

IMPORT AND MARKET DEVELOPMENT
FOR DENTAL X-RAY EQUIPMENT IN
VIETNAM

Case: Meditronic Centre – Viettronic DongDa Joint Stock Company

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ABSTRACT

In recent years, the demand for medical and dental equipment in Vietnam has been dramatically increased. Due to the dire need of modernizing the healthcare infrastructure in Vietnam, opportunities have arisen for local importers to penetrate overseas healthcare-related products into this market. In this study, an operational import plan of dental equipment appears as a proper suggestion for market players.

The thesis is carried out based on the real case of Meditronic centre, Viettronic DongDa Joint Stock Company. For the purpose of providing recommendations for the company to launch an import project, this study focused on logistics and marketing strategies. The thesis utilizes the mix of qualitative and quantitative methods, combining with both primary data and secondary data collection.

The main theme of this thesis begins with the description of the chosen product, which is Minray intraoral X-ray equipment, and its producer, Soredex Oy (Finland). A market analysis is subsequently provided for the purpose of giving an overview of Vietnam's market environment and evaluating the project's potentiality. The thesis gives out a plan of logistics and marketing which consists of a theoretical framework. In this project, road transport and air transport are both utilized as an intermodal choice of goods transportation. With reference to Incoterms and factors of real case, DDU (Delivered Duty Unpaid) is selected to be the term of delivery from Finland to Vietnam. Besides, the study goes into the details of analyzing the market situation and the company's real case in order to plan a marketing campaign for the product in Vietnam's market.

In conclusion, some recommendations are drawn up. To accomplish an import project successfully, all the factors of logistics, marketing and finance must be carefully considered. The collected information and results in this study can be helpful for Vietnamese importers as well as for foreign exporters to enter Vietnam's market.

Keywords: Vietnam, dental X-ray product, import, market development, Meditronic centre.

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1 INTRODUCTION

This chapter aims at giving the main idea of the thesis and the reason why this topic is chosen. This first chapter begins with an overview of the research background in section 1.1 and the presentation of the case company in section 1.2. The research questions and objectives of this study follow up in section 1.3, while the research methodology will be demonstrated in section 1.4. Section 1.5 frames the limitation and the thesis structure is described in the last section of this chapter.

1.1 Research background

It is an undeniable fact that foreign trade has become a significant part of the world economy in the last decades. Foreign trade can be defined as the exchange of goods or services between countries across their international borders. This act of exchanging merchandise, which is so called import-export, plays an indispensable role in each economy as it allows nations to get unlimited goods and services produced from abroad (Ramberg 2008, 18). Throughout the history, foreign trade has been described by the Silk Road or Amber Road trade. Nowadays, together with the trend of globalization, the world is witnessing a stronger development of import-export than ever. To a nation, the economic, social and political issues all have their impact on the development of the foreign trade. To Vietnam, import-export strategy has been utilized by Vietnamese government as an economic policy for the purpose of economic growth.

Since 1989, Vietnam has made strategic changes such as the decentralization of foreign trade and relaxation of foreign exchange rules, which facilitated the import-export between Vietnam and other nations. Although the economic crisis and Vietnam Dong depreciation resulted in the slowness of the economic growth, Vietnam is incessantly developing the foreign trade activities, especially importing activities. Here the import figures of Vietnam in the first half of 2009 are shown:

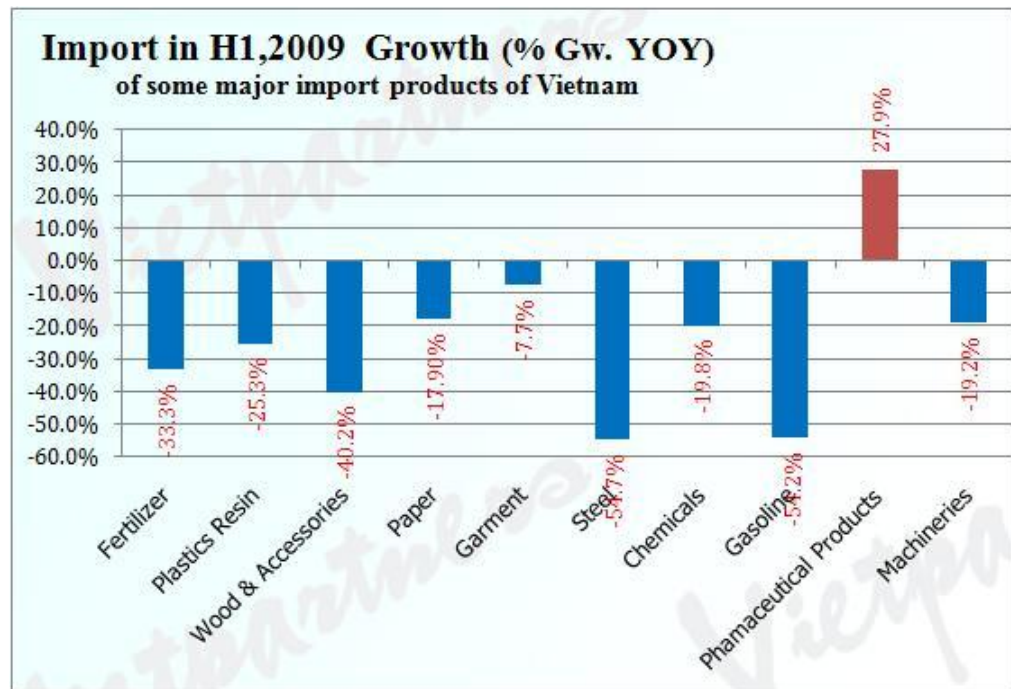


FIGURE 1- Import growth of Vietnam in the first half 2009 (Vietnam Economy News, July 2009, 22.)

As can be seen from figure 1, because of the credit crunch, mostly the import figures dropped in the same period of last year, except Pharmaceutical Products. In recent years, the demand for pharmaceutical, medical and dental products in Vietnam has been rapidly increased, which makes Vietnam become a potentially huge market for these types of products. Recognizing that the country's healthcare infrastructure is now in dire need of modernization, the government has increased funding to develop public healthcare. For all the demands for public and private, opportunities have risen for overseas suppliers of healthcare-related products to penetrate this market. Moreover, the economic growth, open governmental policies and attitude have made Vietnam more accessible to foreign suppliers. According to the ADB- Vietnam projects, in 1998, imports of medical and dental products in Vietnam were more than USD 400 million; and this market is estimated to grow by 10 percent each year.

In the healthcare industry, the dental segment plays an important role. According to the Dental Trade Alliance, the dental market is dominated by the US, Europe

and Japan, which collectively accounted for 84 percent of the global revenue in 2007. Finland is one of the most famous countries for dental production and services with the world's leading suppliers for dental equipment. The major export markets for Finnish dental manufacturers are the US and Asian countries. According to the Finnish National Board of Customs, in 2006, the dental equipment exported to the US amounted to USD 4.9 million while other instruments and appliances used in dental sciences to USD 4.4 million. Finnish exporters are expanding the consumer market, in which Vietnam is a potential one.

Under the situation that Vietnam is now a developing mixed economy with high demand for dental products, the topic of "Import and market development for dental products in Vietnam's market" is chosen for the purpose of giving recommendations for Vietnamese company to launch a project of entering a new type of dental products into the local market. The collected information and results in this study can be helpful for Vietnamese importers as well as foreign exporters to enter Vietnam's market.

1.2 Presentation of the case company

Viettronic Dong Da Joint Stock Company (J.S.C) is a member of Vietnam Electronics and Informatics Corporation, which is under the control of Ministry of Industries. Viettronic Dong Da J.S.C was established in 1982 with the major activities in installation, service, maintenance and manufacturing of electronic, industrial electric equipment. Nowadays, Viettronic Dong Da JSC is a big company in Vietnam that concentrates in three main fields:

- Electric and Electronic Consumer Goods.
- Electronic Industrial Products and Solutions
- Electronic Medical Equipment

Meditronic centre was established directly under Viettronic Dong Da JSC. Focus on electronic medical equipment field, Meditronic is operating in internal and external trade with a wide range of services, which includes:

- Providing and distributing up-to-date and high quality medical equipment for projects of government and organizations.
- Importing and exporting medical equipment.
- Coordinating to invest in, to trade and to distribute products in local market.
- Advertising in connection buying.
- Providing services of repair, warranty and maintenance for medical and electronic equipment.

The company structure of Meditronic Centre is illustrated in figure 2.

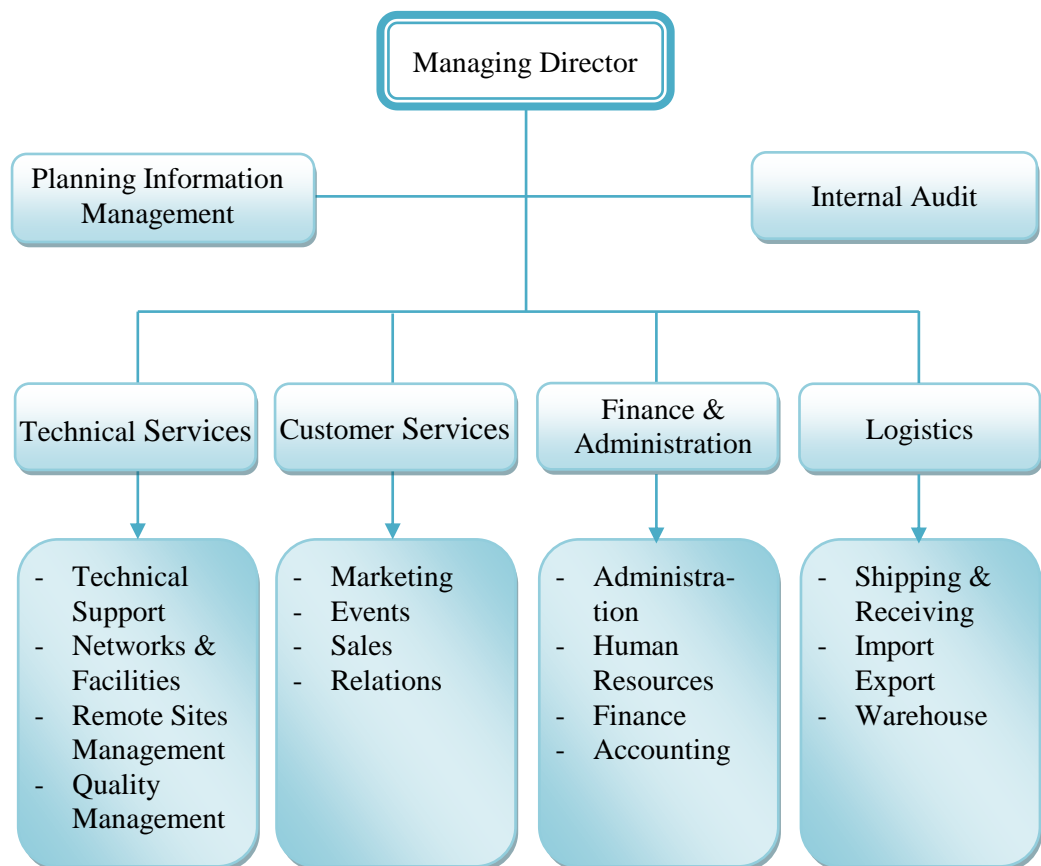


FIGURE 2 – Meditronic Company structure (Viettronic Dong Da J.S.C brochure 2008, 29.)

Established in 2003, when the market of medical equipment in Vietnam was heated up, the company has gained good profit from trading and services, as many other companies in the same field. However, since 2008, Vietnam has been influ-

enced by the global economic crisis, which led to the slowdown of domestic companies in most lines of business. Even though the demands for medical equipment in local market slightly increase, Meditronic and other companies in the same field had to face hard situations. In the year 2010, when the economy is recovered, Meditronic needs a strategic project for business growing and profit maximizing. As the managers of this company was thinking about importing a modern and high quality medical product from abroad to develop in Vietnam's market, this study will give out an idea and a practical plan that might be a potential project for their company.

1.3 Research questions

This study aims at giving recommendations for the client company to launch the project of developing dental products in Vietnam's market. In order to provide a comprehensive answer to the main purpose, three sub-questions are raised:

1. What type of product does Vietnam's market need?
2. How to set up and develop this project in Vietnam?
3. How to import and distribute the product in Vietnam?

These sub-questions will be researched by the following methods:

- Reviewing relevant documents.
- Interviewing professionals in this line of business.
- Publishing questionnaires to organizations operating in this market and analyzing results.
- Analyzing collected information and giving recommendations.

The study approaches some specific objectives which are created in order to get the answers to above research questions:

1. Identify a medical product which is the most appropriate with the line of business and the demand of local market.

2. Analyze the local market situation and its growth trends.
3. Conduct an in-depth study of transportation and distribution activities.
4. Provide solutions that enhance marketing strategy for the project.
5. Propose the topic and formulate recommendations for company's business plan.

1.4 Research Methodology

Research methodology is a vital part to provide a systematic approach to a certain study. The purpose of this section is to illuminate the research approach, research methods and data collection process.

Firstly, research approach refers to the way in which the study is developed. According to Saunders, Lewis and Thronhill (2003), the inductive approach produces the theory by collecting and analyzing the data. On the contrary, in deductive approach, a theory or hypothesis is developed first, and then a research strategy is designed to test the hypothesis. In this case study, inductive approach is applied.

Generally, there are two major research methods which are qualitative and quantitative. The qualitative research aims at exploring attitudes, behavior and experiences through two main methods which are case study (observations carried out in a real case) and action research (research ideas applied in practice to be modified and to evaluate results). The quantitative research generates statistics by using the large-scale survey research such as questionnaires or structured interviews. Quantitative methods are the most appropriate choices because of collecting numerical data then analyzing it by using statistical methods. There are three most common quantitative methods: experiment (applying a measure results), survey (interviews or questionnaires via telephone, mail, or Internet) and historical data (looking for patterns in historical data). (Kumar 2005, 13).

During the research process, this thesis utilizes the mix of qualitative and quantitative methods. Still, qualitative method takes priority over quantitative. Qualitative method is applied to analyze secondary data from books and articles to provide a

detailed understanding of the topic and to draw answers for the research questions. Quantitative method is mainly used in form of interviews and questionnaires. Interviews are carried out with representatives from the client company (project manager and sales assistant) as well as from the supplier (sales director and marketing director). Results from these interviews give an insight of the product and the local market situation in Vietnam. Questionnaires are conducted to collect descriptive data. By using the mix of two methods, it is possible to crosscheck the results from both questionnaires and interviews in order to support the recommendations.

Lastly, the data collection process is marked in the two main sources:

- Primary data: observation (from the author's practical training in the case company), internal databases and reports, interviews with representatives of Meditronic Company and Soredex Oy.
- Secondary data: annual publication of Ministry of Healthcare – Vietnam, product brochure, books, journals, articles, Internet sources.

To sum up, a figure of the research process is illustrated as follows:

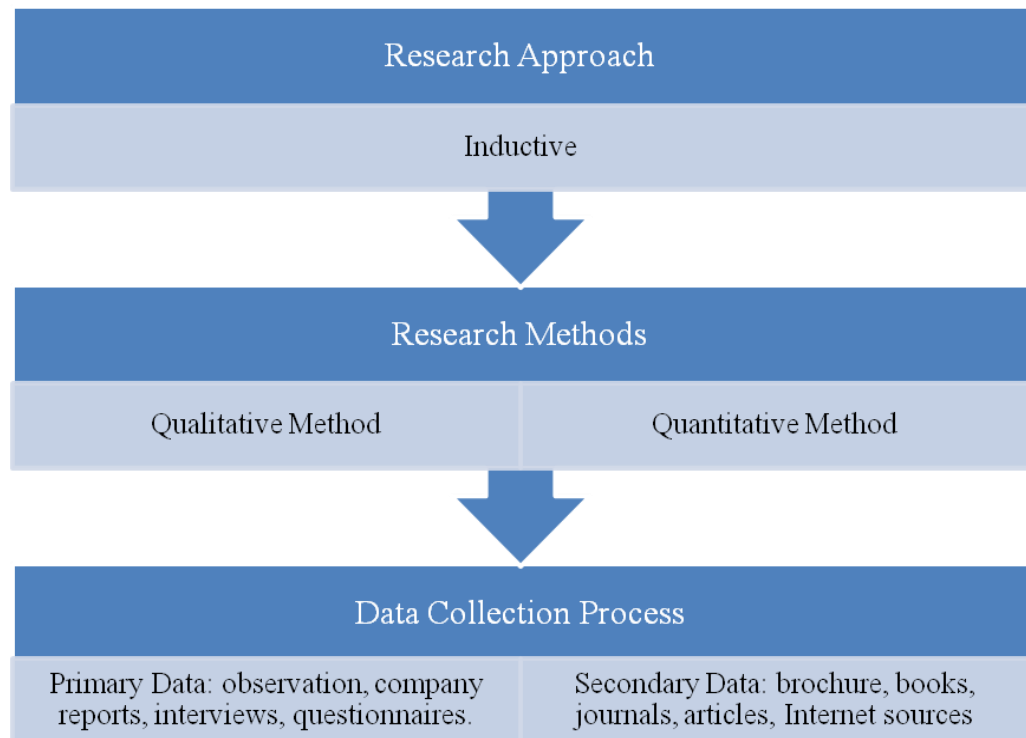


FIGURE 3 – Research process

1.5 Limitations

The thesis describes real case situations through conducting an in-depth analysis. This study is mostly limited to the transport process and the marketing campaign of dental X-ray equipment in Vietnam's market, thus it does not investigate the legal issues in depth.

The client company of this study is Meditronic centre, who assumes the responsibility to sign the purchasing contract with the manufacturer, as well as to prepare the related documents. Hence, this study does not focus on the purchasing process between two parties.

The market analysis generally emphasizes the market situation, market needs and competition in Vietnam. Consequently, some relevant information provided by the client company is taken for granted. Within the competition for dental X-ray products in Vietnam's market, the analysis concentrates on the different types of prod-

ucts and different countries of manufactures rather than on specific suppliers and brand names.

In a particular scope of the import process, the logistics process is being carried out in details. However, in order to complete the whole project, other studies should be made in regard with order quantity, customs inspection, as well as accidental risks and their claim. With the nature of a business study, the thesis simplifies the marketing stages and explains the marketing strategies as clear as possible in order to give out an efficient campaign to business operations. A list of definitions and theory of marketing and management also gets related in this thesis.

Lastly, within the framework of an academic thesis, the research objective aims at answering logistical details, whereas availability of resources allows the case study to be designed mainly as a business plan. Moreover, the intuitive nature of a principally qualitative study may have influence on the conclusions of the thesis.

1.6 Thesis outline

The beginning of the study provides a brief overview about the topic. In the next chapter, the chosen type of product and manufacturer will be discussed. Chapter 3 follows up focuses on Vietnam's market analysis. In chapter 4 and chapter 5, the theory of logisticss and marketing management are revised in order to outline a framework for applying in practice. The logisticss management will be presented in chapter 4 while chapter 5 is dedicated to marketing and management strategies for this project. The recommendations are concluded in chapter 6, before the summary of this thesis.

Figure 4 illustrates the thesis structure, with three specific parts: Introduction, Main Theme and Conclusion.

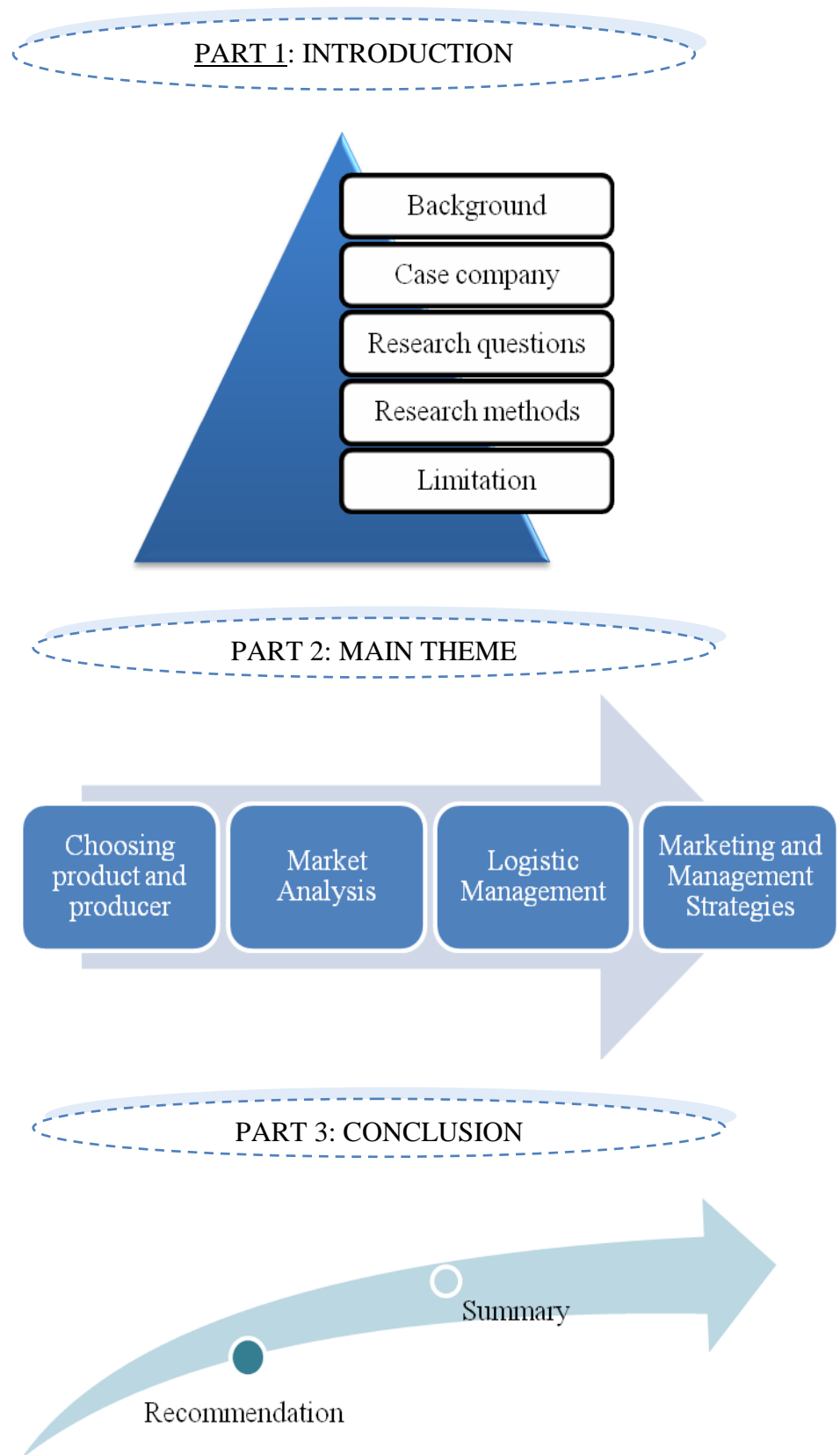


FIGURE 4 – Thesis outline

2 CHOSEN PRODUCT AND MANUFACTURER

As mentioned in the thesis structure, herein the reason to choose the product and its manufacturer is given. The first subheading starts with a general description of types of dental equipment. The dental equipment supplies are subsequently reviewed. Finally, the information of the chosen product is provided in the last part of this chapter.

2.1 Types of dental equipment

This subheading is divided into two parts: the first part is about the dentistry and general dental instrumentation, while the other one focuses on the dental X-ray equipment.

2.1.1 Dentistry and Dental instruments

Along with human evolution, dentistry as well as dental instruments has made great progress. Archaeological and written evidences have shown that in the old days, humans started performing dental procedures with rudimentary tools. Going through the history, dentistry has been widely known as a specialized field of medicine which has included evaluation, prevention and treatment of oral diseases, disorders and their influences on human body.

Nowadays, dental extractions are used to treat a wide range of illnesses, but the idea of this oral surgery was created by a Greek physician named Aesculapius, who lived sometime from 1300 to 1200 BC. Dental implements history dates back to thousands of years ago when humans firstly used flint drills to work on teeth in Stone Age. The ancient Arabians used a stick with a soft end for mouthwash which was recognized as the first appearance of toothbrush, while types of toothpaste were used in China and India around 500 BC. In the middle Ages, dentistry was not yet a profession; dental extractions were often practiced by barbers or general physicians. For centuries, the instruments used for dental works have been

comprehensively innovated due to the development in sciences and technology. In the 14th century, Guy de Chauliac invented the dental pelican which pulled teeth out sideways. This pelican had been used until the 18th century when it was replaced by the dental key. In turn, in the 20th century, the dental key was replaced by the modern forceps which are still widely in use today. (History of dental health, dental products and dentistry).

In the 17th century, Pierre Fauchard, a French surgeon, published a book named “The Surgeon Dentist, A Treatise on Teeth” which was the first comprehensive text which is about caring and treating the teeth. Also in that century, the first dental chair was invented which marked the beginning of the professional dental procedures. Since then, dentistry has seen a big step of innovation. Especially in the 20th century, a variety of dental tools were invented such as jacket crown, fluoride toothpaste, electric hand drill, electric toothbrush, etc.

Nowadays, dentistry is a specialized branch of medicine that utilizes many kinds of professional dental instrumentation to provide oral examination and treatment. Beside the appliances for tooth daily care, there are also several types of dental products for diagnosis, examination, tooth extraction and other oral surgeries. One of the most popular methods for dental examination and treatment is applying X-ray technology.

2.1.2 Dental X-ray equipment

Nowadays, X-rays are known as a form of energy that travels in waves. According to the Dental Trade Alliance, since this electromagnetic radiation was discovered in 1895 by Röntgen, a German physician, scientists have known that hard X-rays can enter solid objects and identify the inside structures of objects, so they use this kind of energy in medical imaging. In the human body, only dense parts such as teeth and bone can absorb X-rays and show up details on X-ray film. The useful application of X-rays has made big progress in medical healthcare which provides accurate diagnostic and examination. Radiography is now a special part of medicine.

Dental X-rays are among the most popular tools which are used by dentists to diagnose and examine oral diseases. By taking images of the teeth, bones and soft tissues around them, X-rays can identify the structures of the mouth and help to find problems of teeth and jaw such as tooth decay, broken tooth roots, etc. X-ray film can show the hidden teeth, cavities or the bones loss that can not be seen in normal visual examination, in order to plan for treatment of teeth. (Internal source of Meditronic centre).

Dental radiography has undoubtedly become a valuable instrumentation for dentists. In recent years, dental X-ray instruments have been incessantly up-to-date for both quality and design. In general, there are two main types of dental X-rays: intraoral and extra-oral.

Intraoral X-rays are the most common type of dental X-rays. After the film is placed inside the mouth, the intraoral X-rays provide details which allow dentist to find cavities, to check developing teeth, teeth roots and their surrounding bones. Moreover, it also helps to monitor the general teeth and jawbone health. In order to see different views of teeth, there are various types of intraoral X-rays such as pediatric X-rays, periapical X-rays, bitewing X-rays, occlusal X-rays and full mouth series. Figure 5 illustrates different types of teeth imaging. (Official website of Soredex Oy)

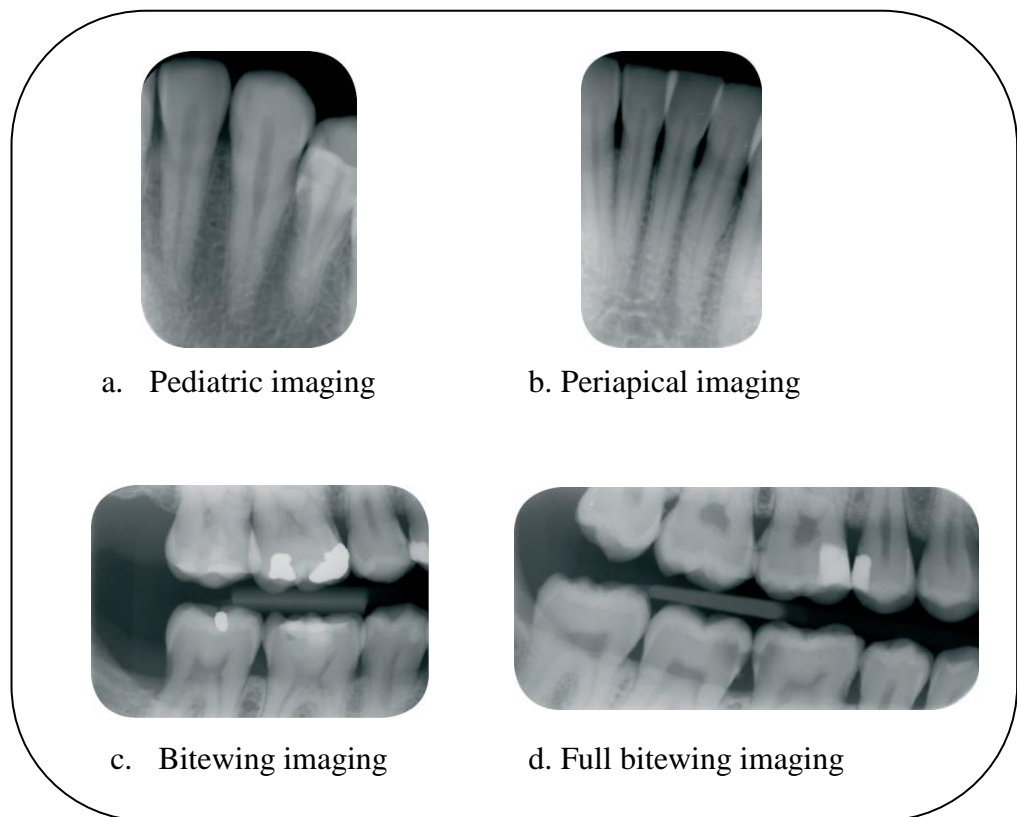


FIGURE 5 - Types of intraoral X-ray imaging (Official website of Soredex Oy)

Extra-oral X-rays, contrary to Intraoral X-rays, provide radiographic views by placing the film outside the mouth. Extra-oral X-rays also show teeth images on their radiographic film, but they are less detailed than that of intraoral X-rays. Because extra-oral X-rays mainly focus on the jaw and skull, they can not be used for identifying problems and detecting cavities or flaws in individual tooth. In fact, extra-oral X-rays are used for monitoring the growth of the jaw, looking for impacted teeth and examining potential problems between teeth and jaws or other surrounding bones. Like intraoral X-rays, extra-oral X-rays are divided into different types such as panoramic X-rays, tomograms, cephalometric projections, sialography and computed tomography. (Official website of Soredex Oy)



FIGURE 6 - Panoramic imaging (Official website of Soredex Oy)

In Vietnam, the classical radiography is commonly used. The principle of this imaging equipment is to take X-rays by using negative film placed behind the objects. After going through the objects, X-rays appear on film which will be printed by using AgCl. On the film, the dense parts which absorb X-rays will remain black, while other parts which do not absorb X-rays will turn white. (Internal source of Meditronic centre).

X-ray instruments usually have the following main parts:

- Control panel and high-voltage circuits (usually located in control room)
- Taken table; Bucky stand and bulb (placed in the taken chamber)

Taken table is made of vulcanized rubber which X-rays can pass through easily. The aluminum frame is firmly composed so that the patient can lie or sit on the taken table. A drawer is designed under the taken table to contain X-ray film (or the detector probe to broadcasted X-ray equipment). Between the drawer and the table, there is a grid system against the first rays and a motor moving equally in a direct line while taking X-rays. Figure 7 illustrates a general model of X-ray equipment. (Internal source of Meditronic centre).

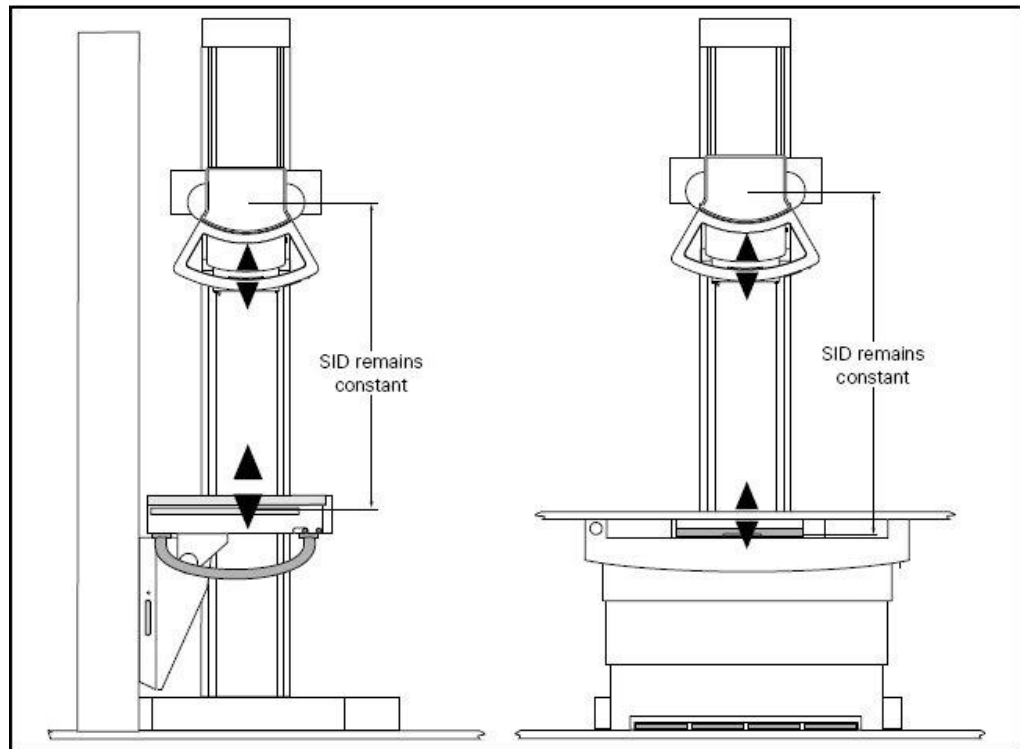


FIGURE 7- A model of X-ray instrumentation. (Internal source of Meditronic centre)

2.2 Dental product supplies

Within this subchapter, the global supplies of dental equipment are rendered in order to present the manufacturing situation of dental products worldwide and particularly in Finland. From that point, a leading Finnish company is chosen to be the supplier for dental products in Vietnam's market.

2.2.1 Global dental supplies

In the healthcare industry, the dental equipment segment has become one of the most appealing markets with the total size in 2008 around USD18.8 billion. Worldwide, the dental market is dominated by developed countries such as the United States (U.S), European countries and Japan, which entirely occupy more than 84 percent of the global revenue. Among the dominators, the U.S. manufacturers account for approximately a half of international market for dental equip-

ment and supplies. The manufacturers in Japan and in European countries such as Germany, Switzerland, Italy, and France appear to be the followers of the U.S. manufacturers in the competition for leading the global market. European and Japan dental products are famous for high quality, reliability and incessant application of high technology in production. There are also products from China with affordable prices which are suitable for lower markets. (www.news-medical.net)

Besides the overwhelming lead of the U.S., Japan and other European manufacturers, Finland production and supplies of dental equipment are stably strong. Dental products from Finland are appreciated by experts because of the smart designs and high accuracy. In the domestic market, Oriola Dental Care is the leading company with operations covering all the dental products in the Scandinavian and the Baltic countries. Planmeca Oy is the biggest private manufacturer of dental equipment operating not only in Finland but also in Europe. Its business consists of designing, manufacturing and providing high quality dental instrumentation. Moreover, installation and maintenance are included in the service package also. Other famous manufacturers in Finland are Ajat Oy, Soredex, Fimet and Finndental. According to the Finnish National Board of Customs, the export output of dental X-ray and radiological products broke the record in 2007, which represented the special field of Finnish expertise in this type of products. (Official website of Finnish Dental Association).

2.2.2 Manufacturer

Soredex Oy was established in 1977 in Finland as a separate brand of PaloDex Group Oy. Soredex operates internationally in the field of healthcare techniques and focuses on Dental X-ray applications. By developing, manufacturing and offering high quality dental imaging solutions for professional dental offices, Soredex Oy is now among the global leaders in terms of self-designing and producing the dental imaging instrumentation for both intraoral and extra-oral X-ray technologies. This company is also famous for being the pathfinder in bringing new technology to the market such as their first launching dental panoramic X-rays, Ortho-

pantomograph, in 1961 and in the computed radiography (CR) systems for indirect digital image capture in 1994.

Soredex products are highly appreciated and recommended by dental professionals for decades. Based on the in-depth and specialized knowledge, Soredex has manufactured dental equipment under strict standards for the purpose of highest technology and application. The digital imaging systems are not only innovative and accurate but also simple and easy to use so that they can meet requirements during dental procedures. Moreover, all products of Soredex are produced according to the ISO 9001 quality system which guarantees for the true value of diagnostic.

Moreover, Soredex is one of the international leaders of the dental X-ray instruments with good customer service and technical support. Operating worldwide with a strong network of dealers in approximately 50 countries, Soredex has supplied more than 30,000 units of their digital imaging systems all over the world. Exports accounted for over 98 percent of sales. Their major export markets are namely the United States, European countries, Korea and Japan. (Official website of Soredex Oy).

2.3 Minray intraoral X-ray product

For the purpose of importing Soredex dental radiography products to Vietnam market, the intraoral X-ray equipment is chosen. In the line of intraoral X-ray products, Soredex offers four different units which are suitable for different purposes of dental practice. All these products are designed to be user-friendly and bring about accurate results. Digora Optime intraoral imaging plate systems and Minray intraoral X-ray unit are currently two leading products of Soredex in the market. Two new products which have been completed and released to the market in 2009 are Digora Toto intraoral sensors and Digora Vidi intraoral camera, with small, smart and ease-of-use design. (Official website of Soredex Oy).

The Minray intraoral X-ray unit is a very famous product of Soredex worldwide. This advanced equipment includes several features and options that put it on top

of the range in the market. Minray X-ray system is a promising product for Vietnam, a potential market for this kind.

2.3.1 Technology

New technology named CR has been applied in the Minray intraoral X-ray equipment. CR stands for Computed Radiography, which means X-rays are supported by the computer. CR was first invented in 1981, and it is widely used today. Compared with classical Radiography, CR has many advantages such as time-saving, environmental protection and reducing the dose of irradiation on patients. Images are obtained in the form of digital technology which is simple to be handled, transmitted and stored. (Minray product brochure)

The physical process of Minray, which uses film or sensor inserted into mouth to capture images of teeth, is similar to the conventional X-ray system. In Minray system, after passing through the objects, X-rays refer to a phosphorus plate which acts as the regular X-ray film. The phosphorus plate, after the beam reference, will be taken to the image scanner which can digitize the obtained image and turn the phosphorus plate back to its original state to be used next times. Depending on the purpose, digital image can be transmitted to the computer to change the brightness, contrast, or to create images which contain bones only or tissue only. After being processed, image can be displayed, printed, transmitted over the network to another location or stored in the patient records. An advantage of CR technology is that the dental patients are exposed up to 90 percent less radiation than regular X-rays. Moreover, digital dental X-rays use no chemicals to develop film, which is better for the environment. There is also no wasted space for a darkroom and not necessary to store film, which can pile up in a dentist's files. (Official website of Soredex Oy).

2.3.2 Design

The Minray intraoral X-ray product is a system which includes three main parts: tubehead, arm reach and operating controls. The information about the design of Minray is sourced from the brochure.

- Tubehead design

This tubehead handle is specially designed to make a precise and easy positioning. The steady arm system of Minray can move smoothly and keep the tubehead motionless during exposure. The tubehead handle allows one-hand movement of the tubehead and enables fast positioning.



FIGURE 8 – Tubehead design (Minray product brochure)

- Operating Controls

The user-friendly control panel can be installed in the wall box or be remote mounted in almost any location. There are uncluttered control buttons on the control panel so that user can quickly select parameters for an accurate X-ray exposure. The remote mounted control panel has a unique Push-bar exposure switch. The control panel has some features as follows:

- Pre-programmed selection

Pre-programmed exposure has settings for adult and child, with eight pre-programmed settings. Hence, there are totally sixteen pre-programmed settings and user can program their own settings as well.

- Different kV to select

Most X-ray units only have a fixed kV but Minray system has two available choices of kV. User can choose 60 kV, which is good for detecting caries and endodontic procedures, or 70kV, which is good for evaluating osseous changes.

- Choice of film or digital mode

Available choice of film or digital mode allows user to select which mode to use according to whether they use film or digital sensor. The digital mode is compatible with all digital imaging systems.

- Exposure time

Wide exposure time range from 0.02 to 3.2 seconds can meet all the requirements of the users. Exposure time is as low as 0.02 seconds for minimum radiation and yet delivers a superb quality image.

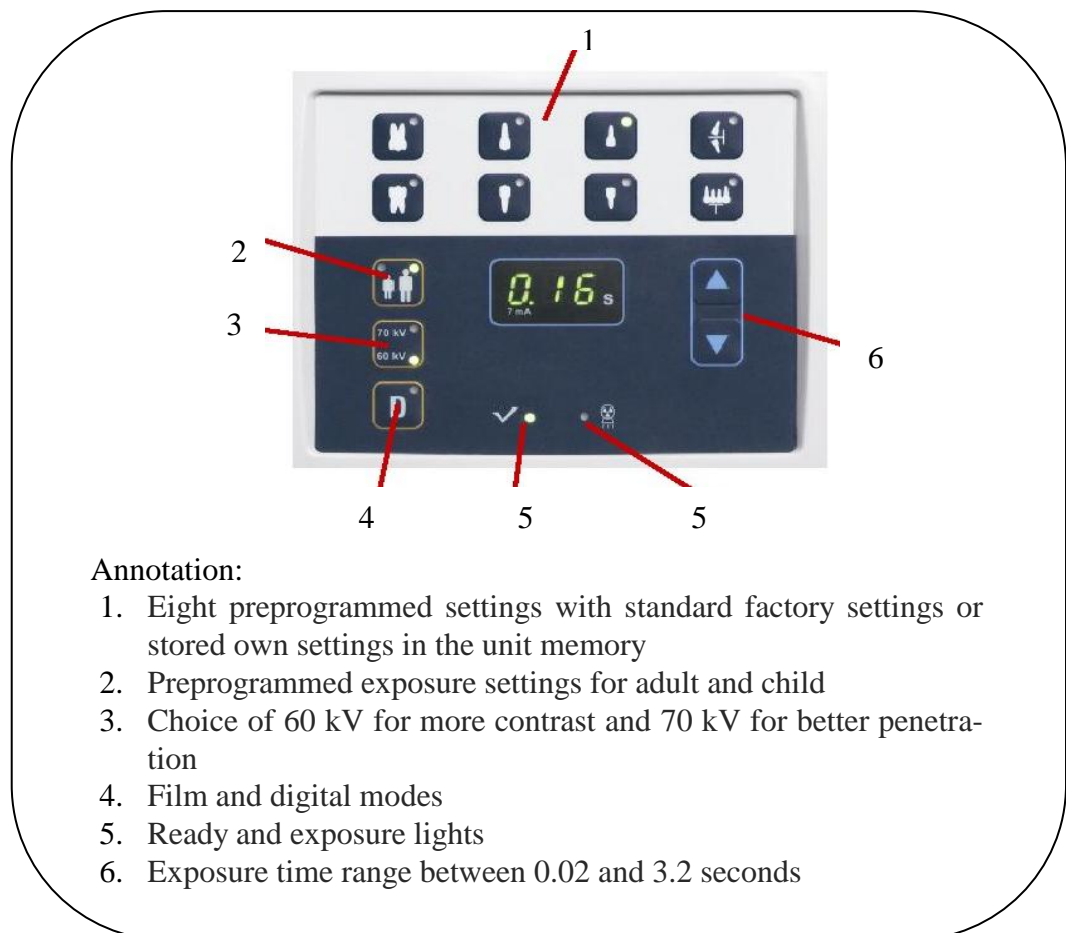


FIGURE 9 – Operating Controls (Minray product brochure)

- Versatile arm reach

Made of cast-aluminum for lightness yet strong, Minray's extendable horizontal arm system provides comfort and ease for dentists in taking X-rays. Extremely steady arm moves smoothly and lightly, and keeps the tubehead motionless during exposure. The arm length can be adjustable from 48.5 to 82.5 cm and the arm reach can set according to user needs. The arm length can be fixed at the time of installation in practice and re-adjusted later if needed.

- Technical Specifications (see Appendix 4)
- Dimension (see Appendix 5)

The standard cone of Minray system for bisecting technique is 229 mm (9") and the long cone for paralleling technique is 305 mm (12"). Both cone types are available as round (diameter 60 mm) and constantly rotating rectangular versions (35 x 45 mm).

2.3.3 Features

According to the Minray product brochure, the Minray intraoral X-ray unit is a reliable digital computer (DC) system which can provide consistent diagnostic results for dental procedures.

- Minray is compatible with all digital imaging systems based on imaging plates (i.e. Digora) or CCD (charge coupled device) sensor technology.
- The Very High Frequency (VHF) constant potential technology improves image quality and is not affected by line voltage fluctuations, so it can produce more consistent exposures with better image quality. The VHF technology delivers more highly energized radiation and reduces the amount of soft radiation compared to conventional AC (alternating current) generators.
- The Minray is undoubtedly user-friendly. With advanced ergonomic design, Minray has a system of versatility and optional accessories. The tubehead is easy to position while the unique and extendable arm reach can be set to exact needs and used with intraoral imaging plate systems, intraoral sensors and traditional film. Minray control panel provides pre-programmed exposure

settings for adult and child, choice of 60 and 70 kV for optimized contrast, film and digital modes and exposure time range between 0.02 and 3.2 seconds.

- The Minray system on its mobile stand is ideal for sharing between different users in the same dental office or clinic. The mobile Minray can also be conveniently stored out of the way when it is not in use. It can be easily moved through doors to where it is needed and the castors can be locked for secure positioning. The control panel is removable. Moreover, Minray system also has output for external exposure light and for safety switch.
(Minray product brochure)

In conclusion, this chapter has given out an overview of dental equipment and suppliers in the field. The chosen manufacturer and product are demonstrated afterwards as the main parts of the chapter.

3 VIETNAM'S MARKET ANALYSIS

From this chapter onward, the focus of the thesis on importing and developing the product is demonstrated. The current situation analysis is presented in order to pinpoint the potential of the Minray product in Vietnam's market. This chapter also provides analysis of market needs and competition which help the company investigate and respond to market environment effectively. In this chapter, the line of business, market situation, market needs and competition are demonstrated.

3.1 Line of business

Operating in internal and external trade of electronic medical equipment, Meditronic centre has seven years of experience in import, export and distribution in Vietnam's medical equipment field. Meditronic has been chosen to be the exclusive agent in Vietnam for a range of famous brand names such as Heyer, Arke-mann and Maquet (Germany), Drew Scientific and PaceTech (United States), Nakamura and Kyowa, (Japan), Agfa (Belgium), etc. As a local distributor, Meditronic Company has an import license for medical equipment as well as a track record through existing relationships with licensed international trading companies. (Official website of Viettronic Dong Da J.S.C).

Recognizing that Finland is a country which has a developed medical system with many famous companies for high quality medical instrumentation, Meditronic has long been intending to import medical products from Finland. Running a project of importing and developing Minray product in Vietnam's market, Meditronic aims to be the exclusive agent of Soredex to distribute all types of Soredex's products in Vietnam's market. (Interview with Ms. Tran, 2009).

To become a distributor of a brand name in Vietnam, Meditronic frequently needs to go through three steps.

- Learning about the producer

Operating in the medical products field, the company should be aware of famous producers worldwide. Typically, the dental diagnostic or treating systems include many products accompanied with and complement to each others. The dental X-ray product is commonly combined with other dental units in a consulting room. Producers in this field also cooperate with each others to manufacture compatible products. Therefore, to learn about the producer, information can be found out by means of their products on the internet or from other producers.

- Learning about the product

The simplest way to find information about a product is to access the official website of its producer. The producer frequently uploads the product's data, as well as brochures that everyone can easily find. To study more about the product, a letter of inquiry is sent to the producer to ask for a latest catalogue and export price. The company also secures an order for the producer to request for cooperation in case the producer has not appointed an exclusive agent in Vietnam. (Interview with Ms. Tran, 2009).

- Cooperating with producer to introduce and develop product in Vietnam

As the cooperation is agreed between both parities, the purchasing contract is signed. Because the initial scope of the project is not very large, Meditronic Company assigns a product manager to be in charge, together with two sales assistants and two technicians to carry out the work. A conference is held to introduce products to a group of leading doctors and dentists in Vietnam. An expert from the producer company is appointed to come and present about the product in detail. (Interview with Ms. Holkko, 2009).

For the purpose of promoting a product that customers can refer to and study about its advantages, a demo unit is ordered and transported to Vietnam. The price for this demo unit is ordinarily half of the original price, which refers to the producer's support of the purchase price in order to promote the product. (Interview with Ms. Holkko, 2009).

Based on market surveys, Meditronic sets the targets for how many products will be sold in the first year and subsequent years. If the agreed target between two sides is completed, Meditronic can become the exclusive agent for Soredex products in Vietnam's market.

- Requirements of legislation

In the import process, the legislation system is considered as an important part to get through General Import Clearance Information. According to Vietnam customs office, after receiving goods fully, the import company has to fulfill all criteria on the customs declaration and to carry out customs procedures at customs sub-department. The import procedures are particularly presented in the Logistics management chapter.

3.2 Market situation

According to the census, the population of Vietnam in 2009 is 86 million, with the increase of 1, 7 percent per year. While Vietnam remains a poor country, the rapid growth of the population places an urgent demand on the development of health-care services; especially the remarkably increased demand for dental care. In the recent years, realizing the strong need for increasing and improving the healthcare system of Vietnam, the government and the Ministry of Health (MOH) have increased budget allocations for upgrading and modernizing medical equipment in Vietnam's hospitals. The following is a review on the general situation of the health sector in Vietnam, from which the situation of the dental market can be seen. The figures and numbers below are taken from the annual publication of the MOH.

In recent years, the government has made health sector a priority to modernize and upgrade its healthcare facilities. The government has demonstrated its commitment to healthcare by providing a larger budget dedicated to improve the nation's health sector. For the year 2007 to 2008, the government spent about 160 million on importing and upgrading medical equipment. The government had received assistance from outside sources, which account for 80 percent of the total expendi-

tures in Vietnam's purchases of medical equipment. The other 20 percent of total medical equipment expenditure had been incurred by the government. According to MOH's statistics, the total market for medical equipment in Vietnam was approximately USD 225 million in 2008 and it continues to grow by 10 percent each year. (Annual publication of MOH 2008, 130- 142).

According to Vietnam economy reviews, in 2005, the government spent about USD1.3 billion to build 76 new hospitals, out of which USD 700 million was used for purchasing new equipment. For the period from 2005 to 2010, the government intended to spend about USD1.8 billion on building 57 new hospitals, of which over USD1 billion is spent for medical equipment. The program for upgrading medical equipment focuses on:

- Imaging equipment (X-rays, ultrasound, internal probing);
- Emergency equipment;
- Laboratory equipment;
- Operating theaters and sterilizing equipment.

In Vietnam, the healthcare system managed by the state includes hospitals, specialized research institutes, universities, and regional healthcare facilities. There are several types of public hospitals, which are supervised by various government entities. The MOH controls 18 percent of the total hospitals, which are considered as central hospitals. The Local Provincial Departments of Health manage and operate 270 provincial hospitals. The provincial hospitals purchase over 60 percent of all medical equipment in the market. The remaining are district hospitals, which fall under the jurisdiction of the local districts. Those hospitals are typically very small in size and only purchase medical equipment when offered Oversea Development Aid (ODA). (Official website of MOH).

According to the statistics in 2007, Vietnam has 13,438 medical healthcare facilities under the state healthcare system, 1,785 of which own dental clinics. The number of new hospitals is grown by 1-2 percent per year. The public healthcare system is invested to equip the facilities and working capital. The capital expendi-

ture which allocates for the healthcare funding is granted up to 10 percent of the state budget. (The state budget spent on healthcare system in 2007 was 20,710 billion VND, reaching 5.6 percent, and increased to 24,423 billion VND in 2008, reaching 6.1 percent of total budget). (Vietnam medical information- Official website of Department of Health)

There are 63 provinces and cities in Vietnam, in which there are 659 regional subdivisions, including 534 suburban districts, 42 urban districts, 61 towns and 22 cities. There are at least five dental facilities in every district while the number of dental clinics in big cities is over 100. Since 1980, the private healthcare facilities have been licensed to operate and up till now have strongly developed. Particularly, the private dental clinics were early focused to develop in regions. The increase in the number of private hospitals and clinics is a growing phenomenon. Most of these hospitals and clinics are in need of dental equipment, presenting tremendous opportunities for dental equipment suppliers. According to the MOH, the number of private dental clinics has grown from 20 in 2002 to 70 in 2008. Most of them are operated in big cities: Hanoi, Ho Chi Minh City and Da Nang; the rest are spread out in a number of provinces. In addition, there are over 30,000 private healthcare clinics, about 13,000 traditional medicine centers and family-planning clinics. (Official website of MOH.)

In spite of rapid and extensive increase, the private dental system of Vietnam has been merely invested into small clinics. Therefore, in the trend of developing the numbers and scopes of dental clinics, demand for dental equipment has been increased, which made Vietnam become a potential market for this type of product. According to industry statistics (annual publication of MOH 2008, 149), the total market for dental equipment in Vietnam was USD 14 million in 2007 and USD 17 million in 2008, all of which is imported equipment because domestic manufacture is nearly zero.

Before 2005, the dental examination and diagnosis were mostly taken in big clinics in the cities using X-ray instruments. However, at that time, the X-ray equipment applied the old methods and techniques of film screening and printing, but

not the modern digital computer (DC) technique as today. Nowadays, the growing demand of dental examination and treatment requires application of new techniques, which brings about a great need for dental equipment. The modern DC X-ray products are in a high demand for being equipped in new dental clinics, as well as for replacing the X-ray equipment of old generation. Moreover, the increase of public and private dental facilities apparently shows that Vietnam is a potential market for modern DC X-ray products to develop.

3.3 Market needs

Subsequent to the market situation, this subheading discusses both the market growth and the consumers in order to give an overview of the market needs.

3.3.1 Market growth

According to the World Health Organization (WHO), 85 percent of Vietnamese children have infected tooth decay and up to 95 percent of adults between 18 and 34 years old have been suffering from tooth-related illness. Because of the overuse of sugar and limited oral hygiene, the percentage of Vietnamese people having dental diseases is liable to increase in the coming years. Another reason that calls to the oral problems of more than 90 percent of Vietnam's population is the low concentrations of fluoride in food. The analysis of nearly 6,000 food samples taken in various regions throughout the country shows that most of them are below 0.4 ppm concentration fluoride (while the international standard is 1 ppm). Besides, almost Vietnamese overlook the dental care which also contributes to the situation. Therefore, nowadays the needs in dental care in Vietnam are tremendous. Many children and adults have been suffering from dental diseases which are highly preventable by education and routine care. The number of people who need dental treatment is increasing nationwide. (Pham D.H 2009, 14).

In recent years, the living standards of Vietnamese people have been rising which make them more aware of their health and dental care. A study of MOH in 2006

indicates that children with low living conditions averagely go to dentist about 7 times in 9 years. Meanwhile, the dental examination should be done every six months. Nowadays, more and more people can afford dental healthcare services. Moreover, both public and private dental clinics are presently booming, which encourage a huge demand for dental equipment, especially the diagnostic products.

Despite the high percentage of oral diseases in Vietnam, the dental problems are mostly among the tooth decay, cavities and flaws. The complicated oral surgeries which require extra-oral X-ray diagnostic equipment are almost performed in large central hospitals. For the purpose of providing X-ray dental products to Vietnam's market, in which the major consumers are local hospitals and clinics, intraoral X-ray products are preferable to extra-oral ones as the higher demand of diagnostic and identifying problems in individual teeth.

As mentioned above, the conventional type of dental X-ray equipment is popularly used in Vietnam. In the worldwide trend of new technology, Vietnam's hospitals and clinics are about to replace the traditional radiography by new dental equipment with computed radiography (CR) technology. This also contributes to a huge demand in Vietnam's market. CR technology, in comparison with the classical one, has a wide range of advantages such as digital images, time saving, environmental friendliness, film reusability and less radiation exposure.

3.3.2 Consumers

There are two major dental equipment markets in Vietnam, Hanoi and Ho Chi Minh City. They represent 80 percent of the entire market. Although Ho Chi Minh City, with a larger population has more dental-care centers, Hanoi leads the market in terms of total purchasing contracts. This is because Ministry of Health, located in Hanoi, often is the decision-maker for larger projects.

According to Meditronic company report, Vietnamese consumers often ask for equipment with the most advanced technology and high quality but at affordable

price. In addition, they usually demand timely after-sales service, including the provision of genuine spare parts. To fully exploit the functions of the newly bought equipment, the buyers usually require some formal training for both daily operations and regular maintenance.

In the current time, Vietnamese trading companies prefer the U.S. dental equipment in terms of quality; even though in the aspect of price, it is higher than others. A survey from Meditronic company report shows that Vietnamese dentists, who are the end-users of dental equipment, do not want to pay money for the cheaper equipment and to worry about its quality. In accordance with the psychology of the customers, dental products from Finland with outstanding quality are promising to get a foothold in Vietnam's market. (Interview with Ms. Tran, 2009).

State procurement of medical equipment, as well as public procurement, follows certain procurement procedures and practices. For procurement under VND 200 million (USD 13,000), medical organization can make the buying decision by themselves. For the procurements over VND 200 million (USD 13,000), the procurement has to go through a competitive bidding process. (Pham D.H. 2009, 19).

Vietnamese consumers of dental equipment can be grouped into three categories:

- Large government-funded specialized hospitals, clinics, and dental care centers in big cities have the strongest purchasing power of dental equipment. With financial support from the Government, they tend to look for advanced and brand name equipment. However, as other public procurement, the government procurement of medical equipment follows the certain procurement practices. For procurement under VND 400 million (EUR 15,500), the public hospitals or medical centers can make the purchase decision by themselves. For procurement over VND 400 million (EUR 15,500), the procurement has to go through a competitive bidding process.
- Provincial and district hospitals, clinics, and dental-care centers are significant buyers, although the purchase is often approved by the Local Provincial Departments of Health.

- The private dental clinics with a dramatically growing number nationwide are eager to upgrade to advanced equipment to maintain the competitiveness.

3.4 Competition

According to Vietnam's trading regulations, only Vietnamese companies are eligible to distribute medical equipment in the local market. Foreign suppliers can bring their products into Vietnam's market through local distributors or agents. Vietnam's market is dominated by imported dental equipment particular from Asia, Europe and the U.S firms. Dental equipment manufactured domestically is developing but minimal. There is only one joint venture company that produces X-ray and ultrasound equipment. Although there are a few medical equipment factories, these factories mainly manufacture furniture and simple equipment. (Pham D.H 2009, 20).

Along with other types of dental products, X-ray imaging products have been relatively popular in Vietnam's market. According to the statistic, the famous manufacturers that mostly occupy the market shares are NewTech (U.S.), Belmont Tanaka (Japan) and Vatech (South Korea). Besides, there are Planmeca (Finland) and some from Germany. Figure 10 describes the market shares of dental products in Vietnam.

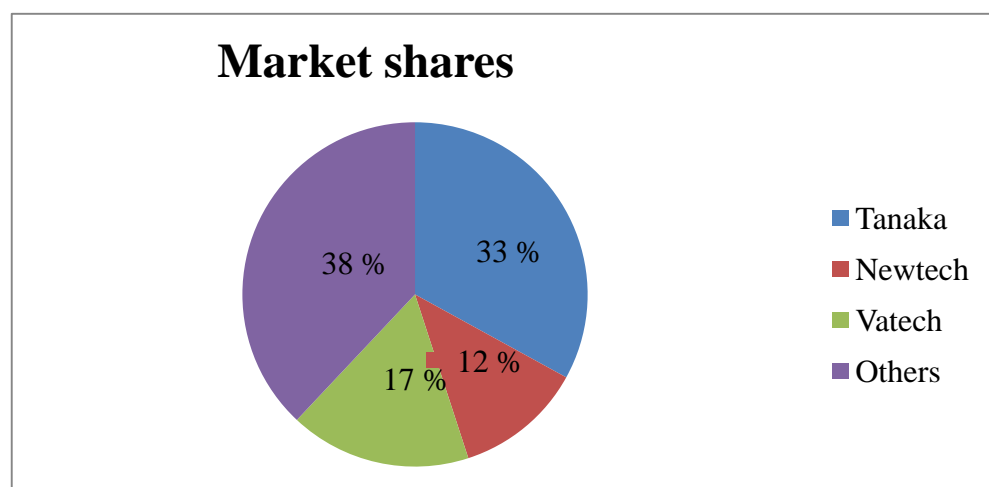


FIGURE 10 - Market shares of dental products. (Pham D.H 2009, 21).

The competition for the dental equipment market in Vietnam is strong. The major competitors for Minray X-ray product are products from the U.S., Japan and Germany, each of which possesses 25-30 percent of the market shares. The existence of foreign-based manufacturing companies in Vietnam is very limited. Currently, there is only one company because the ultimate goals of most medical equipment companies in Vietnam is simply selling equipment rather than setting up manufacturing plants in the country. (Meditronic company report 2008, 75).

In spite of entering Vietnam's market later than most of other competitors, the U.S. dental products have earned a reputation for quality and reliability. Dental products from the U.S. suppliers are appropriate to be equipped in Vietnam's hospitals and clinics because of the quality and after-sales services. Experts estimate that the market share of the U.S. dental equipment will increase to 35 percent. However, some weak points of dental products from the U.S. suppliers are the state of being over capacity and higher prices than other foreign competitors. Other major suppliers for Vietnam's dental equipment market are those from Japan and Germany. Japanese suppliers have the advantages of early penetration, well-designed equipment and affordable prices; while German suppliers are famous for high quality products. The dental products from these two countries account for 50-60 percent of the market shares. The mid-end products in the market are mostly from South Korea and some Europe countries such as: France, Italy and Switzerland. China and other Asian suppliers also provide low-end products in Vietnam's market. (Meditronic company report 2008, 76).

In this chapter, the market research is reviewed in order to gain a more detailed understanding of consumer's needs and to forecast future trends. Therefore, the market analysis helps the business reduce the risk of failure and undertake marketing effectively.

4 LOGISTICS MANAGEMENT

With reference to the introduction, logistics management is an essential part of the project as it describes the process of importing products to Vietnam's market. According to the Council of Supply Chain Management Professionals, logistics management is defined as a part of supply chain management which strategically plans, implements and controls the efficient movement, procurement and storage of goods in order to meet the requirements of customers. In this project, the process of logistics management is mainly focused on the import and export procedures, the transportation from Finland to Vietnam and the domestic distribution in local market.

4.1 Export procedures

Apparently export, the performance of cross-border selling, appears not to have so many differences in comparison with domestic trade. In both cases, merchandise or services are sold by sellers and bought by buyers on the basis of bilateral sales contracts. Before engaging in this kind of cross-border selling activity, parties should take into account some principal characteristic of export particularities:

- Firstly special arrangements are obligatory in export contracts which are abundant when trading domestically
- Secondly, there is no common currency used when exporting merchandise into countries which do not belong to the European Monetary Union (EMU). Hence, costs, agreed prices and payment methods should be stated clearly in the export contract
- Unlike domestic trading, export activities regularly involve foreign languages, which to some extent; create difficulties in market research and contract negotiations.
- Exporters have to face diverse business cultures. As a result, questions of warranty and product liability may arise among foreign customers

- Export business has more frequencies to be influenced by politics than domestic trading.

For all the reason, export performance requires much more specific documents to be provided including the import contract. In a case of conflict, they are the contract and those documents which will give much help for settlement. (Grafers and Schlich 2006, 34-36).

According to Ramberg (2008), exporters use a number of documents to handle their transactions as well as to record their business activities. From the business point of view, some types of document consisting of insurance papers, shipping documents, customs clearing documents and commercial invoice should be taken into consideration when engaging in the cross-border selling activity.

- Insurance papers

In foreign trade, coverage of the insurance is available for every risk for machinery loss and business interruption. Two types of insurance are transport and credit insurance. Transport insurance covers all kinds of carriage by rail, road, river, canal, lake, sea, or air whilst credit insurance covers economic export related risks.

- Shipping documents

Shipping documents provide data of delivery performance during each and every step of the activity. There are five types of shipping documents:

- Forwarding Advice: notifying the goods to be ready for shipment
- Warehouse Warrant: evidencing the storage of the goods in a warehouse
- Consignment Note: evidencing shipment of the goods by the respective means of transport like rail, road or waybill
- Bill of Lading: evidencing loading of the goods on an ocean vessel
- Certificate of Arrival: evidencing the arrival of the goods at the port of destination

(Ramberg 2008, 113-116)

According to Grafers and Schlich (2006), if a consignment note or a bill of lading cannot be issued because the routes are blocked or adequate means of transport are not available or the foreign customer agreed to collect the goods by his own means of transport but fails to do so. The exporter may require a forwarding agent or a warehouse-keeper to take the goods in his custody until shipment can be effected. The agent will issue a Forwarding Certificate of Receipt. (FCR)

- Customs clearing documents

This kind of document is required by both export country as well as the import country. Only after when the document has been submitted to the authorities is the export process officially commenced.

- Export permit

A government export permit is obligatory .The exporter has to apply for the permit at his national government.

- Certificate of origin

- Certificate of origin: issued or at least endorsed by a chamber of commerce or an adequately authorized trade association
- Movement certificate: issued by the exporter, certifying that the goods have been produced within the European Union or in a country associated to the EU.

- Commercial invoice

Commercial invoice is made out by the exporter and have to be signed by the exporter as well, including:

- Parties' names and addresses
- Quantities and prices of supplies as well the total amount due
- Means of transport of deliveries, including name and voyage of ocean vessel
- Details of packaging as well as marking and labeling of packages
- Exporter's bank account

(Grafers and Schlich 2006, 124-125)

On the whole, foreign trade documents create a difficult bureaucratic environment.

4.2 Import procedures

In order to import medical equipment into Vietnam, a trading company owning an import license is needed. At the present time, any kinds of business organization including foreign-invested enterprises already registered for legal business licenses, have the exclusive right to engage in direct import and export activities. However, not all types of medical equipment can be trade into Vietnam. According to the decree 11/1999/ND-CP issued in March 3, 1999, the list of medical equipment importation has been narrowed down. A further list of banned medical equipment is also stated more clearly in the decision 088/2000/QD/BTM issued in February 18, 2000.

According to the Government's Circular 05/2000/TT-BTM issued in February 21, 2000, each and every year, the Ministry of Health, together with the Ministry of Trade will issue a list of important equipment must be updated, registered and purchased to support for the healthcare systems. X-ray equipment was stated in Decision 242/1999/QD/TTg issued in December 30, 1999 as one in the list of necessary equipment.

When carrying out customs procedures for importing goods, the importer have to submit and present a customs dossier at the headquarters of Customs Sub-branch. Imported goods are subjected to customs declaration within 30 days from the date of arrival at the check point. The declaration form must be made on three copies issued by the General Department of Customs.

- Clearance Process

A valuation declaration for imports must be attached to the customs declaration for imports. A copy of the commercial invoice must be attached to the customs declaration, and must include the following information:

- Seller's and Buyer's name and address.
- Date of the invoice.

- Identifying marks, the numbers, quantities, types and the gross weight of packages, including unit of measures.
- Description and quantity of the goods.
- Value of each item.
- Terms of delivery and payment.
- Certificates of Origin

- Import Licenses

Importers apply for import licenses with the National board of Customs. A commercial invoice that includes freight and insurance, net and gross weight, and an invoice number must accompany the license application.

- Commercial Invoices

Commercial invoices should show freight, insurance and similar charges as separate items when applicable, regardless of the Incoterm used on the transaction. It can be in any official language for import shipments and, if required by customs, must be accompanied by a translation.

- Customs Valuation

All goods categorized, as non-document commercial goods shipped to Vietnam must have a proper value declared and proper description provided which should convey the shipper's intent related to the goods as well as any special processing requirements that exist for the goods shipped.

- Import Taxes

Generally, import tax on medical equipment varies from 0 percent to 5 percent. Moreover, it is subjected to a value added tax (VAT) also. VAT became effective since January 1, 1999. Since then, it has been imposed on goods and services purchased in Vietnam. The standard value added tax on medical equipment is 5 percent for the whole machine and for a spare part is 10 percent.

- Labeling, Marking Requirements

Country of origin is marked in any official language, preferably in Vietnamese.
(Official website of Vietnam customs office)

In general, it takes about two or three week to fulfill all procedures for importing medical equipment and, normally; there should not have any major difficulties during the process.

4.3 Transportation from Finland to Vietnam

The main part of logistics management is goods transportation process from Finland to Vietnam. This sub-chapter consists of chosen transport mode, packaging, Incoterms, freight forwarder and transport costs.

4.3.1 Choosing transport mode

Choosing modes of transport is a fundamental part of transport systems which are used and deployed in different areas of the world. Each mode of transport has its own characteristics which aim to serve the specific demands. There are four basic transport modes including rail, road, sea and air. A general analysis of transport modes demonstrates that each has key operational and commercial advantage. Modal choice is derived by comparing the available modes and selecting the one that meets requirements the best. With a view to putting forward modal choices, the characteristics and costs of each transport mode are revealed in table 1 and table 2.

TABLE 1 – Characteristics of each transport mode (Taylor and Francis, 2007, 82)

Mode	Rail	Road	Sea	Air
Distance	Long/ Short	Short	Long	Long
Time	Fast	Fast	Slow	Fast
Volume	Large	Large/ Small	Large	Small
Typical mean(s) of transport	Train	Truck/ Van	Vessel	Aircraft
Infrastructure	<ul style="list-style-type: none"> • Tracks • Terminals 	<ul style="list-style-type: none"> • Highways 	<ul style="list-style-type: none"> • Harbors • Infrastructure • Fairways/ Routes 	<ul style="list-style-type: none"> • Airport • Handling/ Cargo Systems

TABLE 2 – Cost structure for each transport mode (Bowersox et al 2010, 209.)

Mode	Rail	Road	Sea	Air
Fixed cost	High (Equipment, terminals, tracks, etc.)	Low (highways in place)	Medium (ships, equipment)	Low (aircraft, handling and cargo systems)
Variable cost	Low	Medium (fuel, maintenance, etc.)	Low (capability for large amount)	High (fuel, labors, maintenance, etc.)

The choice of transport mode is an essential component of logistics management, which has influence on the project's operational efficiency. In order to identify the most appropriate transport mode, all the factors should be analyzed carefully to avoid failure which may incur higher costs. The decision upon the choice of the transport mode is associated with several factors such as distance, time, product dimensions, and handling, as well as liability and market factors. Table 3 is a description of those factors and their real case of Minray product.

TABLE 3 – Factors of choosing transport mode

Factors	Minray product
Distance	Long (from Finland to Vietnam)
Time	Fast
Product dimensions	Weight: 20 kg Package size: 650 mm x 1175 mm x 350 mm (0,27m3) Storage temperature: 0...+ 50°C (+ 32 ...+ 122 F)
Handling	Need for loading and unloading Specific boxes (from Soredex Oy)
Liability	Breakable Noncombustible and non-explosive Value per weight: 500 EUR
Market factors	Lane volume and balance Imbalance causes different rates for the same distance

Due to the product's characteristics and shipping requirements, the mode of air transport is selected to deliver Minray products from Finland to Vietnam. The air transport is the optimal choice that mostly satisfies the requirements by offering a

wide range of advantages such as fast and safe for long-distance deliveries (between 24 and 48 hours), easy for order fulfillment, as well as reducing lead time and improving service levels. However, some disadvantages concerned are flight delays or cancellations, customs and excise restrictions, inflexible timetables, airport taxes and higher costs.

4.3.2 Packaging

Packaging is an integral part of the transportation. Nowadays, product's packaging is generally determined for product protection which is the pertinent function of logistics. In addition to the product protection, the design of packaging also has implications for other functions such as promotion and quantity management. For the purpose of logistics control, packages should be secure, easy to handle and readily identifiable. Packages are frequently designed in cubic shape than cylindrical shape to store in available space. The following are some factors which need to be considered when designing packaging for logistics purposes:

- Choosing the most appropriate packing materials
There are several different types of packing material which might be used depending on the transport requirements. Some typical types of packaging materials are bag, bale, pallet, parcel, container, crate and cardboard box.
- Consolidating small packages into one large consignment is to enhance protection and to reduce delivery costs.
- Positioning and arrangement of the packages when shipping.
- Securing the products within the outer packaging by using filling material such as ESD (Electro Static Discharge) foam, sponge rubber, foam rubber, etc.

(Bardi, Coyle and Novack 2006, 154)

The manufacturer holds ultimately accountable for packaging Minray products. According to a general indefiniteness of INCOTERMS, Soredex Oy, as an exporter, has "to procure adequately to protect the goods against loss or damage during

carriage” (Grafers and Schlich 2005, 183.) When selling or distributing the products of Soredex Oy in the global market, the cost of packaging is typically covered in the selling price. A Minray unit is packed in a cardboard box with tri-wall design, special inner fitting and protective foam rubber. The lightweight cardboard box is suitable for airfreight since the total weight of the package is not much increased. The tri-wall design can protect the goods against the adverse environmental conditions and obtain a stronger box. The inner fitting and protective foam rubber keep the product in a fixed position in order to eliminate the rate of damage. The figure 11 and 12 show the tri-wall design and the foam rubber while the table 4 presents the figures of cardboard box.



FIGURE 11 – Design of tri-wall box (www.thepackagingstore.co.uk)



FIGURE 12 - Foam rubber (www.nefab.ro)

TABLE 4 – Figures of cardboard box (Official website of Soredex Oy)

Base dims	650 mm x 1175 mm
Height	350 mm
Internal dims	580 mm x 1100 mm x 300 mm
Volume	0,27 m ³
Loadable	In the lower desk in all wide body aircraft and on trucks.

4.3.3 Incoterms

Incoterms are international commercial terms, which include thirteen trade terms accepted worldwide. Published by International Chamber of Commerce (ICC), Incoterms are broadly used in international transactions to provide a set of rules, which helps traders in different countries understand one another. Incoterms are divided into four groups: E-terms, F-terms, C-terms and D-terms. These four groups are generally described in table 5.

TABLE 5 – Four groups of Incoterms (Chopra 2007, 76)

Group	Terms	Description
E	EXW	The seller only makes the goods available to the buyer at the seller's own premises.
F	FCA, FAS, FOB	The seller is called upon to deliver the goods to a carrier appointed by the buyer.
C	CPT, CIP, CFR, CIF	The seller has to contract for carriage, but without assuming the risk of loss or damage to the goods or additional costs due to events occurring after shipment and dispatch.
D	DAF, DES, DEQ, DDU, DDP	The seller has to bear all costs and risks needed to bring the goods to the place of destination

There are a number of factors which should be considered when choosing Incoterms. These include: regulations of the importer's country, mode of transport, obligations of two parties, related risks and freight forwarder. These factors are applied in the real case of this project to choose the most appropriate term. (Chopra 2007, 76).

- Regulations of Vietnam

For the purpose of gaining benefit from the importing industry for local shipping markets, several countries have regulations or recommendations of Incoterms to be used to transport goods to their countries. However, the trade policy of Vietnam is to impulse and to facilitate the import and export business, thus regulations for import and export are not very stringent. Moreover, all four modes of transport are widely used in Vietnam which makes no limitation for Incoterms to be used. (Speece 2003, 63).

- Mode of transport

As presented above, the chosen transport mode is airfreight. There are six terms which can be used regarding airfreight: EXW, FCA, CPT, CIP, DDU and DDP.

- Obligations of two parties

When exporting products to other countries, Soredex Oy regularly used the C-terms or D-terms in which they contract for carriage to transport goods to the agreed destination. However, the buyer is responsible for the import clearance, entry duties and taxes, and transporting to the final destination. (Interview with Ms. Holkko, 2009).

- Risks and insurance

The buyer wish not to bear the risks and insurance involved in the transportation. In case of loss or damage, the importer is under the risk of late delivery to the end consumer. To avoid this risk, the seller can send another cargo in case of loss or damage and then claim for insurance. (Interview with Ms. Tran, 2009).

- Freight forwarder

Nowadays, the freight forwarder is commonly used in business sector to transport goods across the borders. The main reason for this is to reduce the difficulties for both parties. Because of transporting goods from Finland, a Finnish freight forwarder is essentially nominated by the seller to undertake the performance of transport. The freight forwarder is presented in details in the next section.

According to four factors analyzed above, the most appropriate Incoterms for this real case is DDU. According to Incoterms 2000, the term DDU (Delivered Duty Unpaid) means that the seller delivers the goods to the buyer, not cleared for import and not unloaded from arriving means of transport, at the named place of destination. The “named place” is agreed to be Noibai airport in Hanoi, Vietnam. The transport process can be described in figure 13 and obligations of both sides are shown in table 6.

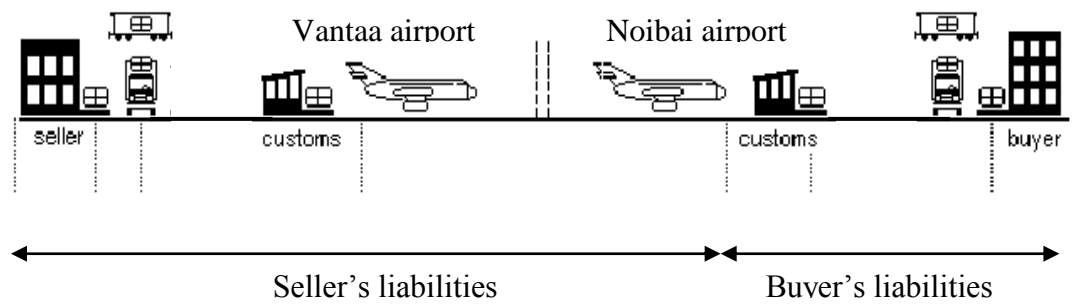


FIGURE 13 – Seller's and Buyer's liabilities in DDU term.

TABLE 6 – Seller's and buyer's obligations in DDU term

Obligations	Seller	Buyer
Licenses and Documentations	<ul style="list-style-type: none"> - Customs requirements for export, export clearance and duty payment - Bill of lading; Certificate of origin; Packing note; Insurance. 	<ul style="list-style-type: none"> - Customs requirements for import, import clearance and entry duties and taxes
Contracts of carriage	Contract at own expense for carriage and freight forwarder to Noibai airport.	No obligation.
Delivery	<ul style="list-style-type: none"> - Delivery from premises to Vantaa airport - Transport from Vantaa airport to Noibai airport 	Delivery from Noibai airport to warehouse
Transfer of risks	Risk transfer from the seller to the buyer when the goods have been delivered to the buyer at Noibai airport.	
Transfer of costs	Cost transfer from the seller to the buyer when the goods have been delivered to the buyer at Noibai airport.	

To sum up, in terms of DDU, the seller is responsible for the goods until they reach Noibai airport and enter the buyer's possession. The carrier plays an important role in DDU as he is on the seller's behalf to undertake the goods during transportation.

4.3.4 Freight forwarder

In the logistics process, all documentation must be completed before the delivery. However, in some cases, delays can occur because of incorrect or inadequate documentation, which leads to additional cost and loss of business. In order to avoid these delays, the services of freight forwarders are widely used to deal with the complications of import and export documentation. A freight forwarder can be known as an intermediate who acts on behalf of the seller in DDU term. Having detailed knowledge about transportation and import-export regulations, a freight forwarder provides the safe and efficient transportation of goods with cost effectiveness. (Bardi 2006, 104)

When choosing a freight forwarder, the most important criteria are the reputation and the experience of the freight forwarding company relevant to the specific demands. In this case, the chosen freight forwarder should have considerable experience in transporting medical equipment to countries outside Europe. Moreover, the services provided and the costs should also be considered. To transport the products abroad, Soredex Oy frequently uses two reliable freight forwarding companies which are Airport Travel Cargo Finland Oy Ab and DHL Global Forwarding (Finland) Oy. However, Travel Cargo Oy mainly delivers goods inside the European countries, while DHL is one of the most famous freight forwarders worldwide. Moreover, DHL provides a wide range of services including online tracking the shipment, easy contact and comprehensive insurance. For those reasons, DHL should be chosen to be the freight forwarder to transport the products from Finland to Vietnam. Within the air freight services provided by DHL, Air Premium is the most appropriate service which combines price and time consideration. The shipment is guaranteed to arrive within three days at the airport. (Interview with Mr. Sandholm, 2009).

In this case, the obligations of the freight forwarder include:

- Planning the most appropriate route and clear transit time for the shipment: the transshipment is at Bangkok airport, Thailand (see Figure 14).
- Negotiating contracts, transportation and handling costs.
- Ensuring secure solutions and managing the risks.
- Booking space with the carriers and dealing with special arrangements for transporting the medical equipment.
- Checking the shipping documents: commercial invoices, export declaration, bill of lading and other documents required by the country of export and transshipment.
- Collecting the goods from the supplier at the agreed time.
- Loading and unloading: Loading to aircraft at Vantaa airport; Unloading and loading at port of transshipment (if needed);
- Arranging payments and/or other charges on behalf of the exporter.
- Re-sealing the package to the highest standards in case the shipment is opened for inspection by security authorities while in transshipment.
- Arranging insurance and assisting the client in case of a claim.

(Bardi 2006, 126)



FIGURE 14 – Route of shipment.

From the viewpoint of the traders, freight forwarders nowadays play an important part in transporting goods across the borders. Within the scope of this project, the decision of choosing a freight forwarder and type of air service is a key feature of the transportation, which has a considerable influence on the success of the whole project.

4.3.5 Cost of transport and warehouse

For the reason that the value of this dental equipment is relatively high, Meditronic Company can hardly bear the cost of equipment inventories. The company purchases equipment to resell to end-users after receiving orders and deposits. This is a common practice and the down payment ranges from 20 to 30 percent of the contract value. Final payment can be made when the equipment is successfully

installed and operates in good working condition. Therefore, there is no cost of warehouse. (Interview with Ms. Tran, 2009).

The cost of transport generally depends upon the distance between the departure and destination, the chosen mode of transport, the size and quantity of the goods to be shipped. In this project, depending on consumer's orders, a number of packages are transported from Finland to Vietnam by air freight. A large number of packages per delivery can reduce the total cost of shipment. In general, the cost of transport is the sum of five categories as packaging cost, delivery cost from premises, air freight cost, insurance and cost for freight forwarder. Moreover, there can be additional costs occurred during the shipment. (Zekos 2000, 11).

The transport insurance is typically a cargo insurance which covers goods in shipment via all means of transport. This insurance covers accidental loss, damages and other specified risks such as theft and negligence. The paid insurance accounts for 0.4 percent of the basic price. (Interview with Ms. Tran, 2009).

The cost to transport per unit is calculated to be EUR 600, which occupies about 6.5 percent of the basic price. Therefore, the purchase price is EUR 9,600 per unit, which includes the basic price and transport cost.

4.4 Domestic delivery

After being transported from Finland to Vietnam, the products are directly delivered to the end users. In case the products proceed to be delivered in the following day, they are kept overnight in the company's office. Because of domestic distribution, trucks are mostly used to transport goods to the final destinations. This subsection focuses on identifying the main areas and the major modes of delivery.

4.4.1 Areas of delivery

As mentioned in the third chapter, two major markets for dental product in Vietnam, which represent 80 percent of the total market, are Hanoi and Ho Chi Minh City. In addition, the entire dental care centers and private clinics mostly gather in big cities such as Hai Phong, Da Nang, Hue and Nha Trang. Depending on the geographical distance, there are two main areas with different modes of delivery as follow:

- Hanoi, Hai Phong and Northern provinces: Goods are delivered to the final destinations by company's own truck.
- Cities and provinces in the South and the Middle of Vietnam: Goods are transported to the nearest cities by air freight then delivered to the final destinations by rent trucks.

The routes of air transport from Hanoi to four big cities (Ho Chi Minh City, Da Nang, Hue and Nha Trang) are illustrated in figure 15.



FIGURE 15 – Air routes from Hanoi to four big cities.

4.4.2 Major modes of delivery

As discussed above, air transport and road transport are mainly used to deliver goods domestically. Road transport is the most popular mode of transport in land which is uniquely capable of offering door to door service. Some specific advantages of road transport are cost effectiveness, fast delivery, ideal for short-distances and privacy. In spite of objective conditions such as the weather and the congested traffic on roads and highways, the road transport is still most commonly used in practice today. There are three transport cost categories and their components in road transportation which are presented in table 7.

TABLE 7 – Three categories of road transport costs (Oksanen 2004, 60-63.)

1. Transport labor costs	
These costs are accumulated through personnel carrying out the transport services. These consist of salaries and other benefits paid out.	<ul style="list-style-type: none"> • Drivers' salaries • Direct salary expenses • Other fringe benefits (lunch, travelling and accommodation)
2. Transport equipment costs	
<ul style="list-style-type: none"> • Fixed costs <p>These costs are allocated to equipment either directly or indirectly and are not dependent on the short-term activity level of the equipment.</p> <ul style="list-style-type: none"> • Variable costs <p>These costs accumulate through the usage of the equipment and directly or indirectly relate to the activity level of the equipment.</p>	<ul style="list-style-type: none"> • Depreciation and interest of assets • Insurance costs (traffic, vehicle and trailer) • Traffic fees (vehicle taxes, permits and other expenditure paid to official bodies) • Maintenance expenses (storage and washing of vehicles) • Vehicle administration fees • Fuel expenses • Repair and service of vehicles • Tyre expenses
3. Channel costs	
These costs accumulate through the usage of transport infrastructure and systems (some only affect road transportation when combined transport systems are used)	<ul style="list-style-type: none"> • Road, toll, customs, tunnel fees • Railway • Port, vessel and channel fees etc

The company's own truck is used to deliver the goods from Noibai airport to the company's office or to the nearby customer's places on the same day. Regarding

to the customer's places in the Northern provinces of Vietnam, the products are delivered to the final destinations within two working days. The packages are delivered by truck, loaded and unloaded by truck driver who is a company's employee. In addition, two technicians are appointed to accompany on the trip in order to manage the delivery and to install the equipment in customer's place.

To deliver the goods to cities and provinces in the Middle or the South of Vietnam, both air and road transport are used. After arriving at Noibai airport, the package is forwarded by air cargo to the nearest airport of the final destination. The company's technicians receive the goods at the port of destination and manage the delivery to customer's places afterward. In order to deliver the product from airport to the final destination, a truck is rented from Truong An company, who is a reliable transportation company in Vietnam and has a long-term partnership with Meditronic Company. The loading and unloading are under the supervision of company's employees.

The road transport insurance is paid to cover the goods against the risks of accidental loss and damage. The cost of domestic delivery is not included in the selling price. According to three categories of road transport costs in table 7, the price of delivery within Hanoi and Northern provinces is calculated to be EUR 100. The delivery price to Middle and Southern provinces is EUR 200, which includes the costs of air freight and truck delivery.

To sum up, this chapter aims at planning and controlling the transportation process for the purpose of practical effectiveness of the project.

5 MARKETING AND MANAGEMENT STRATEGIES

Within the scope of this chapter, the theory of marketing is revised in order to outline a framework for applying in the real life. Afterwards, some key theories related to business management are also explored. Four subsections of the chapter are the marketing mix, after sales services, sales target and risk management.

5.1 Marketing Mix

“Marketing is about satisfying consumers’ needs and wants” (Kotler 2009, 74.)

Since the last century, marketing has been widely known as an integrated process of analyzing, planning, executing and supervising all the business sectors, by which companies create, communicate and deliver values to their chosen customer segments. Marketing is used to advertise products and services to customers, to satisfy their needs and to build strong customer relationships in the long run. Up till now, marketing has become one of the major parts of business management.

Marketing comes in a number of forms, so it is classified as marketing mix which is made to impact on trade channels and potential customers. The concept of marketing mix consists of four Ps namely Product, Price, Promotion and Place. The 4Ps of marketing mix and their components are described in table 8.

TABLE 8 – 4Ps of Marketing Mix (Kotler and Amstrong, 2004, 86.)

Product	Price	Promotion	Place
Product variety	List price	Sales promotion	Channels
Quality	Discounts	Advertising	Coverage
Design	Allowances	Sales force	Assortment
Brand name	Payment period	Public relations	Locations
Packaging	Credit terms	Direct marketing	Inventory
Sizes			Transport
Services			
Warranties			
Returns			

In recent years, in order to recognize the different components of marketing, a further three Ps has been added to marketing mix to make a range of Seven Ps. Three other aspects are People, Process and Physical. However, in the marketing plan of Minray products, only the first four Ps are taken to be analyzed as key aspects of marketing mix.

5.1.1 Product

“Broadly, a product is anything that can be offered to a market to satisfy a want or need” (Kotler 2009, 358.)

As acknowledged, a product is any combination of goods and services that can offer benefits for the customers and satisfy their needs. Hence, products can be grouped as tangible or intangible goods purchased in the market. Typically, a product can be presented as three fundamental levels: core, actual, and augmented. However, in the latest concepts of marketing management, a product is categorized into five levels, which are so called the customer value hierarchy.

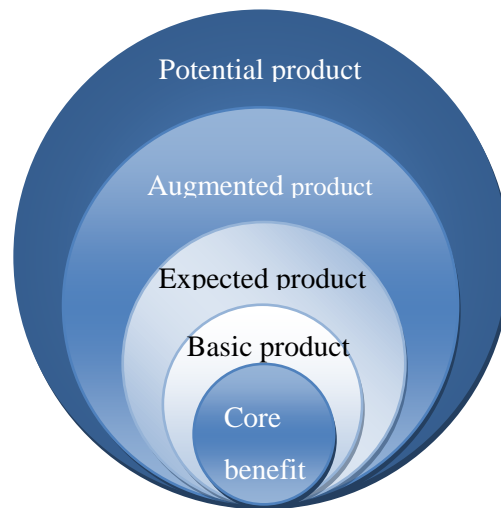


FIGURE 16 – Product levels: The customer value hierarchy (Kotler 2009, 358.)

The most basic level is the core product, which is the benefit of the product that the consumer actually purchases. At the second level stands the basic product, which consists of all the features like other similar products. The expected product is the third level which is a set of attributes and conditions which fulfills the customers' minimum expectations. The basic product and the expected product are built around the core product and involve some components such as the trademark, features, packaging, design and quality, to provide the benefits that customers look for at the first level. The fourth or the augmented level of a product includes all the elements that provide additional services and benefits to exceed the customers' expectations. Finally, the potential product encompasses all the possible development of the product in the future. (Kotler 2009, 359)

Due to the customer value hierarchy above, the Minray products can be divided into five levels as follows:

- Core benefit: Diagnostic of dental problems by x-ray technology.
- Basic product: X-ray system, operating controls.
- Expected product: X-ray system of high quality and new applied technology, the well-designed tubehead handle, the user-friendly control panel and the extendable horizontal arm system.

- Augmented product: good sales channels and after-sales services, follow-up technical assistance, warranties and guaranties.
- Potential product: advertisement, VIP- benefits, film sensor product ...

An essential issue in marketing management is product positioning, which is to position the product to a special place in the market in relation to the competitors. The Minray product has a unique selling advantage in dental equipments market of Vietnam, which is shown in figure 17.

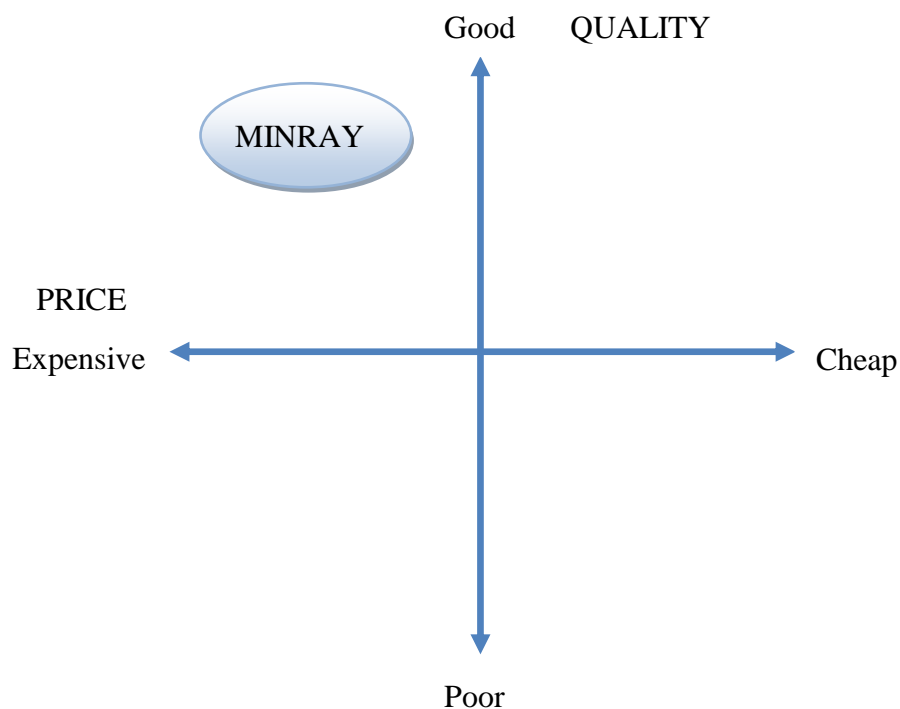


FIGURE 17 – Market position of Minray product

5.1.2 Pricing

The second component of the marketing mix is price. Price can be simply known as the amount of money that buyers are willing to pay for a product to purchase its benefit. Pricing is extremely important to the companies as it is the only part of the marketing mix that brings in revenue. When it comes to handling pricing, a direct

influence on the positioning of a product and the profitability of the company arises. Thus, setting a price is considered as one of the most difficult decisions in business. (Doole and Lowe 2004, 69)

When entering the market, it is necessary for a new product to be set at the right price level in order to gain its competitiveness. Setting the price requires the use of different pricing policies. According to Hansen and Mowen (2006), three basic options frequently applied are: market skimming pricing, market penetration pricing and average pricing. The market penetration pricing is popularly used for new products as it establishes low price strategy for the purpose of attracting a large amount of buyers and gaining a large market share. On the contrary, a market skimming pricing uses the high price strategy which aims at the maximum revenues and profitable sales to recover the cost of a new product development. Another policy is average pricing which establishes medium price level according to the competitors in the market (Hansen and Mowen 2006, 54). For technical products with high development costs as computers or medical products, the market skimming pricing is frequently used to build the market share rapidly. This pricing policy is effective under the condition of high current demands, but it risks a possible attraction of more competitors to the market. The Minray dental equipment is a new product in Vietnam's market, which possesses some key factors such as high demand, famous brand name, high quality and technique. Therefore, using the market skimming policy is an optimal pricing strategy for Minray product when entering Vietnam's market. Moreover, a high price can present the image of a superior product among others in the market.

Besides the pricing policies, the pricing strategies have taken several different variables. Basically, the pricing strategy is established according to the business objectives which contain four main forms: profitability, volume, meeting the competition, and prestige (Weetman 2006, 134). With the objective of becoming an exclusive agent of Soredex in Vietnam, Meditronic Company sets the goals of maximizing the sales volume of Minray product in the first years. Thus, the volume pricing strategy is used in this project to focus the sales volume rather than on the profits.

In addition, a product's price is determined by four key factors: cost, demand, competition and image. A right price should cover the costs which are associated with the product and the operating expenses, as well as ensuring a reasonable profit for the company in a long term. The costs of manufacturing the product include the costs paid in the production and the shipping or delivering expenses. The operating expenses consist of overhead, payroll, marketing and office supplies. The next factors of the price decision are demand and competition. The product's price has a direct influence on the sales volumes, total revenue and product positioning in the market. A low price may help to sell more but it may not essentially increase the sales revenue. Last but not least, the pricing strategy, as a marketing tool, communicates an image of the product in the market. A high price product is likely to assume the outstanding goods in comparison with other competitors. (Weetman 2006, 147-153).

When setting the price for the Minray product, the four key factors and the manufacturer's suggested retail price are all considered.

- The purchase price of the Minray product is EUR 9,600 which includes basic price and shipping cost. As the usual mark-up on medical electronic equipments is about 30%, the estimated in bond price of the Minray product is EUR 13,700.
- The Import Duty is 0% and the VAT is 5%, thus the duty-paid price (selling price) is EUR 14,400.

The mark-up includes the operating expenses, after sales services and profit. The domestic delivery is not included. In comparison with competitors, the price of Minray product is relatively high, which is compatible with the chosen market skimming policy. Together with the high quality, the high price places a special positioning and a superior image of Minray product in the market. Typically, a high price may reduce the sales volume of a product. However, to medical products, a large segment of consumers does not give much attention to the prices. The

outstanding quality and reliable brand name are considered as two key factors helping customers to make their final purchasing decision.

5.1.3 Place

As the third element of marketing mix, place (or placement) specifies how and where products are sold. These decisions are associated with the channels of distribution which includes market coverage, channel member selection, logistics, and levels of service. In addition, the importance of the Eight R's rule which is the state of having the right product, in the right condition, the right quantity purchased by right customers, at the right time, in the right place, with the right costs and the right documents taken into careful consideration as well. (Rushton 2000, 28)

Channels of distribution can be known as means through which the products are transferred to target consumers. The distribution system carries out transactional, logistical, and facilitating functions. There are two major methods of distribution channels which are conventional distribution and vertical marketing system. In the aspect of conventional distribution channel, there can be one or several independent manufacturers, wholesalers, and retailers in a channel. The term "cumulative length" defines the number of different middlemen involved in the channel. The direct distribution means that the product is sold directly from producers to the end users, while the indirect distribution involves distributing the product through middlemen. Contrary to the conventional distribution channel, the vertical marketing system requires that manufacturers, wholesalers, and retailers to work together in order to avoid conflicts. (Rushton 2000, 41- 49)

Another issue of distribution strategies is the level of product distribution. Depending on the type of products, the manufacturers can select from one of three available levels of distribution: intensive, selective, or exclusive. Intensive distribution is commonly used when manufacturers distribute their products, which are mostly at low price, through all wholesalers or retailers. Selective distribution occurs when manufacturers choose a limited number of retail outlets to distribute

their products. The products involved in selective distribution are typically computers, televisions and other household appliances. Under exclusive distribution, only a single outlet in a specific geographic area is allowed to sell the products from the manufactures. These products are frequently the high-tech and high priced equipment. (Chopra 2007, 58)

Soredex Oy, a big manufacturer in dental equipment field, distributes their products worldwide. Because of the high-tech products, Soredex Oy adopts the selective and exclusive distribution strategy. In a specific area, only one or a limited number of local retailers are selected to sell their products. After a few years entering the local market, one of their retailers is chosen to become the exclusive agent who has the exclusive right to allocate Soredex's products in the local market. Normally, the manufacturer decides to select retailers who are reliable and famous to the target consumers, as well as experienced in handling the similar products in the market. (Interview with Mr. Sandholm, 2009)

Meditronic Company takes a commission to be the selective distributor of Soredex's Minray product. To become the exclusive agent of Soredex in Vietnam's market, Meditronic Company need to complete the agreed sales target between two sides. As a retailer, the company sets the final selling price for the products and sells them directly to the final consumers. The company also promotes and mechanizes the products and services, as well as maintains the long term relationship with the consumers.

5.1.4 Promotion

Last but not least, the fourth P of marketing mix is Promotion. Promotion is a communication process which includes all available tools to communicate and to sell products to target consumers. A promotion plan plays a significant role in running a business as it keeps maintaining sales revenue, informing of the product and communicating the potential customers. Generally, promotion is divided into two parts: above the line promotion, which means promotion in the media, and

below the line promotion, which refers to all other types of promotion. (Doole and Lowe 2004, 94)

In the promotion strategy, there are four basic tools which create the promotional mix. A promotional mix specifies how much money and attention should pay to each of the four aspects. These four aspects are Advertising, Personal Selling, Public Relations and Sales Promotion; each of them has its own unique characteristic and functions.

- Advertising

According to Kotler and Armstrong (2004), advertising is defined as any paid form of non-personal presentation and promotion of ideas, goods or services by an identifiable sponsor. The purpose of advertising is to gain attention and create awareness among the potential customers towards products and services. There are four main categories of advertising, which include media advertising (on magazines, newspapers, internet, traffic and televisions), direct advertising (direct mail), and indoor-outdoor advertising (trade fairs and sponsorship advertising). Advertising can help to reach a large group of target consumers at a relatively low cost and to control messages sent to the market. However, there is no mutual contact between the sellers and the consumers which brings out difficulties in measuring the advertising results. (Kotler and Armstrong 2004, 228.)

- Personal Selling

Personal selling is the most expensive but effective tool of promotion. It can be seen as an information exchange process of helping and persuading the potential customers to purchase goods or services by using several methods such as sales presentations, sales meetings, samples, and telemarketing. Personal selling involves an interpersonal influence to manage customer relationships. The advantage of personal selling is that the salesmen can directly present the information to consumers and immediately receive their responses. The high cost and the dependence on the salesmen are two disadvantages of personal selling. (Kotler 2009, 397)

- Public Relations (PR)

The third promotional tool is PR. PR is a long term process which aims at establishing and maintaining knowledge, positive attitudes and strong relationships between an organization and its reference groups. In order to develop an image and a reputation towards the consumers and the market as a whole, organizations use a variety of effective PR tools such as press release, official communications, charitable contributions and seminars. All these activities generate positive goodwill for the company. (Verhoef 2003)

- Sales Promotion (SP)

According to Kotler (2004), sales promotions are short term activities to encourage consumers to buy more and to motivate sellers to sell more. There are three general tools of SP: consumer promotion, trade promotion, and business promotion. Consumer promotion tools include discounts and gifts for consumers such as: free samples, coupons, rebates, price packs, premiums, patronage reward, contests, sweepstakes and games. Trade promotion tools include direct discounts and allowances at retailers. Business promotion tools include conventions, exhibitions and trade shows. SP is an essential part of marketing mix because of its ample advantages over other marketing tools, such as creating product awareness, measuring its influence on the sales and increasing short term sales revenue. (Kotler 2009, 374.)

For the purpose of an effective promotion, the organization has to blend four tools of promotional mix together to form a unique and coherent marketing campaign. In the promotional plan of Minray product in Vietnam's market, Meditronic Company deeply concentrates on advertising and personal selling. Because the Minray product is typically purchased to be used in hospitals and clinics, the chosen advertising methods are trade fairs, exhibitions advertising and direct mail advertising. The trade fairs and exhibitions are good events for the company to maintain customer network and promote their products. Meditronic Company frequently attends the Medi-pharm fair, which is an annual activity of health sector hosted by the Ministry of Healthcare (MOH), in order to advertise new products and broaden their contacts with both traders and consumers. The main purpose of bringing Mi-

Minray sample product to the trade fair is to increase awareness of customers and to encourage their purchasing willingness. Another tool of advertising which can be used is direct mail. The direct mail is designed with a highly focused communication to potential consumers, existing customers as well as lapsed customers. A database of hospitals and clinics is used as the basis of the mail shot. An advertising mail is sent out to a selected group of dentists and experts nationwide and their responses are carefully monitored. In the personal selling strategy, a conference is held to introduce the product to a group of potential consumers in Vietnam. In this product presentation, a sample product is displayed and presented in detail by an expert from the producer. Moreover, a sales training is organized for the sales assistants. These salesmen act on behalf of the company to sell the products, so they tend to be well-trained for the techniques of personal selling. (Interview with Ms. Pham, 2009).

5.2 After-sales services

The after sales services make a valuable contribution to the marketing campaign as it strengthens customer satisfaction. These services can be defined as installation, consultation, periodic or required maintenance and repair for the equipment during the warranty period. The after sales services build up the company's reliability towards the consumers and indirectly increase the sales revenue (Solomon 2009). With the service tenet of advanced technology, reliable quality and excellent quality services, Meditronic Company offers the after sales services in ways of providing equipment installation, consultation, training, repair, maintenance, paying return visit, etc. The company has established a complete service control procedure document. For the sold products, record is established by the Customer Services Department. In the project of Minray product, the company provides a wide range of after sales services as follow:

- Warranty

A one- year warranty is applied to the Minray system.

- Training

Free training is offered to end users of the product. The training period includes familiarizing the users with the structure, performances and the theories of the products and providing them the knowledge of the product's operation.

- Installation

Technicians of the company are appointed to install the dental equipment in the hospitals or clinics depending on the consumer's requirements. The Minray product can be installed quickly and easily which allows more time to spend on demonstration. As the new X-ray product is installed, the technicians can take an immediate test and calibration of the equipment in the presence of users. Although the installers of dental X-ray equipment are not required to be registered with the MOH, they are required to install the equipment so that it meets MOH's regulatory requirements. All the X-ray equipment owned in Vietnam are required to be registered with the MOH, with the exception of X-ray equipment used for demonstration purposes or used in areas of exclusive jurisdiction (such as airport and military). Occasionally an inspection is conducted on behalf of the MOH to ensure that the currently installed X-ray equipment (within one year from the installation date) complies with the certification requirements. The MOH can take enforcement action to require the company and installers to correct the defect at no cost to the facility. (Official website of MOH).

- Maintenance and Repair

The company provides maintenance periodically every six months or according to the users' requirements. The purpose of preventative maintenance is to ensure that the equipment always performs efficiently and safely. These regular services can also minimize costly interruptions which help the users to save money and to operate at optimum efficiency. (Interview with Ms. Pham, 2009)

- Equipment Disposal/ Inactivation

The X-ray equipment may be taken out of service and placed in storage for several reasons such as:

- Equipment cannot be repaired or is too expensive to be repaired
- Does not meet certification requirements
- Replaced by a newer equipment

- Facility seeking disposal options

(Interview with Ms. Pham, 2009).

With a sufficient provision for installation, warranty, maintenance and repair, the after sales services are key factors to the long term customer relationship and the positive image of the company, as well as the profitability and survival of the project.

5.3 Sales target

Sales target is a particular issue of long term marketing management. Different from the short term marketing strategies, the long term marketing requires more planning and effort to increase profit and to boost sales, as well as to create a positive growth trend towards products. The critical element in accomplishing the goals for long term marketing which includes sales target is to properly balance efforts to maximize the benefits of marketing strategies. According to Blackwell (2004), the sales target is defined as a special amount of sales which is set to achieve or exceed within a specified timeframe. There are several elements which influence the decision to put up a sales target, such as the demand for products, the difference between current supply and demand in projected sales market and the total potential gross sales amount. In general, the target sales volume can be calculated as:

$$\text{Target Sales Volume} = \frac{\text{Fixed costs} + \text{Profit}}{\text{Unit contribution Margin}}$$

FIGURE 18 – Target sales formula (Blackwell, 2004, 32.)

The contribution margin per Minray unit, which is the excess of the unit selling price (EUR 14,400) over the unit variable cost (EUR 9,000) and VAT (EUR 700), is computed as EUR 4,700. While the fixed costs in one year, which include operating expenses and transport costs, are EUR 25,000 and the target profit in the first

year is EUR 20,000. According to the formula, the target sales volume of Minray product in the first year is calculated:

$$\text{Target sales volume} = \frac{25,000 + 20,000}{4,700} = 9.57 \text{ (units)}$$

Therefore, the target sales of Minray product can be set at 10 units in the first year.

According to Brealey (2009), sales forecasting is another area of management which is strongly related to sales target. While sales target is set to define and encourage sales effort, sales forecasting is created in order to help planning investments and launching the products. There are two main types of sales forecasting: macro forecasting, which concerned with the market demand forecasts and micro forecasting, which concerned with forecasting the unit sales volume. The decision about type of sales forecasting depends on some factors such as the degree of accuracy required, the availability of information, the time horizon and the position of the products in its life cycle (see figure 19). Considering those factors, the micro forecasting is selected in order to forecast the sales volume of Minray product in the second and third year, when the product is at the “growth” stage in its life cycle. Based on the information about the market growth as well as consumer’s attitudes and estimated future demand, the sales volume of Minray product is forecast to annually increase by 70 percent in two consecutive years, which means the sales volume can reach 17 units in the second year.

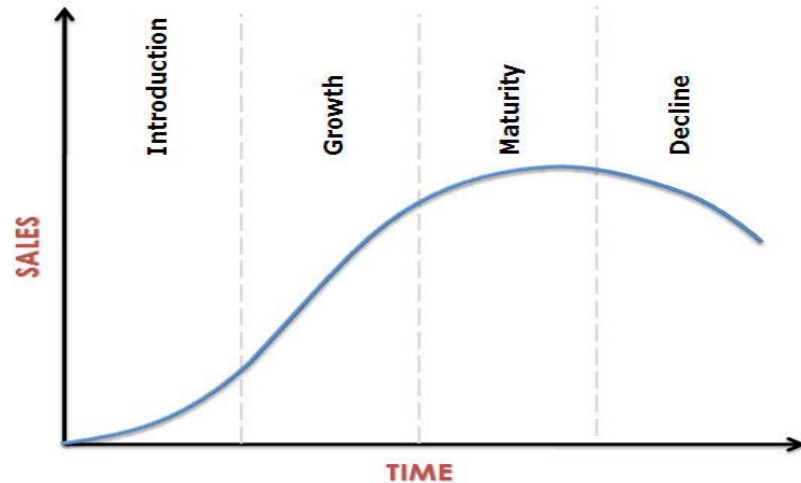


FIGURE 19– Standard product life cycle curve (Rushton, Oxley and Croucher, 2001, 96.)

5.4 Risk management

Risk management is one of the most important parts of any project plan. A risk is defined as "an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives" (PMBOK Guide 3rd edition, 373.) Thus, risk management is an analysis and planning for potential risks and their subsequent influences on the project. Nowadays, risk management is particularly vital for businesses as it aims at minimizing the adverse consequences of financial losses. Risk management involves identifying potential losses, analyzing the financial effects when losses arise, and taking steps to reduce or even eliminate the exposures to harmful situation. Some common risks such as theft, fire, flood and employee injuries, as well as more sophisticated exposures namely legal liabilities, environmental impairment and employment practices are taken into serious account in the very first stages of any projects. In addition, risk management has recently been expanded to involve financial risk management consisting of interest rates, foreign exchange rates, and E-commerce risks. (Hubbard 2009, 61)

Such losses and risks can affect the operation of the project, reduce the profit and result in finance hardship. The practice of risk management uses many techniques,

including insurance, to manage a variety of risks. There are two serious risks to the project of Minray product, which include the loss of goods during transport and the influence of economic crisis. To solve the risk of losing products when transporting, the optimal solution is using the freight forwarder and loss insurance. This part is particularly presented in the Logistics management chapter. The private healthcare facilities and clinics are under a significant consequence of economic crisis, which calls to the reduction in investing equipment due to the decrease of financial resource. However, a big group of consumers in the project are large governmental funded specialized hospitals and clinics, who budget the capital expenditure for purchasing new products. Therefore, in terms of economic downturn risk, the sales revenue can be decreased but the project can still remain.

6 RECOMMENDATIONS

To conclude the study, some recommendations are stated in this chapter. The recommendations for the project of importing Minray product are drawn from summarizing the findings and analyzing their implications. This chapter is presented with three subheadings: forecast income statement, importing plan and SWOT analysis of the project.

6.1 Forecast income statement

A financial plan is an essential part of a project plan, which determines the affordability of the project to achieve its strategic goals. Basically, the financial plan consists of three financial statements, which are income statement, cash flow projection and balance sheet. In order to estimate the profitability of the project in the first two years, a forecast income statement is presented in this sub-chapter.

The income statement, which is also referred to as profit and loss statement, indicates how the revenue is transformed into the net income. This statement displays the revenues, as well as the costs, expenses and taxes charged against the revenues. By summarizing those financial data, the income statement specifies how much the company has profited from the business or that mount to losses during a particular period. For the purpose of preparing a financial statement for the project, all the costs of starting up the business are not taken into account. This forecast income statement is set up by gathering together some of the financial data from previous parts: cost of transport and warehouse (subsection 4.3.5), pricing (subsection 5.1.2) and sales target (sub-chapter 5.3).

The forecast statement for the first two years of the project is presented with the net sales (target sales at 10 units in the first year and at 17 units in the second year), costs of sales (purchase cost of products, transport cost and wages for employees), operating and administration expenses (cost of advertising and promotion, insurance, interest, managing director's salary, mailing and telephone costs,

etc.) and taxes. A detailed income statement for the project in the first two years is demonstrated in table 9.

TABLE 9 – Forecast income statement for the first two years.

Figures (EUR)	Year 1	Year 2
Net sales	144,000	244,800
Costs of sales	100,000	170,000
Gross margin	44,000	74,800
Operating expenses	17,000	23,000
Net profit before taxes	27,000	51,800
Taxes	7,000	11,900
Net profit	20,000	39,900

This forecast income statement aims at showing the profitability and financial performance of the project. As can be seen from this statement, the Minray project is a strategic plan for business growth and profit maximization. Provided that the sales volumes in the first two years reach the target, the company probably will become the exclusive agent for Soredex Oy in the local market.

6.2 Importing plan

With a view to launching the Minray product into Vietnam, Meditronic company has to pay attention to the importing plan in order to make the project feasible. The project is associated with substantial difficulties in identifying the most appropriate and economic choice of transportation. To figure out the optimal alternative option, a thorough know-how of transport systems and their modes is crucial.

Each transport mode possesses specific pros and cons. Consequently, utilizing a combination of different transport modes is of the essence for long-distance deliveries. In this study, intermodal transportation is applied to goods delivery from Finland to Vietnam as well as to domestic distribution.

- Transportation from Finland to Vietnam

Goods can also be transported from Finland to Vietnam by sea. However, in comparison with air transport, the mode of sea transport concerns some disadvantages which are unsuitable for dental products. The time delivery of sea transport is slow, while fast delivery is one of the most important requirements of this project. Moreover, road transport is positively the optimal choice to deliver goods from supplier's premises to the airport. As a result, air transport and road transport are both used in this case.

- Domestic delivery

To reach different final destinations, different modes of transport are utilized. For short-distance deliveries, trucks are mostly used as the best option because of cost effectiveness and fast delivery. For long-distance domestic deliveries, goods can basically be delivered by sea to the four main cities of destination (Ho Chi Minh City, Hue, Da Nang and Nha Trang). For the reason that Hanoi is not a seaport, the transportation by sea, if any, takes place at Haiphong port, which is about 100 km from Hanoi. Thus, the sea transport is an inappropriate option for the project. Alternatively, trains can be utilized to deliver goods from Hanoi to any province. However, the infrastructure of rail transport in Vietnam is in poor condition. In short, air transport can be considered as the optimal choice for long-distance domestic deliveries because of being fast, safe and easy to manage. Trucks are also used to deliver goods from airports to final destinations. In a nutshell, a combination of air transport and road transport is applied to domestic delivery of the project.

- Port of destination

Theoretically, goods can be transported from Finland directly to the nearest airport of final destinations. In fact, the two main international airports of Vietnam are located in Hanoi and Ho Chi Minh City. Other airports mentioned above are mostly used for domestic air transportation. Moreover, because Meditronic Company's location in Hanoi, the port of destination is Noibai airport, for reasons of goods management and time control.

The transportation process requires detailed and careful planning in order to be implemented effectively. The plan includes preparing infrastructures, routing, scheduling, contingency planning and other relevant issues. This planning is conducted and assessed by the project manager. According to circumstances, the transportation process may regularly change; therefore a backup plan and timely reaction are necessary to cope with unexpected situations. In addition, some other notes in the logistics process should be noticed:

- To avoid misunderstandings, consideration before signing the contract of sale.
- Adequate preparation of import licenses
- Plan for possible risks in transportation
- Notice to the supplier the time and the point of taking delivery at Noibai airport.
- Preparing the costs to be paid for any pre-shipment inspection, except when the inspection is mandated by the authorities of the exporter's country.

In summary, the intention of this sub-chapter is to provide some recommendations to the project manager about the importing plan and its relevant issues in the logistics process.

6.3 SWOT analysis of the project

To finish the recommendations and to evaluate the potential of the project in Vietnam's market, a SWOT analysis is presented. Thanks to this SWOT analysis, the manager can maximize its advantages while minimizing obstacles in order to conduct the project successfully.

TABLE 10 - SWOT analysis of the project.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Meditronic company has a good reputation and experience in importing, distributing and developing medical products in Vietnam's market • Available customer network • High quality and well-designed products • Good after-sales services • VAT at 5 percent and no Import Duty. • High demand • Up to 50 percent of the capital for purchasing products is government-funded • Good reputation of dental products from Finland. • Low risk of transport 	<ul style="list-style-type: none"> • High price • High costs of transportation • Late penetration to the market • The economic recession relatively affects the sources of capital • Stiff competition • Requirement of fast delivery.
Opportunities	Threats
<ul style="list-style-type: none"> • Steady growing demands • Product development • Replacement of conventional type of dental X-ray products 	<ul style="list-style-type: none"> • Strict regulations and complicated procedures • Economic downturn's influence on financing the project • Loss of goods during transportation

7 SUMMARY

The objective of this thesis is to provide an operational import plan for the client company, Meditronic centre. The study utilizes the mix of qualitative and quantitative methods, combined with both primary data and secondary data collection. In general, the thesis aims at giving an analysis of the dental equipment market and business environment in Vietnam, as well as planning a logistics and marketing process for the project.

The main theme of this thesis begins with a discussion about dental instruments and their global supplies in order to choose an appropriate type of dental equipment to penetrate Vietnam's market. Prior to the description of the Minray intra-oral X-ray product, an introduction of the manufacturer, Soredex Oy, is briefly presented. Generally, Minray dental equipment is a modern X-ray system using CR (computed radiography) technology. With smart design and advanced features, the Minray system is a potential product for Vietnam's market.

For the purpose of giving an overview about the local market environment and evaluating the project's potentiality, a market analysis is provided in chapter 3. The line of business is firstly introduced to indicate the company's target and to clarify the business field in which this project will operate. In understanding local demand, it is vital to understand market situation and needs. The market analysis is an important basis for building up the market development and marketing strategies.

The logistics management is subsequently demonstrated regarding the transportation process. With an aim towards studying import and export clearance in-depth, the import and export procedures are stated in the two first sub-chapters. Theories are applied parallel to the practice for transport planning. Firstly, modes of transport are under discussion. Due to their own characteristics, road transport and air transport are both utilized as an intermodal choice of transportation for this project. Secondly, with reference to Incoterms and factors of the real case, DDU

(Delivered Duty Unpaid) is selected to be the term of goods delivery from Finland to Vietnam. The obligations of the two parties are defined in the subsection. Lastly, on the supplier's side, a freight forwarder is nominated to act on their behalf to undertake the transportation process.

After the logistics management issues, the marketing strategies are demonstrated. Within the scope of this chapter, theory is revised to outline a framework for marketing practice. Focusing on the 4Ps of marketing mix, the study goes into the details of analyzing the real case in order to plan a marketing campaign for the product in Vietnam's market. Strategies of pricing and promotion, as well as the distribution channels are specified in the subsections. A description of after sales services indicates their influences on the project as well as briefly explains the installation, training, repair and maintenance. Moreover, the sales target is carefully calculated before being set up. At the end of the chapter, risk management is discussed in order to help the business reduce the rate of accident and failure.

In summary, this study indicates that Vietnam is a potential market for the Minray intraoral X-ray product. With the strategic plan of marketing and logistics provided in this thesis, Meditronic Company can launch the project confidently. Moreover, Vietnam's market for dental equipment has been predicted to continuously grow in the years ahead. The increasing demand for this type of product creates a big challenge for companies like Meditronic to bring high-tech dental equipment to the local market. Therefore, the results of this thesis can be helpful for Vietnamese importers as well as for foreign exporters to penetrate Vietnam's market.

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Interviews

Interviewee	Position	Company	Type of interview	Time
Tran Thanh Hai	Project Manager	Meditronic Company	In person	September 2009
Pham Mai Trang	Sales assistant	Meditronic Company	In person	September 2009
Tiina Holkko	Sales director	Soredex Oy	In person	November 2009
Joonas Sandholm	Marketing director	Soredex Oy	Email	November 2009
Jouko Sinkkonen	Airfreight assistant	DHL Finland Oy	Telephone	2 nd March 2010

APPENDICES

Appendix 1 – List of interview questions to Meditronic Company

1. What are the advantages of Meditronic company in importing and marketing dental product in the local market?
2. Who are the major suppliers of dental X-ray products in Vietnam?
3. Who are the potential customers and how are their demands for X-ray equipment like?
4. Does the economic recession affect the demands for this type of product?
5. Regarding to intraoral and extra-oral X-ray equipment, which one is more suitable for Vietnam's market?
6. How does Meditronic company evaluate Minray intraoral X-ray equipment?
7. Besides the project manager, how many assistants will be appointed to carry out the project?
8. What are the main areas (cities, provinces) for selling the products?
9. What is the usual mark-up on dental equipment?
10. Which promotion strategies does Meditronic company suggest?
11. Which medical trade fair should we attend to promote the product?
12. Which after-sales services does the company offer to customers?
13. What is the target profit in the first year?
14. What are the related risks of this project?
15. What are the oppoturnities and growth trend of this product?

Appendix 2 – List of interview questions to Soredex Oy

1. Which requirements for a retailer to become an exclusive agent of Soredex's brand?
2. What does Soredex Oy offer to support a retailer?
3. What is the design of Minray's package?
4. Which one of Incoterms does Soredex Oy regularly use when exporting products?
5. Is the term DDU possible in this case?
6. What are the specific procedures for exporting dental X-ray products?
7. Which freight forwarder does Soredex Oy recommend?
8. How much is the estimated cost of transport per unit?
9. Which type of transport insurance should be used?
10. What is the period of warranty for Minray product?

Appendix 3 – Questions and answers about Minray product

Questions	Minray Features	Minray Benefits
<p>What is the importance of High Frequency Constant Potential x-ray unit?</p> <p>Why MINRAY VHF DC unit is much better than an AC unit?</p>	<p>Very high frequency constant potential technology.</p>	<ol style="list-style-type: none"> 1) Produce superb image quality and is not affected by line voltage fluctuations. 2) Produce more consistent exposures – better image quality. 3) Shorter exposure time – reduce patient exposure to radiation
	<p>VHF constant potential technology delivers more highly energized radiation.</p>	<p>Highly energized radiation reduce the amount of soft radiation (harmful to patient and useless in image formation) compared to AC generators.</p>
<p>Is the arm smooth and light when positioning and stay motionless during exposure?</p>	<p>Extremely steady arm allow to move arm smoothly and lightly, and keep tubehead motionless during exposure.</p> <p>Arm is made of cast-aluminium for lightness yet strong.</p> <p>Specially designed tubehead handle allows for one-hand, fast and light positioning of the tubehead.</p>	<p>Fast, easy, and comfortability to the dentist in taking x-rays.</p>

Appendix 4 – Technical specifications of Minray product

Generator	Constant potential (high voltage DC, 100-200kHz)
Tube Voltage	60 or 70kV
Tube Current	7mA
Focal Spot	0.7mm to IEC 60336
Line Voltage	115/230 VAC +/- 10%, 50/60 Hz
Filtration	2mm Al
Exposure Time Range	0.02 – 3.2 seconds
Fuse Range	5A / 230 VAC 8A / 115 VAC
Power Consumption:	1080 VA/230 VAC 910 VA/115 VAC
Beam Limiting Cones:	Dimensions: Round Ø 60mm (2.36") Rectangular 35 x 45mm (1.38" x 1.77") SSD (Source-Skin Distance): Standard cone 229 mm (9") Long cone 305 mm (12")
Installation	Wall mount for single stud or 406 mm (16") Centre stud installation
Weight	20 kg
Package size	650 mm x 1175 mm x 350 mm (0,27m3)
Transportation and storage temperature	0...+ 50°C (+ 32 ...+ 122 F)
Operation temperature	+ 10 ...+ 40°C (+ 50 ...+ 104 F), RH max. 95%

Appendix 5 – Dimensions of Minray product

