a high entry barrier.

This industry has high profitability compared to the manufacturing industry. Also, income elasticity of demands is high, so it is anticipated that high-growth like domestic medical expenses (1/2 level compared to developed countries) are increasing. This is especially the case where digital X-ray devices are replacing pre-existing analog X-ray and this represents a potential for very high-growth.

The world dental X-ray device market size was \$1.8 billion in 2005, but is anticipated to be \$2.34 billion in 2009 with an average of 6.6% growth annually as you can see in the Figure 4.1. This is due to baby-boomers who have sufficient paying capacity and are in their aging stage. They have a more liberal view on cosmetic treatment and they accept surgery as an alternative to the aging process. The digital X-ray device market size has not yet reached its maturity stage; moreover, it is more convenient to store than analog film using X-ray storage devices. Its lower risk of being damaged allows for the adoption to grow within the double-digits. For example, forensic labs increasingly rely on this type of information to ascertain unidentifiable bodies; the reliability of this type of data becomes critical.

Figure 4.1. Forecast of World Dental X-ray Market



For developed countries, the number of dental hospital expansion slowed down and more weight has been given to analog X-ray devices. However, the demand for replacement of the digital X-ray device has amplified recently. Developing countries, on the other hand, introduce digital X-ray from the beginning owing to growing demand with elevating level of income and active new openings of dental hospitals.

In Taiwan, to ensure better dental practices and ensure that patients have a safe environment for their dental care, the Taiwan Dental Association was established in 1982, which is made up of twenty-four regional dental associations throughout the island. From 1998 to 2005, the number of dentists at national level increased 30.5% from 8,020 to 10,465 and the population to dentist ratios (people/ dentist) decreased 22.0% (2,588 in 1998 and 2,115 in 2005).

According to VATECH Taiwan, dental digital X-ray market in Taiwan grows dramatically every year. Estimated growth rate for dental digital panorama market in 2008 is 19.05%, while dental CT market grew at 300% in 2008. The following two tables (Table 4.1. and 4.2.) show estimated total number of installed dental panorama device and dental CT in Taiwan.

Table 4.1. Number of Installed Dental Digital Panorama Devices in Taiwan

	Total installed machines	Before 2006	2006	2007	2008	Growth rate in 2008
Total	1,325	210	287	378	450	19.05%

Data: VATECH Taiwan

Table 4.2. Number of installed Dental CT in Taiwan

	Total installed machines	Before 2007	2007	2008	Growth rate in 2008
Total	61	3	11	44	300%

Data: VATECH Taiwan

4.2. Competition Analysis – Five Forces Analysis

Competitive analysis, as part of the external environment analysis, identifies opportunities and threats for VATECH. The analysis framework developed by Michael Porter (Porter, 1979) will be used to evaluate the capabilities of VATECH in regards to competitors, suppliers, customers, barriers to market entry and the threat of substitutes. Porter argues that businesses must respond to five competitive forces:

- Threat of potential entrants
- Bargaining power of suppliers
- Threat of potential substitutes
- Bargaining power of buyers
- Industry structure, rivalry and firm strategy

Porter's Five Forces Analysis helps identify issues that might influence the product development process by forcing the company to act according to market requirements.

The following paragraphs describe sources of each of the five competitive forces. The sources are grouped into negative ones, which decrease the threat or seriousness of the force, and positive ones (+), which increase the threat.

4.2.1. Threat of Potential Entrants

New market entrants may shrink the company's market share and force the company to take corrective actions. Analysis of market factors which make that entry easy or create entry barriers helps the company prepare a response in advance. Identifying the seriousness of a threat helps the company tailor its response strategy. The list below presents some sources of threats of entry, which are important in the present analysis.

- (+) Mergers and acquisitions may allow other companies to expand into new markets.
- (+) Samsung may decide to promote and sell products, FPXD (Flat Panel X-Ray Detector) under their own trademarks and thus become competition for VATECH.
- (+) Although designs / products are protected by patents, defending the company's protected products is a long and expensive process. Moreover patent laws are difficult to enforce in some jurisdictions, such as in China
- Know-how and tacit knowledge are embodied in organization, which creates barriers for competitors to enter the market.
- (+) High margin markets (see paragraph) are very tempting for new entrants.
- (+) High growth markets (see paragraph) will encourage potential entrants.
- (+) Many large technology companies with R&D, manufacturing, marketing and sales resources may decide to deliver medical and dental devices more quickly and effectively than VATECH does.

- The health care market (including dental market) is sensitive to brand names and thus VATECH's aim and current strategy to increase brand awareness will help keep new entrants away.

The overall threat of entry is moderate to high. Many new entrants will increase competition and introduce new products to the market. Therefore, the company will be obligated to introduce new products quickly or replace current ones. Moreover, product life cycles will be shorter, forcing the company to develop new products.

4.2.2. Threat of Potential Substitutes

The competitors of VATECH may offer substitute products, taking customers away from VATECH or reducing VATECH's sales to existing customers. VATECH may be forced to lower gross margins, which are currently very encouraging and to reduce profit. The following analysis indicates some major factors regarding substitute products that have to be taken into consideration.

- Most products that VATECH offers do not have direct substitutes and thus the seriousness of that threat is relatively low.
- (+) The threat of obsolescence is significant in the medical and dental device industry due to the relatively short product life cycles. A lifecycle for a dental X-ray device product is short due to the ongoing demand and industry response rates for smaller, faster, and cheaper versions of existing technologies.

- Though patents offer protection of a company's innovation, they can often be circumvented or even challenged if they are not arduously written. Patents can either support the threat of substitutes or negate them. However, if filed by an experienced agent, patents can serve as a potential barrier to substitute products.

As the above analysis indicates, the seriousness of the threat of substitutes is moderate to high, due to the rapidly growing and technologically advancing industry. This is a significant force in the competitive landscape that has to be addressed by all large and small dental X-ray devices companies.

4.2.3. Bargaining Power of Suppliers

Suppliers influence the strategy of VATECH and the intensity of the competition in the industry. When the number of suppliers or the quality or price of the products they supply changes, the company has to respond and adjust its strategy. The list below presents some important sources of the bargaining power of suppliers

- (+) There are only a few suppliers of the most crucial components such as sensors, or software programs, so they have the power to regulate price and quantity.

The seriousness of this force is moderate. Although the above issues represent low importance, VATECH is limited by suppliers which have relatively high bargaining power, and it must adjust its processes accordingly.

4.2.4. Bargaining Power of Customers

The intensity of the competition in the industry is influenced by the number of customers and their concentration. Customers might be the major force in an industry, or their power might be reduced by strong producers. The analysis below outlines the sources of customers' power.

- (+) New global markets increase consumers' power
- The cost of switching between products is high, since the software program and system are totally different by the companies.
- (+) Many low-end products such as Intra-oral sensor and digital panorama can be simply replaced, and thus they are price sensitive.

In a highly competitive market with global customers, the company's day-to-day operations have to be based on the voice of customers, and therefore the power of customers is high. In order to be successful, the company has to be market-oriented. Although the power of customers is balanced by the high switching cost of some products, the bargaining power of customers prevails. Thus, the overall seriousness of this force is moderate to high, tending to high. The high power of customers may reduce gross margins and force the company to introduce new or enhanced products much faster. The ability to commercialize products faster and cheaper has to be supported.

4.2.5. Industry Structure, Rivalry and Firm Strategy

This is the most powerful among the five competitive forces. Competitors influence each other by changing the pricing policy, quality and features of their products, by changing the services they provide and by conducting advertising campaigns. Rivalry between competing firms to a large extent influences the market in which VATECH operates.

- (+) VATECH's competitors such as KODAK, SIRONA, PLANMECA, and so on, have relatively long history in the market, and usually well funded.
- (+) The sources for new innovative technologies are fairly well known. Therefore, rivalry will occur among competitors or larger dental device players searching for innovative new products for development.
- (+) VATECH's competitors are globally located, and therefore monitoring them and competing with them is difficult.
- (+) Some low-end products are easy to copy
- (+) Brand recognition and image are important in the market, since reliability and accountability are the most important features in the medical and dental industry. Therefore, aggressive advertising and promotion campaigns are necessary as a new company in the industry.

As the above analysis indicates, the dental market is very competitive. Although the company has gained a significant market share over the last couple of years, the factors identified above may increase the activity of competitors. Many well-funded

companies can introduce new products and technologies similar to those that the company has developed. Moreover, new entrants can emerge, capturing the company's market share. Therefore, the price of products, development costs and time to market will become significant forces shaping the competitive advantage.



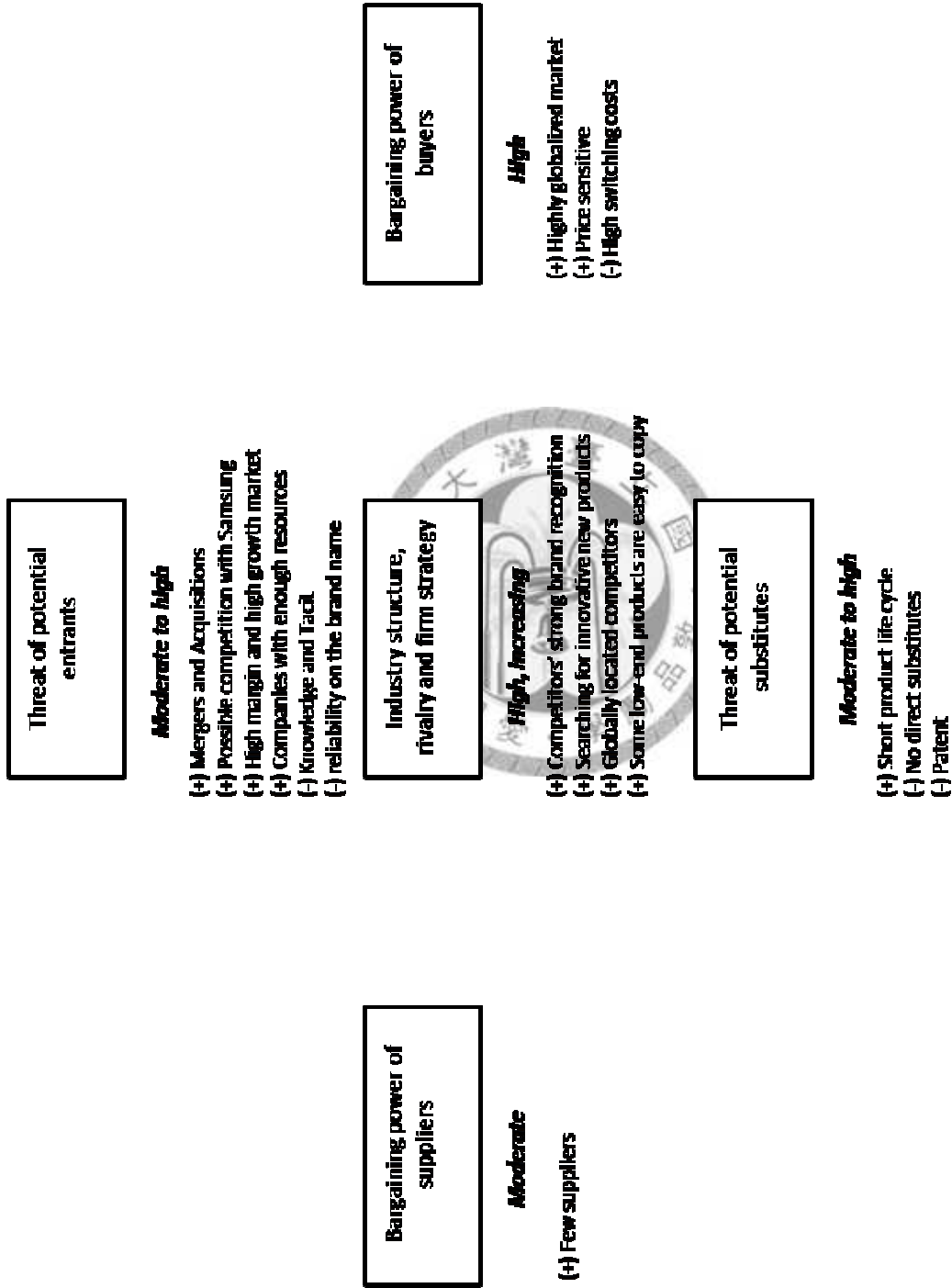


Figure 4.2. Five competitive forces in the dental digital X-ray industry

4.3. Driving Forces

World dental X-ray device market size was 1.8 billion dollar in 2005, but anticipated to be 2.34 billion dollar in 2009 with average of 6.6% growth annually. In developed countries like the US, EU, and Japan, demand for digital X-ray device is getting bigger recently. On the other hand, due to the increasing level of income and new openings of dental hospitals in developing countries, they start to introduce digital x-ray device.

The major market driver for this overall growth is the continued aging of the global population and associated increase in their concern on cosmetic treatment and surgery. For example the Korean government estimates that by 2026 the population of seniors, currently 10.3% will grow to 20.8% of the total Korean population. Also, in the U.S. where is the biggest market for dental X-ray devices, the U.S. Census Bureau estimates that the population of seniors will be 17. % of the total population. This severe demographic shift will increase the demand for dental treatment. Furthermore, the increased availability of dental services has improved, further driving the growth of the dental X-ray device market. In emerging markets, such as China and India, the growth has been more by the increasing affluence in these countries.

The major market drivers attributing to the growth in the global medical device industry are summarized in the first column in Table 4.3. The second column translates the implications of these market drivers on the development of new medical devices.

Table 4.3. Driving Forces for Dental Digital X-ray industry	
Driving Forces	Impact on Dental X-ray Development
Increasing patient demands on dental clinics due to severe demographic shift	Development of efficient, quick to use dental X-ray devices that decrease spending time and increase patient flow Development of IT solutions to improve productivity
Digitalization and miniaturization of both devices and surgical procedures	New generation products exploring new technologies
Increasing pressures to decrease cost of dental treatment	Development of low cost and more efficient dental devices
Movement toward greater use of digital devices	Development of easy to use, robust, and accurate technologies
Increasing concern on cosmetic treatment and surgery	Use of low-risk, accurate diagnostic devices and programs

In conclusion, the dental X-ray device industry is experiencing considerable growth with the most significant increases seen in the developed countries. Increase in affluence in developing countries has placed a demand for innovative new technologies that will reduce costs and risk. These reductions will occur if future devices increase cost effectiveness, efficiency, and accuracy.

4.4. Competitor Analysis

VATECH provides mostly dental digital radiography and Computerized Tomography to various markets and faces strong competition in all markets. Competitors range from multinational corporations to small market players. Thus, the competitors' ability to compete and introduce new products varies.

The company's competition can be divided into two distinct groups:

- Large corporations, which are well diversified and which have many R&D facilities throughout the world, experienced staff and robust processes. They are able to fund long-term research and development and to withstand a price war. They also have very strong brand images which is very necessary for perceived reliability of customers.
- Small companies and many new companies which disrupt the existing order by introducing new, innovative products with competitive prices. However, these disruptors have limited ability to develop advanced products and channels, which requires long-term efforts.

In recent years, the market has become global, and thus the number of competitors is growing year by year. Moreover, other external environment factors such as increasing dental demand from aging baby boomer generation encourage new entrants to compete. This, in turn, forces incumbents to diversify into new markets. Consequently the industry has become highly fragmented. On the other hand, many industry players have decided to cooperate and to form common entities. Thus, many mergers and acquisitions have occurred in recent years. (ex. Sirona's merger with

Schick Technologies in 2005, Kodak’s acquisition of PracticeWorks, Inc. in 2003) As a result, competitors are moving into offering diversified products and becoming one-stop shops for dental devices. Increasing competition makes product development cycles shorter. Furthermore, to sustain sufficient product development capability, the industry will face additional consolidation.

The key dental digital X-ray industry participants and their website information in the global market are tabulated below in Table 4.4. Key Industry Participants and Their websites.

Table 4.4. Key Industry Participants and Their Websites

Major Competitors	Website information.
J.MORITA	http://www.jmoritausea.com/
ASAHI ROENTGEN	http://www.asahi-xray.co.jp
PLANMECA	http://www.planmecausa.com/
KODAK DENTAL SYSTEMS	http://www.kodakdental.com
SIRONA	http://www.sirona.com
SIRONA (SCHICK)	http://www.schicktech.com/
PALODEX GROUP (Instrumentarium dental)	http://www.instrumentariumdental.com/
PALODEX GROUP (SOREDEX)	http://www.soredex.com/markets.html
Imaging Science	http://www.imagingsciences.com
GENORAY	http://www.genoray.com
Sigma Biomedics	http://www.sigmadigitalxray.com/

4.5. Key Success Factors

The analysis of the industry has provided a look at the external forces and trends impacting new and emerging companies. The high market growth has been seen in the world. A critical success factor for any emerging company is its ability to innovate. It is innovative technologies and products that can respond to the market drivers illustrated in Table 4.3.: Driving Forces, while meeting the requirements of regulatory agencies which substantially impact new product adoption. In order to counter the competitive forces faced by VATECH, competitive advantages need to be sought.

From this analysis there are two categories of key success factors that can be derived for dental X-ray device companies such as VATECH. The first is related to market trends and demands and the second is related to the business strategy of emerging companies involved in developing dental X-ray technologies and products.

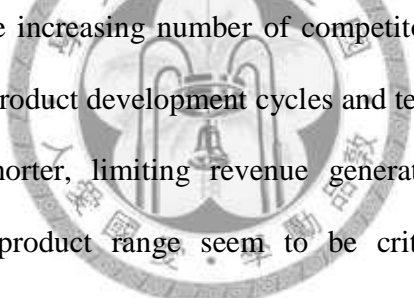
The success factors related to the current industry are summarized below:

1. Seek emerging market opportunities.
2. Respond to industry market drivers and demands of regulatory agencies for cost effective, easy and quick to use dental devices that will increase patient flow through.

The success factors related to dental X-ray development strategy execution are summarized below:

1. Obtain greater access to new innovative technologies for acquisition over competitors.
2. Be able to effectively identify, acquire and develop those technologies and products aligned with customer's demand
3. Be better innovators internally.
4. Have a greater and stronger industry contacts with potential partners.

4.6. Industry Prospects and Overall Attractiveness



In conclusion, the increasing number of competitors, together with decreasing prices of goods, shorter product development cycles and technology changes, will make products' life cycles shorter, limiting revenue generated. Thus, more innovative products and a wider product range seem to be critical to sustain VATECH's performance and to achieve competitive advantage.

All of the above external analyses indicate that the dental industry is very dynamic and competitive with high growth. Changes in the environment are driven by emerging technologies, new market trends and strong competitive forces. To compete successfully, VATECH has to monitor changes and adjust its strategy accordingly.

5. VATECH, Taiwan Situation Analysis

The internal analysis includes organizational analysis, VATECH Taiwan's current business status, SWOT analysis, value chain analysis, Competitive advantage and internal organizational assessment, and major strategic issues and recommendations. This analysis begins with a closer look at VATECH's organization examining its corporate vision, mission, products and service, and the corporate strengths and competitive capabilities. This is followed with SWOT analysis of VATECH Taiwan. Once the internal strengths, weaknesses, and external opportunities, threats are identified then the value activities, in which the company intends to focus, are analyzed. Once this is done, a closer look at the company's competitive strength assessment and internal organizational assessment in Taiwan market is undertaken to see what are its competitive advantages and disadvantages. Finally, the key core competencies and strategic issues are identified.



5.1. Organizational Analysis

The parent company is headquartered in Yongin, South Korea, and VATECH is the fast-growing manufacturer in dental radiography. The company exports reached out to 54 countries all over the world including the US, Australia, and countries in Europe, Middle East, and Asia. The company is strongly committed a foundation of financial strength, technological excellence, and superior customer service.

This section is an assessment of VATECH's organizational structure, resources, strategies, and so on.

5.1.1. Corporate Vision

The corporate vision identifies where the firm's orientation for the future is in order to best serve stakeholders' needs. The vision incorporates current realities and any expected future conditions to create an ideal scenario within a relevant time frame. The company's vision is:

“... to achieve the company's proactive strategy in becoming the world's No. 1 within the Dental X-ray market with the pioneering spirit and a leading medical device company in Korea, working together to create a happy work place.”

In review of VATECH's strategies and the above vision statement, it is trying to achieve the best-in-class in each part of their products for the future.

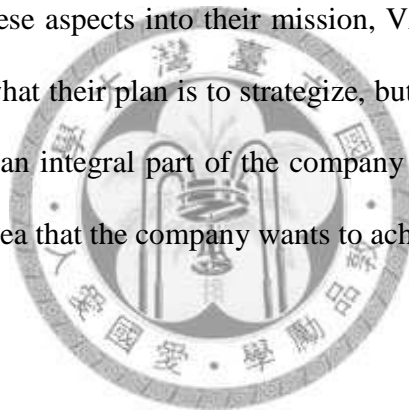
5.1.2. Corporate Mission

An organization's mission statement is meant to describe a firm's fundamental purpose. A mission statement is written statements of purpose that can be used to initiate evaluate, and refine all of an organization's activity. It is important for businesses to have mission statements because they help provide quality goods and services.

VATECH has a well-defined mission statement that shows its intentions to communities around the company and defines how they plan to demonstrate their abilities. VATECH's mission statement is *"To become an esteemed global pioneering company in medical device industry."* The company will do so by:

- Developing and providing the cutting edge medical devices, and eventually contributing to health care of all mankind
- Providing more job opportunities to the second-class citizens and creating harmonious society

By incorporating these aspects into their mission, VATECH is trying to show their stakeholders not only what their plan is to strategize, but how they plan to achieve it. The mission statement is an integral part of the company because it ties their goals and strategies to a realistic idea that the company wants to achieve.



5.1.4. Products and Services

VATECH has several different products and services they offer to their customers. The company offers a full range of dental digital panorama, dental 3D CT, Intra oral sensor, and software. According to 2008 earnings report standard, weights of main products are 59.97% for dental digital panorama (PAX series), 16.44% for dental CT (Implagraphy, VCT, and DCT), 5.06% for dental oral sensor, and 18.53% for etc (software and service).

Table 5.1. Weight of Main Products of VATECH

Business	Sale Type	Product Kind	Note	Brand	Sales (Percentage)
Dental Digital X-ray	Products	Dental CT(Implagraphy)	CT device for dental usage, Photographing 3-dimensional anatomic oral structure and tomography, Offers essential diagnosis information to operate implant	DCT, VCT, Implagraphy	13,187,188 (16.44%)
		Digital Panorama and Ceph (PaX series)	Diagnosis of total dental symptoms, 2-dimensional image for general dental diagnosis	PaX series	48,114,136 (59.97%)
		Intra Oral Sensor	Photographing partial oral structure in details	Anysensor	4,056,545 (5.06%)
		Other products	Software: 3-dimensional movie analysis program	Standard X-ray, Intra-oral camera	3,274,933 (4.08%)
	Others	Service and product from other companies	-	-	11,592,549 (14.45%)
	Total	-	-	-	80,225,254 (100%) Unit : KW 1000won

In 2005, Implagraphy was introduced worlds' first. Implagraphy has great advantage, because it can be use for individually or combine of digital panorama, digital Cephalo, and CT to support general medical procedure, implant surgery, and braces for tooth. Also, if a dentist buys Implagraphy, it is needless to spend double money for 2 devices (CT and panorama) and installation space will be just about the same for one panorama device. Based on economical efficiency and convenience, Implagraphy took up 95% of market share in its first year in Korean domestic market and raised its brand recognition in a short time.

PAX series have been to be drivers of entry to overseas markets with 2 merits. First, the company reduced photographing time to 1/5 of pre-existing average with the cervical vertebra avoidance technology. Previous products took 9 seconds of photographing time; however, PAX series takes only 1.9 seconds (Ceph) with high resolution and low degree of radiation exposure. PAX series to have high market potential as requiring usage of device with short photographing time to lower the degree of radiation exposure becomes trend. Second, VATECH remarkably improved resolution of image by applying Dual Shot Signal Integration Technology (A technology to enhance power of discernment between Hard Tissue and Soft Tissue). Weight is more on Analogue products in world's dental medical device market and not many products have less than 9 seconds of photographing time. For these reasons, PAX series should have high overseas market potential in emerging markets.

5.1.5. Company Strengths and Competitive Capabilities

Currently VATECH has three key identifiable strengths and capabilities and two of them are intangible and the rest is tangible. These include:

1. Cost competitiveness based on its advanced technologies
2. Strategic alliance with Samsung Electronics
3. Software programs

The following sections will provide an introduction to these assets.

5.1.5.1. Cost Competitiveness based on its Advanced Technologies

VATECH has cost competitiveness based on its own advanced technologies, comparing with other competitors. This is one of the main reason why the company currently has been leading the markets in Taiwan, Germany, Japan, and of course Korea. According to 2008 Annual report, about 40% of its employees are in R&D and engineering departments.

VATECH's R&D center has 8 independent R&D teams which work in coordination with each other. These teams are developing new technologies and cutting edge products which meet current needs of customers. Furthermore, the R&D center works with prestigious universities in Korea such as KAIST (Korea Advanced Institute of Science & Technology), Busan National University, Medical school of Catholic

University, and Yunsei University to develop new technology as a part of long-term future plan of the company.

Table 5.2. Status of Employees in VATECH, 2008

Number of employees in 2008			
Management	Sales	R&D, Engineers	Total
36	171	134	341

From VATECH Annual Report, 2008

Table 5.3. VATECH's Technologies

<u>VATECH's X-ray sensor related core technologies</u>	
<u>Main core technology</u>	<u>Technologies in details</u>
X-ray Detector Technology	Detector material(High Resistivity Silicon, CdTe, CdZnTe, etc) analysis technology Read out Integration Circuit(ROIC) design & manufacture technology Fiber Optic Plate and Phosphor material technology Analysis & design technology of material & X-ray's reaction degree
X-ray processing technology	High Voltage Power Supply technology Radiation Shielding technology Radiation Simulation technology Radiation Geometry Design technology Detector technology
Image processing & image reconstruction Technology	Image noise analysis & elimination technology X-Ray movie reconstruction(2D, 3D) technology X-Ray image enhancement technology
Digital image networking technology	Movie Compression technology (MJPEG, MPEG2, MPEG4) Network(TCP/IP, ATM) Traffic Control technology Database Management technology
Analogue/Digital Circuit design & manufacture Technology	Low voltage current eliminating circuit design & manufacture technology High density measuring circuit design & manufacture technology FPD(Flat Panel Display) testing movie making technology Analogue/Digital signal dividing & conversion technology Firmware/Software design technology Micro processor design technology

DATA: VATECH

5.1.5.2. Strategic Alliance with Samsung Electronics

VATECH announced on November 22nd in 2007 that the company has joint-developed a core part of DRS (Digital Radiography System) with Samsung Electronics and got down to mass production and sales since 3 quarter of 2008. Based on world famous TFT technology of Samsung Electronics and X-ray sensor technology of VATECH, the company developed a high-resolution 17-inch Flat Panel X-ray Detector (Xmaru-1717).

Since the technology has a wide applicability, the company expects to branch out to many businesses other than dental field like general medical device market (X-ray device for animals, breast cancer detector), industrial detector, movie sensor, printer and scanner. The product developed is a 17 inches model, which is most commonly used within Korea. Even though digital X-ray device offers better resolution and low-risk of being bombed, it had low diffusion rate due to its high price as domestic demand in Korea for this product was wholly relied upon import. Since this product offers even better resolution with less image noise compare to competitor's product, market potential is very high.

This strategic alliance with Samsung Electronics can be divided into production and sales. Samsung Electronics is in charge of producing LCD flat panel and scintillator, and VATECH is in charge of X-ray part (Board, software, circuit board, image processing algorithms) as well as final assembly. VATECH and Samsung Electronics agreed to release the product as sole brand and do joint-marketing to separated markets. Also, the companies plan to develop a product with movie function

with the same way. This FPXD one-stop, total solution will help the company to secure the leadership position in dental X-ray industry as well as the growing market for medical equipment detectors.

5.1.5.3. Software Program

VATECH's a series of integrated software programs give competitive advantages to the company. Since the use of digital system in hospitals and dental clinics are in increment, there had been a strong need for the software which integrates the function of image analysis, diagnosis, communication with patients, and management of a hospital. Therefore VATECH produces integrated software programs for helping analysis, diagnosis and communication with patient such as EZ Ceph, EZ Dent, OrthoVision, and most recently EZ3D 2009.

Table 5.4. VATECH's Software Products

<u>Product</u>	<u>Decription</u>
EasyDent	Integrated program for diagnosis and communication with patient
EZ Ceph	Software program specialized in Cephalometric analysis
Ez 3D 2009	Specialized program for 3D image diagnosis and surgery, which help get versatile diagnostic information through cross-sectional, longitudinal, and panoramic images in one screen.
EZ Codi	Dental consultation software program, with 3D animation which helps patients to understand the treatment plan
OrthoVision	Software program specialized in orthodontics

The sales weight of these software programs is not high, yet it is very necessary to have it in house for managing digital devices which the company produces. Also, software programs can make synergy effect when they work with the hardware of the company.

5.2. VATECH in Taiwan

Here in this section, the company's status in Taiwan is described first. Then, its experience in Taiwan is specified, and finally the section concludes with a description of the development phases of the company in Taiwan, emphasizing the social capital which has played the important role in its development.



5.2.1. VATECH Taiwan

The market in Taiwan fits into the developed countries analysis, where analog X-ray devices are being replaced with digital devices. When VATECH, the parent company considered where to establish their next subsidiary company, they decided to open up their next office in Taiwan due to the potential growth foreseen in that market. Not only did Taiwan have a higher GDP per capita compared to various other available Asian markets at the time of consideration, but it also offered potential social capital. The company was recently recognized as the new digital leader in dental radiography

and found they possessing 70% of the market share in Dental CT and 40% of the market share in Digital X-ray in the Taiwan market.

The top five vendors, in order based on the size of their market shares in Taiwan were: VATECH, KODAK, PLANMECA, ASAHI, and SOREDEX. In fact, more than half of market share were dominated by the top three companies. One important factor to note is that, among the top five companies, VATECH is the only newly entered company in Taiwan market. Since the company was established in Taiwan in 2007, it has enjoyed the highest growth rate among the competitors.

Table 5.5. Dental CT market in Taiwan

	Estimated Total NO. of installed devices	Before 2007	2007	2008	Growth rate in 2008(%)
VATECH	28	–	8	20	250%
Kodak	8	–	–	8	
Asahi	7	3	–	4	
Sirona	4	–	–	4	
I-Cat	12	3	3	6	100%
NewTom	2	2	–	0	
Total	61	3	11	44	300%

Table 5.6. Dental Digital Panorama Market in Taiwan

Dental Digital Panorama Market in Taiwan						
	Estimated total NO. of installed devices	Before 2006	2006	2007	2008	Growth rate in 2008(%)
VATECH	260	10	32	78	140	79.49%
Kodak	165	15	35	60	55	-8.33%
PM	225	40	50	60	75	25.00%
Asahi	170	30	40	50	50	0.00%
Soredex	210	40	45	55	70	27.27%
Sirona	55	5	10	20	20	0.00%
Yoshida	45	5	5	20	15	-25.00%
GE	150	60	60	20	10	-50.00%
Others	45	5	10	15	15	0.00%
Total	1,325	210	287	378	450	19.05%

DATA : VATECH Taiwan

5.2.2. Development Phases in Taiwan

Based on the interview, Mr. Cho, CEO of VATECH Taiwan's experience was divided into four components: motivation to explore the Taiwan market, initial activities to network with people in the industry and accumulate social capital, gaining necessary information about the industry forces, and importance of social sites and relationships to gain a higher rate of success.

Within this paper, Mr. Cho's social experience to develop the company in Taiwan can be described with the entrepreneurial phases in the establishment of enterprises (Wilken, 1979):

- 1). In the motivation phase, entrepreneurs discuss the initial idea and develop their business concept.

- 2). In the planning phase, entrepreneurs prepare to set up a firm. Getting the necessary knowledge and resources in this phase entails diverse activities (Carter, Gartner, & Reynolds, 1996; Zhao & Aram, 1995).
- 3) In the establishment phase, when entrepreneurs establish and run a firm, they focus more narrowly on daily activities, or exchanges, and on problem solving.

5.2.2.1. Phase 1: Motivation - Motivation to Explore Taiwan Market

In early 2007, VATECH decided to dispatch Mr. Cho to Taiwan due to his personal academic background and professional capabilities. Mr. Cho, who graduated from Sung Kyun Kwan University with a degree from the Chinese department as well as an EMBA from Shanghai Jiao Tong University, possessed limited motivation himself to go to Taiwan and establish a business at the time of the assignment. However, the company desired this expansion. Thus, Mr. Cho decided on a plan of action.

At the time of his assignment in 2007, he held limited to no information about Taiwan or the dental industry. Thus, Mr. Cho knew that the first order of business for him to successfully enter into the foreign market required acquiring as much data as possible concerning the Taiwan dental market. He could access the information provided by Korean blogs like Daum cafe and local agencies in Taiwan, which had been importing and selling VATECH's products to dental clinics in Taiwan prior to

2007. He carefully explored the possibilities of starting the business within the company internally and the local agency.

5.2.2.2. Phase 2a: Planning - Initial Activities to Network with People in the industry and Accumulate Social Capital

After the decision was made to engage in the entrepreneurial pursuit, the planning phase kicked-off. Within this phase, the newly promoted chief executive officer of the Taiwan office knew he had to gather an assortment of information in order to successfully set up office in Taiwan. Information like potential new employees, resources, and business relations were needed.

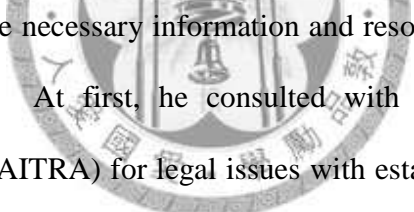
He met with various Korean business persons, who successfully opened their businesses in Taiwan through the Korean Mission in Taipei. This helped him to interact with them and accumulate available detailed information regarding their social capital and personal experiences. This served to increase his social capital in the Taiwan community. He participated in every Dental Conference and Exhibition held in Taiwan.

As a result of his efforts, he accrued an impressive list of potential customers. This list of potentials quickly developed into a remarkable list of current customers, which led him to be the possessor of the most customers within the organization as well as the largest market share. Furthermore, after he collected this list, it was apparent that he interacted with some of the most prominent dentists and maximized on his social

networks since most of these distinguished dentists were considered opinion leaders among the group.

At these conventions and exhibitions, Mr. Cho wandered down the aisles to observe his potential partners and competitors to gain more insight into the inner-workings of the dental industry in Taiwan. He also used this opportunity to seek out potential associates and talents to join his company. He offered them an opportunity to contribute to an up-and-coming new company that offered a competitive salary, pleasant work environment, and works with cutting edge technology.

5.2.2.3. Phase 2b: Planning - Gaining Necessary Information about the Industry Forces



In order to get the necessary information and resources, Mr. Cho went through many diverse activities. At first, he consulted with the Taiwan External Trade Development Council (TAITRA) for legal issues with establishing a new business as a foreigner. To ensure easy access to the tacit knowledge that would be necessary to start his business, he opened his first office within the International Convention Center, which was located in the same building with TAITRA. With that strategic location decision, he had easy access to many associates that could offer him advice in relation to running businesses in Taiwan.

Aside from TAITRA, the Korea Trade-Investment Promotion Agency (KOTRA) and Korea Chamber of Commerce & Industry provided him with market information and professional advice to plan and set up a business in Taipei. With this additional

social capital, Mr. Cho felt comfortable that he controlled enough information to establish his business with relative ease.

5.2.2.4. Phase 3: Establishment - Importance of Social Ties/Relationships to Gain a Higher Rate of Success

Once Mr. Cho established and started running his firm, he began to focus more narrowly on the daily activities of the company and on problem solving rather than expanding social capital and network. One of the tactical moves he made was to move his office from the International Convention Center to the Nei Hu District of Taipei. Although this decision served to move him away from his clients, this premeditated move was more of a long-term strategy. As most of the larger corporations positioned themselves in the Nei Hu area, this would place him among other business contacts as well as saving on costs due to the location.

To further ensure added success during the establishment phase, in mid-2008, he set-up the website, Dentalct.com.tw, where potential customers, existing customers, and patients could access information concerning what is Dental CT, and why it is worth investing. With the new website, the company found an alternative method in adding more people to the customers list. The company was also secure in knowing that those that signed-on to their website were actually interested parties who wished to know more about the products. Thus, Mr. Cho was able to use this information to contact any of them for as long as the customers were a member of the DentalCT website.

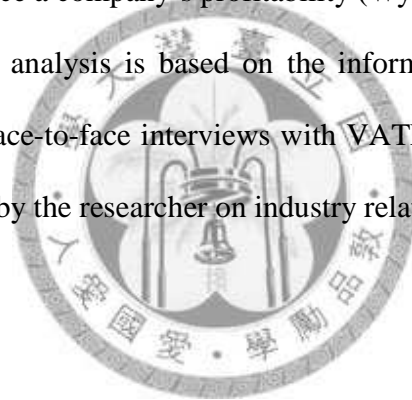
Around the same time the website was launched, he created the Dental CT Academy Center located in the same building where the company office was moved. The purpose of the Dental CT Academy Center was to allow the customers who could not afford to purchase VATECH's dental devices to use the CT for certain monetary returns and know its usefulness. This was an intelligent technique to establish contact with the clients as well as build customer loyalty. At the same time, it is also the place where the company held the 1st International Conference, which the existing and potential customers joined.

With the conceptualization of Dentalct.com.tw and the Dental CT center, Mr. Cho placed himself in an advantageous position. It would not be necessary for him in the future to be the one persistently seeking out customers. He empowered those potential customers, who are just a click away from the provided website to establish contact with his company. This refocus served two purposes. First, his company would be able to better utilize their time in better serving their current customers as well as strategize on long-term plans. Second, the levels of annoyance of giving unsolicited calls to busy dental associates are reduced.

5.3. SWOT Analysis

Internal and external forces affect firms; a way to analyze these forces is to conduct a thorough SWOT analysis. A SWOT analysis can be thought of as a balance sheet where internal strengths represent competitive assets, while internal weaknesses represent competitive liabilities. Opportunities, which are external, are outside-of-the-firm situations that can be taken advantage of via strategic moves to improve a company's competitive advantage over rivals. Threats, also external, on the other hand are factors that increase the influence exerted by competitive forces acting in the industry and tend to reduce a company's profitability (Wysocki 1997).

The next SWOT analysis is based on the information gathered from internal document and through face-to-face interviews with VATECH's personnel and through extensive readings done by the researcher on industry related topics.



5.3.1. Strengths

The term advantage implies that those Competitive advantages are desirable for companies in the industry. As mentioned at the beginning of this section, strengths are internal to the company. The next list enumerates VATECH's strengths in Taiwanese dental digital X-ray market. Strengths were identified with the help of several employees in the company, the managers, and with our study's in-depth analysis of key success factors and forces affecting the industry.

- **Relatively better market and competitor analysis:** the company has made better decisions based on that analysis. Especially, in Taiwan most of competitors are family owned SMEs which are lack of enough resources and capital to compete with VATECH. For example, in late 2008, its competitors, YOSIDA and ASAHI had the price discount promotion, VATECH responded it spontaneously with the more aggressive one (“888”, and “Buy-out your old machine”), which provided more competitive prices.
- **Strong Customer Service:** Competitors are relatively small distributors of German and Japanese companies. In this industry, 24/7 customer service is necessary because the product is quite complicated and the patients of dental clinics can't not wait for long time to use them. So, VATECH has the advantage here since competitors are not able to hire as many engineers as VATECH does for customer service. VATECH's CS team can cover all the cities in the island, and it also has the strong call center resource. Furthermore, the engineers are much well educated in the engineering skills, since the company often sent them to the HQ in Korea so as to train them in their specialty.
- **Stable financial structure:** VATECH's privileged position in terms of current profitability and stability has sparked their desire to grow. VATECH is very profitable in Taiwan, and also the parent company in Korea support the branch company in Taiwan financially. Therefore the

company in Taiwan is free of debts, which offers an advantage in its ability to offer better prices and marketing promotion in comparison to many competitors.

- **Market creation and expansion:** When the company came to Taiwan, the technology of its products was relatively new, and even some of its now customers didn't know and realize the advantages of using the machine for dental operations. It is VATECH which has educated them about it with aggressive marketing methods, so that the existing market could be expanded and created.
- **Flexibility on prices and upgrade of the products**
- It has the **broad range of product line-up** which can satisfy all the segments of its market.: Trio/Uni3D/P400,P500
- **Strong stakeholder education:** it held several international seminars and regular education sessions for existing customers. It also provides the training courses for its employees.
- **Large customer base and established clients:** VATECH already has a large list of clients in Taiwan. This poses a competitive advantage over many competitors that depend on a small number of customers for business.

5.3.2. Weaknesses

Weaknesses are things a company does worse or poorly in comparison with its competitors. A competitive disadvantage makes a firm more vulnerable to industry competitive forces and increases the chances of the firm observing low levels of profitability compared to the average in the industry. Competitive disadvantages observed for VATECH in Taiwan are outlined below.

- **Concentrated leadership:** The company's decisions and in some ways its performance relies excessively on the company's CEO, Mr. Cho. In this case, the risk is the big shock that expects VATECH when the CEO leaves active business.
- **Weak internal communication & Organizational system:** VATECH can gain from developing clear and effective written procedures to perform certain activities like budgeting/planning, inventory control, and purchasing activities. These written procedures may not result so critical for medium sized companies, but they surely increase in importance as a company grows.
- Competitions with local dental material dealers are getting severe
- VATECH is still suffering from quality control
- **Absence of well trained middle-level managers:** Occupational hierarchy is not settled. It is often to see some people encroach upon others' functions.

- **Absence of a human resource manager:** Human resource manager is the name given by the company to a position involving HR and management duties. VATECH's CEO expresses that it is not necessary to hire HR manager for now, since the company is still small enough for him to control. However, as a company grows, the importance of HR manager will increase.

5.3.3. Opportunities

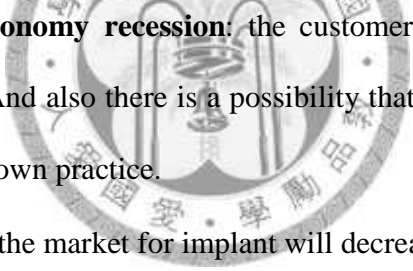
Opportunities are circumstances over which the firm has no control. If taken advantage of, the result may be reducing the effect of competitive forces over the firm and increasing its profitability. Taking advantage of opportunities means: (1) recognizing them by understanding the industry environment surrounding the firm and (2) developing abilities and strengths within the firm that match up with such opportunities. Below is a list of all the opportunities facing VATECH.

- Dental CT is getting smaller and smarter
- The company has the relative advantages on price of the low-end products like Panorama.
- **Growing market:** The demand of implant is getting bigger.
- Most of the competitors are still family owned SMEs

- There is new business opportunity as an **education consultant**. There is no way for every dentist to know how to employ Pano/Ceph/CT for their daily operations.

5.3.4. Threats

Threats are circumstances outside the control of the firm that increase the degree to which the firm is affected by competitive forces and may result in profits decreasing. A firm should develop abilities and set up their strategy to minimize the impact of threats to its business. The following is a list of identified threats facing VATECH:

- 
- **Global economy recession:** the customers' income is expected to be reduced. And also there is a possibility that there are fewer dentists who start their own practice.
 - Likewise, the market for implant will decrease.
 - Average margin is also expected to be on the decrease, since more players are coming in the industry

5.4. Value Chain Analysis of VATECH Taiwan

Most of the support activities in VATECH Taiwan are provided by VATECH, which is its parent company located in Korea. In this way, VATECH Taiwan can focus on the sales and marketing in Taiwan and also provide services to customers.

VATECH Taiwan's core competences are in its sales, marketing and its after sales service. Competitive advantages need to be achieved in the value activities including VATECH Taiwan's inbound logistics and operations. These advantages can occur by reducing costs of these activities or differentiating the way in which they are performed. In the following sections, VATECH Taiwan's activities will be briefly described to show how work is organized, particularly for the areas where the company generates its competitive advantages.



5.4.1. Support Activities

5.4.1.1. Organizational Structure

The company's infrastructure provides the backbone and environment that supports primary activities. Accounting in VATECH Taiwan is limited to its expenses handling and filing its taxes to Taiwan government with the help from third party accounting consulting firm. Also, accounts receivables are followed up by the accounting department. Sales and inventory use ERP system to enter and track order status for completing the sales.

Being under the parent company, VATECH, financial management and investor relation are mostly controlled by the parent company. Legal services and patent filing are also provided by the parent company. Contrarily, regarding media news and press releases, VATECH Taiwan, provides content for advertising in journals, TVs, and magazines in Taiwan and Hong Kong, so that the effect of advertising can be maximized with localized way.

Moreover, VATECH Taiwan is responsible for the customer service in Taiwan and Hong Kong. The primarily responsibilities of VATECH Taiwan's customer service department are examining the imported products from Korea, maintaining quality of the products in local market, providing technical support, and identifying the local demand/need. VATECH Taiwan's Dental CT Academy center plays very important role in acquiring customer data, and educating customer, so that the company can use the acquired data for finding potential purchasers. VATECH Taiwan acquires and negotiates office software, office supplies including computers, Enterprise Resource Planning software (ERP) and etc.

5.4.1.2. Human Resource Management

In terms of human resources management, staff training is partially provided by its parent company, especially on technological support. Staffs are scheduled to go to the head quarter located in Korea, and provided with the training that promotes skill and specific learning of its products. Recruitment is an in-house activity to make sure candidates fit the organization and culture. The parent company provides guidelines for

staff compensation and benefits, while VATECH Taiwan adjusts the compensation and benefits according to the local market. When the new hiring is approved, the personnel in charge of HR, proceeds to put out advertisement externally and internally. Meanwhile, HR will also open files of prospects that have been screened previously and determine matches to the requirements of the current openings. Interviews of the prospects are set up by the CEO of VATECH Taiwan and are conducted. If a candidate is identified for a position, a corresponding compensation package will be negotiated in accordance with the candidate's qualifications and experience. Once the candidate accepts the offer, HR personnel will complete the hiring process with the company by following up on the employee file creation.

However, VATECH Taiwan does not have HR department, while all the related works and processes are done by staffs in sales support team and its CEO. Therefore, the company is lack of the professional capability in human resource management. Also, the company does not provide resources like employee assistance programs such as confidential counseling and referrals to local professional services. It is obviously internal weakness of the company at the moment.

5.4.1.3. Procurement

The sales support team is responsible for all of VATECH Taiwan's purchases. It is up to CEO of VATECH Taiwan and sales support team, to negotiate pricing with the parent company and ensure that the right product is in the right place at the right time and at the right price.

The sales support team imports the products for sales in the local market, once the team gets the contract with the customer. VATECH Taiwan has standard payment terms and has not failed to keep its payment schedule. Therefore, its relationship with the parent company is on favorable terms.

Procurement of special items, like third party software and optional components in product packages, is performed in coordination with sales and customer service departments. Last, but not least, the team also procures all incoming materials that are used for repairing and customer service, and for activities of other operations.

5.4.2. Inbound and Outbound Logistics

The sales support team is also in charge of logistics function which offers services in handling the receiving and shipping of goods to and from VATECH Taiwan. The team provides assistance in the management of inventory, which includes receiving, storage, distribution, and security of inventory parts. Outbound logistics also handles returned products for service repairs and obsolete stock disposal handling. Products being handled by the team are office supplies, its products, and components for product packages. ERP system is used to track the bill of materials to be ordered, shipment status, and inventory status.

5.4.3. Operation

Operation in VATECH Taiwan is referred to product installation, since other functions are not available in house, but in its parent company.

Upon receipt of a purchase order, logistics picks up the product purchased and delivers it to the customer. Before that, an install team is formed, with its first task being to prepare a customized site preparation document that details the size of the clinic or hospital, training requirements and timelines. The install team includes personnel from engineering department, and is coordinated by an assigned staff in the department. The goal of the install team is to ensure a smooth implementation, and to train users.

While site preparations in a customer's clinic or hospital, are underway, the customized products is being adjusted, according to the specifications detailed in the contract, by a dedicated team. The system of the company is loaded with specific options and software, and then extensively tested before it is delivered to the customer. When the product passes final quality checks, it is delivered and is installed.

5.4.4. Marketing and Sales

The marketing department at VATECH Taiwan is responsible for a variety of programs and communication designed to elevate brand awareness, increase customer satisfaction, and fuel sales. For examples, the marketing staffs are responsible for holding related exhibitions/conventions in Taiwan and Hong Kong, and creating marketing promotions like “888”, and ”Buy-out your old machine” campaigns last year. Also they are in charge of product positioning, promoting new product launches, and managing company website as well as its new website, “dentalct.org”.

VATECH Taiwan’s sales distribution is organized into four regions: Taipei, Taichung, Kaoxiong, and Hong Kong. VATECH Taiwan predominantly employs a direct sales force. It consists of salespersons allocated to each of these three regions. Commissions are based on the discount off the list price of the products as a percentage of the maximum discount allowable for that product. The maximum discount, set by the CEO of VATECH Taiwan, depends on the margins for the product. Salespersons are responsible for selling products for their regions, visiting potential customers and giving sales presentations, and drafting quotations.

This direct sale poses advantages in that VATECH Taiwan can own the relationship with the customers. Gathering potential buyer information is critical to further success in the market.

5.4.5. Customer Service

The customer service department at VATECH Taiwan is responsible for providing technical support and product update for all the customers in Taiwan and Hong Kong. VATECH Taiwan is a market pioneer amongst digital X-ray providers in Taiwan for the delivery of qualified service support. Since the company has customer service staff in all the four regions and quick customer service is available only in this company. Besides its fast response for the service support, the service department is also responsible for applying software upgrades, dealing with customer service issues, and resolving service contract issues.

VATECH Taiwan's customer gives the company with the competitive strengths with several reasons. First, the company has information of customer issues first hand, and available at the earliest possible time. Second, the VATECH Taiwan's approach of employing a dedicated support team to a service zone is unique in this market. The effort does not go unnoticed. The company's commitment to customer service is definitely a key differentiator among competitors in Taiwan market.

Organizational Structure	<ul style="list-style-type: none"> Financial/Accounting Marketing Customer Service Sales 						
Human Resource management	<ul style="list-style-type: none"> Education & Training Recruiting/Compensation and Benefits Reward Systems 						
Technology Development			Identifying technology demand/need				
Procurement	<ul style="list-style-type: none"> Distribution Transportation Warehousing 			Distributors			
Primary Activities		Product Test		<ul style="list-style-type: none"> Transportation Warehousing Distributors 	<ul style="list-style-type: none"> Manufacturing Assembly 	<ul style="list-style-type: none"> Advertising Sales Promotion Conferences Trade Show 	<ul style="list-style-type: none"> After Sales Support Customer Service Warranty & Repairs Upgrades Customer Education
	Inbound Logistics	Operations	Outbound Logistics	Marketing and Sales	Service		

Figure 5.1. VATECH Taiwan's Value Chain

5.5. Competitive Advantage and Internal Organizational Assessment

Above value chain analysis provides us a systematic technique for scanning VATECH Taiwan's internal organizations. By focusing on competitively relevant strengths and weakness, the company can better see the potential of these resources and capabilities for adding or subtracting value to its processes. This understanding can then lead to generic strategies that will most likely lead to sustained competitive advantage.

In this section, I use the methodology presented by Duncan, Ginter and Swayne (1998) for systematically analyzing VATECH Taiwan's internal situation which would best clarify relevant competitive strengths and weaknesses. The methodology involves four distinct steps: surveying potential strengths and weaknesses, categorizing organizational differences, investigating the source of competitive advantage, and lastly, evaluating competitive advantage.

In Step One, a comprehensive list of strengths and weaknesses is compiled, regardless of relevance to competitive advantage. Step Two involves categorizing these attributes into either resources or capabilities, and evaluating each on the basis of relevance to competitive advantage. The criteria used to judge an attribute's relevance to sustainable competitive advantage involves evaluating each on the basis of its value to the firm, its rarity in the industry, the ease with which it is imitated, and its sustainability. Step three involves determining the source of competitive advantage, such as through cost leadership or differentiation, and finally, Step Four evaluates the firm's competitive advantages in terms of possible strategies.

Organizational Structure

S1: Better capacity to support financial resources

S2: Innovative management, Well-experienced CEO

W1: Concentrated leadership

W2: Lack of recognized and respected trademarks and brand image

Human Resource Management

S3: Highly trained engineers

W3: Absence of well-trained middle-level managers

W4: Absence of professional human resource manager

W5: Weak communication and organizational system

Marketing and Sales

S4: Ability to offer excellent marketing promotions

S5: Dentalct.org, new resource to develop and use social capital

S6: Dental CT Academy Center, ability to find potential customers,
and offer customers product experience

Services

S7: Expertise in technical education and technical support

S8: Ability to offer customers continuous education

With all of the company's strengths and weaknesses identified, I can apply the following assessment model to systematically categorize the activities and judge their competitive relevance by applying the four criteria: valuable, rare, costly to imitate, and sustainable.

Only those strengths that are valuable, rare, costly to imitate and sustainable contribute to a firm's competitive advantage. Following Table 5.7. illustrates those strengths that meet all four of these criteria. To classify as a weakness, activities cannot meet all four criteria, which would render those attributes competitively irrelevant.



	Power of the Strength or Weakness				Resource /Capabilities
Strengths	Value	Rareness	Imitability	Sustainability	
S1	Competitive	Distinctive	Potential	Potential	Resource
S2	Distinctive	Distinctive	Competitive	Competitive	Resource
S3	Distinctive	Distinctive	Competitive	Competitive	Resource
S4	Competitive	Potential	Potential	Potential	Resource
S5	Competitive	Competitive	Potential	Competitive	Resource
S6	Competitive	Competitive	Potential	Competitive	Capabilities
S7	Competitive	Potential	Potential	Potential	Resource
S8	Competitive	Competitive	Competitive	Competitive	Capabilities
Weaknesses					
W1	Unattractive	Unattractive	Inadequate	Unattractive	Resource
W2	Uncompetitive	Uncompetitive	Uncompetitive	Unattractive	Resource
W3	Unattractive	Unattractive	Inadequate	Unattractive	Resource
W4	Uncompetitive	Unattractive	Inadequate	Unattractive	Resource
W5	Uncompetitive	Unattractive	Inadequate	Unattractive	Resource

Table 5.7. Assessment of Internal Factors for Strategic Advantage (ASSIST)

Through the above ASSIST process, strategic strengths and weaknesses have been translated into terms of resources and capabilities. Once the potential for creating competitive advantages is accomplished through the systematic categorization, it is important to investigate deeper relationships and determine how and where these factors actually add value.

In the case of VATECH Taiwan, each competitively relevant resource and capability is evaluated below in terms of its ability to contribute to competitive advantage either as a cost or uniqueness driver. In the below Table 5.8., only those strengths and weaknesses that were identified as competitively relevant are subjected to more probing investigation. This deeper investigation is conducted to determine where the strength or weakness adds or subtracts value and if the strategic implication lies in its ability to enable cost leadership or develop perceived uniqueness. The investigation is shown in Table 5.8.

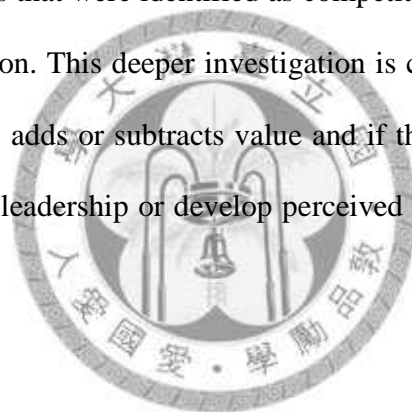


Table 5.8. Strengths and Weakness as Potential Sources of Competitive Advantage and Disadvantage

Strength/Weakness	Description	Potential Source of Competitive Advantage/ Disadvantage	Location on Modified Value Chain
S1 Resource	Capacity to rapidly develop financial resources with high growth rate and high margin	Uniqueness Driver	Organizational Infrastructure
S2 Resource	CEO with experience in number of industries relevant to company's business development. CEO also has substantial international business experience and MBA degree too.	Uniqueness Driver	Organizational Infrastructure
S3 Resource	Well trained engineers that receive training through the company's training system	Uniqueness Driver	Human resources
S4 Resource	Ability to offer special marketing promotions	Not competitively relevant	Sales and marketing
S5 Resource	Dentalct.org. It works as a new resource to develop and use social capital. Through this website, the company can get a list of potential customers and educate them with the advantages of its products	Uniqueness Driver	Sales and Marketing
S6 Capability	Through Dental CT Academy Center, the company easily finds potential customers, and offer customers product experience	Uniqueness Driver	Sales and Marketing
S7 Resource	Expertise in technical education and technical support	Not competitively relevant	Service
S8 Capability	Ability to offer customers continuous education of its products and software programs	Uniqueness Driver	Service
W1 Resource	Concentrated leadership. The company's dependency on CEO for every decision and plan	Uniqueness Driver	Organizational Infrastructure
W2 Resource	Company doesn't possess a trademarks and brand image that are visible and respected throughout the island	Uniqueness Driver	Organizational Infrastructure
W3 Resource	Absence of well-trained middle-level managers	Not competitively relevant	Human Resources
W4 Resource	Absence of professional human resource manager, so there is a lack of professional knowledge on recruiting, training, and communication	Uniqueness Driver	Human Resources
W5 Resource	Weak communication and organizational system, lack of clear and effective written procedures to perform certain activities like budgeting/planning, inventory control, and purchasing activities	Uniqueness Driver	Human Resources

The above evaluation suggests that VATECH Taiwan possesses potential competitive advantages because of uniqueness drivers located throughout the value chain-Organizational Infrastructure, Human resource, sales and marketing, and customer service. This evaluation indicates that differentiation strategies are the company's most promising means to competitive advantage. On the other hand, although VATECH Taiwan has many uniqueness drivers, it also has competitive disadvantages regard to organization structure and human resources.

The strategic issues for the company do not end with the evaluation of strategically relevant strengths and weaknesses. As a matter of fact, those competitive advantages and disadvantages provide us with the ideas of where to start. From the next chapter, several strategic challenges the company faces currently will be identified, and strategic actions for each challenges will be suggested.



6. Strategic Issues and Suggestions

The aim of this chapter is to provide recommendations regarding the issues that the company is facing currently. First, strategic issues with suggestions for VATECH Taiwan are identified. Second, some recommendations are made for the long-term success of the parent company, VATECH.

6.1. Strategic Issues and Suggestions for VATECH Taiwan

The success that VATECH Taiwan enjoys today in Taiwan is due mainly to the strategic fit achieved between its strategies, organizational capabilities, core competence, and fast growth of the dental digital X-ray industry. As we can see in the last chapter, VATECH Taiwan has adopted a differentiation strategy throughout the value chain - Organizational Infrastructure, Human resource, sales and marketing, and customer service. Over the years, VATECH Taiwan has been building on its brand and, together with its excellent customer service and education, has gained a competitive advantage over many of its competitors in Taiwan. However, as the dental digital X-ray market changes and as the company faces rapid growth, VATECH Taiwan faces a number of issues it must overcome. There are five strategic issues with suggestions as followed. The objective of this section is to address these strategic issues with suggestions for VATECH Taiwan.

- Create New Strategic Vision
- Focus on Cost Effective Offerings

- Decentralizing Leadership
- Hire Human Resource Manager
- Reconfiguring the Value Chain and Organization

6.1.1. Create New Strategic Vision

VATECH Taiwan now suffers from a lack of a clear vision and strategic objectives for the future, because the company has grown rapidly and the landscape of the industry has changes significantly over the past few years. Currently, VATECH Taiwan is stuck in limbo, between being just an implementer of the parent company in the local market, and strategic leader serving as a partner of headquarters in developing and implementing important strategy (Barlett and Ghoshal, 1986). Therefore there is a strong need to create a new strategic vision to reach further. VATECH Taiwan has been executing its differentiation strategy, which has led it to be the market leader in Taiwan. However, the company cannot make the assumption that current strategies and business activities will continue to give itself a competitive edge in the market. It cannot afford to fail in making the most of new opportunities because it is still doing its best as a foot soldier for the parent company. For VATECH Taiwan's business to continue growing and becoming a strategic leader as a subsidiary, it needs to create new strategic vision to focus its resource on new activities where congruence with the parent company is achieved. The implication of creating a new strategic vision is that a company would have to tailor its value chain to provide new activities and products to

the selected market segments by its own efforts, and therefore would be a strategic leader to develop and implement a series of strategies shared with the parent company.

VATECH Taiwan has to decide whether it will adopt a low cost provider strategy or continue in its differentiation strategy. If a firm selects a costs leadership strategy, it sets out to become the single low cost leader in Taiwan market. This strategy can be appropriate for a firm addressing a market that can be segmented into groups, some of which are price conscious, and others which have a need for product features that necessitate a higher price. On the other hand, if a firm selects a differentiation strategy, it attempts to be unique in the market by providing value in some aspect of its products or services that competitors do not provide. In this case, there must be a market segment that must demand the extra value being provided by the differentiated supplier, and be prepared to pay a premium price for this value.

The majority of the market segment lies with digital panorama X-ray devices segment where price is a major issue in any procurement. Therefore, the lowest cost compliant provider is likely to win the vast majority of sales in Taiwan. These sales will generate small profit margins. It is difficult for a business as small as VATECH Taiwan to achieve any further growth in a low margin market. The only way for a small company to grow in a low profit market is with radical organizational and cultural changes. For VATECH Taiwan, reducing its costs to a point where it can compete as the industry's low cost provider in all segments of the market through its value chain is simply impossible.

It is unwise for any company to select a strategy unless there is a fit between this strategy and the rest of organization. VATECH Taiwan's business has been founded on the strategy of being a differentiated supplier by means of its innovative products and excellent customer oriented service and support in the dental digital X-ray industry. Culturally, the company is well positioned to execute this strategy. Strategic fit is when strategy, organizational capabilities, competitive advantages, and markets are in synch. When this is so, competitive advantage is achieved.

Rather than focusing its limited business resources on reducing the cost along with the value chain, VATECH Taiwan would be wise to deploy its integrated software programs to leverage the company's differentiation strategy. Those software programs have given competitive edges to the company, since there has been a strong demand for digitalized dental clinic aligned with purchasing the dental digital X-ray. The parent company already has a series of software programs which integrates a function of image analysis, diagnosis, communication with patients, and management of a hospital and VATECH Taiwan has used them in the local market. However, with the support of the parent company, VATECH Taiwan can localize those existing software programs, or develop and acquire new software program for Taiwan market and even for Greater China market including Taiwan, Singapore, Hong Kong and China.

Gaining employee support and commitment upfront is vital. When setting a strategy direction, the first thing that VATECH Taiwan must do is clarify its vision and communicate that vision to all employees. It is insufficient to simply present the strategic vision at a session that all employees are unlikely to be able to attend, or to write the vision in a plan that few people read. Instead, it must be communicated

consistently and frequently, using a wide variety of media so that it becomes ingrained into the culture of the organization.

6.1.2. Focus on Cost Effective Offerings

Executing differentiation strategy does not necessarily mean there are higher profit margins if costs are not controlled. Under fierce competition with other companies in the island, there is pressure to provide cheaper price value of the products. As a result, to remain competitive and maintain the leading position in Taiwan, it is critical that the costs incurred in its value chain be reduced. VATECH Taiwan needs to make decisions to reduce the overall costs. Hospitals and dental clinics are facing pressures to reduce costs mainly because of global economy recession and increase efficiencies while delivering safer and higher-quality care. Therefore, customers are making purchasing decisions based on how cost effective dental digital X-ray offered by different companies are. There are several areas that VATECH Taiwan needs to address to achieve this.

6.1.2.1. Reduce Operational Costs

One of the areas that operational costs should be reduced is the model of providing support for installed programs and systems. It involves time and effort, and therefore costs, to upgrade software and install patches for customers. Another reason to reduce the time and effort spent upgrading installed programs are the fact that the

customers are intolerant of downtimes. When their workflow is interrupted because of downtime, revenue and time impacts are significant.

Planned downtime for software and/or hardware upgrades can be minimized by utilizing Web-based technologies where applications self-install or perform automatic upgrades with minimal user intervention. Therefore, VATECH Taiwan should invest its resource so as to speed up the development of Web technologies. To avoid unscheduled downtime due to program and system irregularities, its effort should be placed on improving reliability by continually working towards better quality inspection. The self-install solutions through web, mentioned above are a key step to cut down on operation costs. In this way, the company will only need to install the software programs in the computer, thus saving time and effort by not having to upgrade the software programs and systems.

Alternatively, VATECH Taiwan should negotiate a volume discount with its computer suppliers to outsource the installation of required software programs and systems as each machine is being built. This approach will free up resources to build its core competence. The company should plan for PC vendors to install the required software programs, thus reducing installation and shipping costs. This approach will save the computers from a trip to the company for installation, only to be shipped out again to the final customer site.

6.1.2.2. Provide Exceptional Customer Support

A key aspect in the dental digital X-ray market, a market that is growing fast, is customer satisfaction. Satisfied customers provide critical sales and marketing benefits for the company to maintain and increase market share. In a growing dental digital X-ray market, customers now pay attention to the total cost of operating dental digital X-ray when making a buying decision and not just its initial price. Additionally, customer satisfaction can be adversely affected if customers find out that their costs to support it are higher than they expected. Customer satisfaction is, therefore, a measure to customer perception of cost effective offering.

Besides helping customers cut operational costs, another key determinant that affects customer satisfaction is the level of service and support they get from the company. This has also been identified as one of the key success factors in the industry. To both the customer and the company, purchasing a dental digital X-ray is just the start of a relationship. As I analyzed, the strong customer service and support are one of VATECH Taiwan's competitive edges. Therefore, it is very important for the company to continue to understand the factors affecting the drop of customer satisfaction, and to address any related issues accordingly and effectively.

6.1.3. Decentralizing Leadership

In addition to deciding on the overall company strategy, management of VATECH Taiwan needs to clearly identify and communicate a transition strategy for the time when the CEO (Mr. Cho) will be less active in the day-to-day management of the company, or when he leaves by HQ's decision. While formulating a transition strategy and finding the appropriate personnel to carry out this transition strategy are a priority for VATECH, events can occur to delay the implementation of this strategy. Clearly communicating the transition strategy to the entire company would reduce uncertainty and employee anxiety, and increase morale, and allow for a better competitive response to questions being raised by current customers and competitor of VATECH Taiwan.



6.1.4. Hire Human Resource Manager

Rapid growth, like what VATECH Taiwan is experiencing, can bring its own problems. Organizational structure and culture affect efficiency of a company's entire business. VATECH Taiwan has doubled the number of employees in the last two years. As the number of employees increases in the company, the scope, volume, and complexity of activities expand. The challenge of internal growth to the company is simply that there is more work to do. Therefore, the company needs a Human Resource manager who can define and organized the tasks, workflow, and process. Currently, there is a lack of such skill among the present management of VATECH Taiwan.

Moreover, the need for more capable employees to help VATECH Taiwan stay ahead can be resolved by putting an emphasis on training and careful recruiting which can be done by hiring HR manager with specific knowledge on Human Resource management. From a human resources perspective, training people internally to acquire the right set of business skills and to increase business awareness is an effective way to achieve results. Nevertheless, the success of training depends on the employees' willingness and ability to learn from the training materials and the trainer's effectiveness in transferring his or her knowledge and skills.

On the other hand, there are also challenges in recruiting highly talented people, which has been currently done by CEO, Mr. CHO. A skilled individual might not necessarily be of the right fit to the company in terms of work culture and ethics. It is HR manager's job to recruit right people among candidates and educate employees to share the same enthusiasm, vision, and fit with the existing culture at VATECH Taiwan, because understanding the company culture, increasing communication, and motivating employees are critical success elements for the company.

6.1.5. Reconfiguring the Value Chain and Organization

While the current value chain and organization can be effective, the company must take care to find ways of working across these organization and value chain in order to ensure agility, collaboration, quick decision-making, and sustainable growth as a subsidiary company. Nevertheless, there is no such thing as an ideal organizational design. Each design has strategic advantages and disadvantages. Matching structure to

strategy involves picking a basic design, modifying it as needed, and adding valuable main activities, supplementing it with coordinating mechanisms and communication arrangements. While practical realities often dictate the nature of things, existing reporting relationships, personalities, internal politics, and other situations and strategy factors must prevail.

To restructure the organization and its value chain, VATECH Taiwan should, firstly, develop a flow chart of total business processes, including interfaces with other value-chain activities. According to Michael Porter, optimizing the linkage along the value chain and reflecting on its strategy, and with better coordination within the value chain, a company can achieve a competitive advantage. Secondly, VATECH Taiwan should assess and streamline, if needed, the current processes for a cost effective business activities. Thirdly, to sustain its current growth and increase its importance as a subsidiary, it should determine to keep some of value added activities in house for the sustainable growth. For example, as I mentioned above, Software development can be added to the value chain, since it will certainly give a new competitive edge to both parent company and VATECH Taiwan, and will lead to the position of a strategic leader as a subsidiary company. Last, it is vital that VATECH Taiwan communicates the organizational change to gain employee support and commitment upfront. As with implementing any strategy, realigning an organization takes time.

Reconfiguring strategy processes and value chain can help the company gain sustainable strength for the future. Potential outcomes are dramatic gains in productivity and organizational creativity where responsibilities and decision-making process are clearly defined. In addition, strategy processes would be unified, permitting

tasks to be performed quicker, resulting in a company that is more responsive to customer expectations, and increasing strategic importance as a subsidiary.

6.2. Strategic Plans for Long-term Success of the parent company

Having provided issues and recommendations for the company's subsidiary company in Taiwan, I also try to look outside of the box, and look at the whole picture of the parent company, to generate long-term strategies for the parent company at different levels such as product development, human resource management, the organizational structure, and competitiveness for VATECH. I believe these strategies will aid the development of core competences for the company.

First, I believe that the company is moving in the right direction in providing a variety of products to meet different requirements and satisfactions for its different customer segments. The effort should be continued and improved consistently. The company needs to import more customers' involvement in the market analysis and product development, since only customers know what they need for their clinics and hospitals. Therefore, deep understanding of market demands and customer participation will be critical for product development.

Second, while the company is growing quickly, more and more departments are set up and middle managers are created. However, when a company gets more hierarchies, the communication sometimes is blocked. To improve knowledge sharing and communication, the company should set up formal knowledge sharing events or

mechanisms to break down any blocks. At the same time, encourage to use web-based database will be an effective approach to the same problem.

Third, VATECH should not ignore big threats from Korean based conglomerates such as Samsung or LG. According to rumors, Samsung and LG are aiming to enter medical industry soon. Once these Korean conglomerates enter the medical market in the near future, the competition of the market will be significantly increased. Given this market uncertainty, VATECH should design five year or longer market strategies and product development plans, and allocate sufficient resources to conduct research and development on them. These new strategies will not necessary focus on dental digital X-rays, but need to pay attention to new market opportunities and other software products.

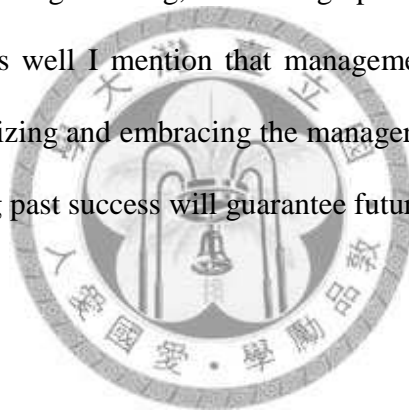
The managerial challenges of implementing the above recommendations are huge. I suggest that the executive team of the company must carefully deal with following issues.

First, when the company needs to build up new core competences to fit the dynamic market needs, the new core competences should be measured, defined, and integrated.

Second, how to stretch existing resource and competences is also a big challenge, since employees' average years of serving in the company is less than two years, according its 2008 annual report. The company has to hire, train, and retain talents to expanding current core competences. Management should pay more attention to manage and integrate new resources with existing ones.

Third, having developed a strong capability to compete in the market, the company cannot ignore its current core competences, but should appreciate and enhance them.

In this section, after conducting an external analysis of the industry where the company belongs and a company situation analysis of VATECH Taiwan and strategic issues and suggestions in the previous chapter, I recommend some strategic plans and suggestion for the parent company, thus increasing its competitive advantage. Here, I give recommendations on deepening customer understanding, increasing communication and knowledge sharing, and setting up strategic plans for the long-term success of VATECH. As well I mention that management should manage the above improvements by recognizing and embracing the managerial challenges associated with them and avoid assuming past success will guarantee future success of VATECH.



7. Conclusion

Concluding with results is not an end in itself. With the embedded limitations, the results involve many more implications, possible contributions to practice, and future research opportunities. This chapter is dedicated to these aspects: conclusion of the findings, implications, limitations and future research directions.

7.1. Conclusion of the findings

VATECH is in a rapidly growing, high-opportunity, and attractive industry. At the same time, it faces fierce competition with existing dental digital X-ray companies, most of which are local agencies of major companies mostly from the US, Japan, and Germany. In the past few years, VATECH Taiwan has been successfully gaining its share of the market and building on its reputation in the dental digital X-ray industry. VATECH is at a cross roads of change where it's the right decisions will help the company sustain its competitive advantage and continue to be successful in the industry.

In view of the forces operating within and upon the dental digital X-ray industry that VATECH Taiwan is in, this research paper identifies the issues the company should address.

The first major issue is creating new strategic vision. Currently, VATECH Taiwan is just an implementer of the parent company in the local market. Therefore there is a strong need to create a new strategic vision to reach further and become strategic leader serving as a partner of headquarters in developing and implementing

important strategy. The implication of creating a new strategic vision is that VATECH Taiwan would have to tailor its value chain to provide new activities and products to the selected market segments by its own efforts, and therefore would be a strategic leader to develop and implement a series of strategies shared with the parent company.

The second key issue is related to providing cost effective offerings. In order for VATECH Taiwan to keep the leading position in Taiwan, it is important that the costs incurred in its value chain be reduced. VATECH Taiwan needs to make decisions to reduce the overall costs. This goal can be achieved through reducing operational costs and providing exceptional customer support.

The third key issue has been related to the current situation of centralized leadership in the company. Management of VATECH Taiwan needs to clearly identify and communicate a transition strategy for the time when the CEO (Mr. Cho) will be less active in the day-to-day management of the company, or when he leaves by HQ's decision.

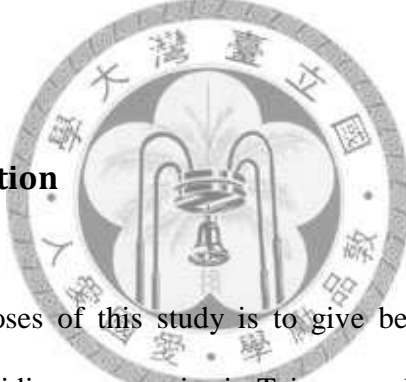
The fourth key issue is that the company is lack of human resource management skill among the current management. Therefore, VATECH Taiwan needs a well-trained human resource manager who can define and organized the tasks, workflow, and process, hire right people, and educate people to share the same enthusiasm, vision.

The final key issue is reconfiguring the value chain and organization. While the current value chain and organization of VATECH Taiwan can be effective, the company must take care to find ways of working across these organization and value

chain in order to ensure agility, collaboration, quick decision-making, and sustainable growth as a subsidiary company.

It is necessary for VATECH Taiwan to select a strategy that enables it to meet both the growth and profitability targets imposed on it by its parent company. Given its core competence, culture, and support of the excellent assets provided by its parent company, it is recommended for VATECH Taiwan, to employ differentiation strategy as a sustainable growth driver. Moreover, VATECH Taiwan is advised to assess the state of its value chain activities, including its human resources, organization, and processes for sustainable growth.

7.2. Managerial implication



One of the purposes of this study is to give benchmarking responses to the current international subsidiary companies in Taiwan, and to provide better knowledge. As the theoretical ground for this study is strategic analysis of the industry and the company, the results of this study have built up a reference guidebook for managers in international subsidiary companies investing in Taiwan or approaching its market. The results of the study, therefore, serve as a reference point to reflect on the strategic developing and planning, and to see its development in Taiwan over time.

These implications are important for managers in both subsidiary-level and parent company-level. At subsidiary-level, regional directors, and manager in international companies in Taiwan will gain a better understanding strategic

management and planning to improve their competitiveness in Taiwan. On the other hand, at parent company-level, corporate CEOs, and International Directors will gain a better understanding of the distinctive features of business operation in Taiwan as regards value-chain aspects.

7.3. Limitations

This study does not pretend to generalize its results to universal level. This is a study of the strategic analysis of VATECH which have focused its business in Taiwan. Thus, this study does not even attempt to discover any universal laws about the strategic planning and analysis in general. Naturally, there are many loads of other companies, which have faced the same issues as VATECH Taiwan. Still the events and activities explained in this study are not necessarily very familiar to all companies even in the industry where it belongs.

Nevertheless, even though the activities and strategies in this study have been the specific case of one company, VATECH Taiwan, it does not mean that these issues are limited only to this company. On the contrary, most small international subsidiary companies in Taiwan might face the same growth challenges and strategic issues sooner or later in their development. Although this research does not provide any definitive directives on how to function in these situations, it certainly offers some possible alternatives for consideration by other companies as well. Still, this study has not attempted to discover any universal laws or rules, and so the findings of this research

can and should not be considered as such. They may apply in the case of some other company, but just as likely they might not.

7.4. Future Research

This study has disclosed several interesting opportunities for further research. First, the scope of this study could be expanded to other dental digital X-ray companies in Taiwan, thus providing a more extensive picture of the whole industry. Next, a similar study could be carried out in other area of business in Taiwan, which would illustrate the usefulness of the framework in this type of study more broadly. On the other hand, the strategic development and planning of dental digital X-ray companies or the whole industry could also be studied by applying completely another framework that has been employed more often in strategic analysis. This kind of a study could offer new insights, but it might also help to reveal some new aspects to be considered in further research.

Finally, a comparable examination could investigate, for instance, the strategic analysis of other subsidiary companies in other countries or perhaps even globally. This kind of investigation would probably discover very fascinating similarities and differences between various countries, and would thus be especially useful for managers who are considering expanding their business into those countries.

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