CHAPTER 1: INTRODUCTION

1.1 Introduction

The development of innovative products is one of the most critical strategies for enterprises in any sizes and types in Thailand. The enterprises will die or survive because they are currently in the 'in-between' crisis in the global context. On the one hand, they need to compete with the emerging industrial countries providing lower cost production capacities, such as China, Vietnam, India and Indonesia. In comparison with these countries, Thai manufacturing industries has higher labour skill and knowledge, and over 30 years experience in the improvement of production quality. On the other hand, the enterprises need to compete with the developed countries providing good design and high quality products and trusted brands, such as UK, Japan, Italy and USA. It is suggested that the development of new product development capability of Thai enterprises is the top priority for their competitiveness.

At the beginning of the twenty-first century, the importance of new product development capability has been raised by the government. The competitive strategy of Thai local enterprises has to be based on research, design and development of their own products and brands. Not only does the role of research and development does play a significant part for the industries, but also the added value driven by design is promoted, particularly on the product-oriented manufacturing industries, such as Furniture, Home Decorative Items and Gifts and new entrepreneurs. This research focuses on the development of innovative products driven by design. Design not only creates physically attractive products, but also integrates knowledge in science, technology, engineering and marketing all together. As a result, design generates the following values for innovative products: (i) creating desirable and functional products, (ii) creating products commercial possibilities, (iii) creating products fit to human behaviours and (iv) creating products enhance quality of life. As a result, design helps to integrate all required criteria, generate creative solutions and implement them to innovative products, rather than focusing on an aspect of aesthetic appearance.

To encourage the local enterprises to enhance the development capabilities of innovative products driven by design, there are many supportive initiatives run by the governmental bodies as the following:

- Office of Product Value Development, Department of Export Promotion (DEP), Ministry of Commerce, has initiated design supportive schemes, such as Design-Business Matching, Design Seminar and Workshop and Design Circle. These schemes promote design to add more commercial value to products. Designers play a key role in initiating new products.
- National Electronics and Computer Technology Center (NECTEC) and National Metal and Materials Technology Center (MTEC), part of National Science and Technology Development Agency (NSTDA), Ministry of Science and Technology have promoted 'design' at the research and development (R&D) and design implementation levels, such as material, engineering and technology R&D and their design implementation and design prototyping, testing and simulation. They have initiated the design-related projects, such as Eco Design and Ceramic Design.
- National Innovation Agency (NIA) has initiated funding schemes for research and development of innovations. Design Solutions is one of the key areas. The schemes provide support for research, prototype implementation, manufacturing process and business venture. According to these four schemes, 'design' as a process has not been recognised as a significant process for funding support.
- The Office of Knowledge Management and Development (OKMD), working under the Office of Prime Minister, aims to 'promote and share opportunity and intellect to Thai society' in order to provide equal opportunity in accessing all learning facilities (OKMD Website, 2008). One of the key objectives is 'to trigger new ideas and inspire new creativities' (OKMD Website, 2008). Thailand Creative and Design Center (TCDC), one of the eight divisions of OKMD, provide creative and design resources for designers, product developers and/or entrepreneurs to create and add value to their products. Apart from the learning materials and resources, TCDC has initiated other design-supportive activities, i.e. Design Exhibitions from world-famous

designers and brands, Design Seminars, and Creative and Design Training Programmes.

- Office of Small and Medium Enterprises Promotion (OSMEP), Ministry of Industry, has initiated product design and development center, named iSMEs. The letter 'i' stands for Integration, Idea, Intelligence, Innovation, International, Information and Information Technology (IT). This center aims to give support and advice for small and medium enterprises (SMEs) to plan design and marketing strategy and production technology process.

As mentioned earlier, design is an integrative discipline. Since the end of the twentieth century, the role of design in the countries, i.e. UK, Japan and USA has changed. The benefits of design are involving not only the aesthetic appearance of products or services, but also their strategic creative and innovative solutions. Design helps to generate innovative products/services, which solve users' problems, create original design solutions and integrate desirable appearance. In Thailand, design is mainly recognised as a marketing strategy for product cosmetics. Innovative products driven by design are paid less attention in the local enterprises because they require both deductive and inductive thinking, more research and knowledge, leadership and vision in design. Enterprises need to implement design at the strategic level as a core of business.

There are a handful number of companies in Thailand achieving design at the core business, recognised worldwide as good design products with creative and innovative solutions. Inevitably, the development of the innovative products is high investment and return (e.g. Tidd et al, 2001). It involves with high cost and risk (e.g. Ulrich and Eppinger, 1995; Home-Martin et al, 2002). This means there is a big chance for failure and a small opportunity to success. However, the development of the innovative products is a critical activity which the local enterprises have to implement as a core value creation strategy in their businesses. It may cause business failure if the enterprises fail to design and develop their own products to strengthen their brand and competitiveness. As a result, the development of the innovative products is one of the key criteria for success of the local enterprises.

To create the innovative products driven by design, the local enterprises are experiencing many problems. Human resources are one of the critical problems. To change the local enterprises' capability from production owners and goods licensees & importers to design, product and brand owners demands additional human resources and skills in R &D, a variety of design disciplines, marketing research and strategy (not sale marketing) and business mindset change, from business follower to visionary design leadership. Regarding new product development process, the local enterprises are lack of experience and the human resources at the beginning to the end of the process. As mentioned earlier, innovative product development activities require high investment causing high risk. These activities are accumulative knowledge and experience. Even though enterprises can initiate, design, develop, implement innovative solutions and launch the innovative products to market, it does not mean all launched products will be commercially success. According to Cooper (2000) the rate of commercial success of innovative product development is only one out of four. The competitiveness on the local, regional and global market is intense. Customers are segmented and have a variety of direct and indirect competitive products. Tom Kelly suggested that customers demand humanised products fitting to their total human value, i.e. transaction appeal; user performance; lifestyle fit; symbolic, social and cultural value and self-esteem. As a result, the uncertainties of both internal and external factors cause difficulties for the inexperienced local enterprises in the implementation of the innovative product development activities. In comparison with the country the local industries on the development of innovative products are lagging behind Japan around fifty years.

Reviewing the literature in the areas of new product development, innovation and design management since the 1950s published in the UK and USA, there are a number of the researches suggesting key success factors in relation to innovative products:

(1) the introduction of the identification of key factors that contributes to the success of innovative products at the product level (e.g. Cooper and Press, 1995; Cooper 2000)

(2) the introduction of key success factors both internal and external factors for the development of innovative products (e.g. Rothwell, 1972; Cooper, 1983; Cooper 1993)

(3) the introduction of key success factors for innovation management at the corporate level, for example sources of new ideas, new product development process, innovation strategy and innovative culture (e.g. Brunel University, 2000; Tidd et al, 2001)

(4) the introduction of key success factors for multidisciplinary team working within organisations (e.g. Hauptman and Hirji, 1999; Holland et al, 2000)

(5) the introduction of key success factors for the development of innovative products within collaborative networks among multidisciplinary organisations (e.g. Bussracumpakorn et al, 2010)

According to the literature review, all results are focused on the perspectives of either customers and corporate on innovative products. This main argument is the success of innovative products needs to be synergistic. On the one hand, consumers have been more demanding and getting more complicated. They require efficient, effective and ethical products. On the other hand, businesses must build and sustain consumer relationship, experience and brand equity. One of the fundamental understandings, which have been missing in the previous studies, is the understanding of the value of the innovative products from both customers and corporate perspectives. The success cannot depend on one party. The success of the innovative products must fulfill both parties. In Thailand, the development of the innovative products is one of the critical aspects, which the local enterprises have not been mainly focused. They are more focusing on price, place and promotion. Though the governmental bodies have initiated many supportive schemes to help the local enterprises, from handicrafts to blue-sky products and from individual entrepreneurs to large enterprises, the innovative product development has not mainly been a main practice in them. Inevitably, the most critical part of the development of innovative products is the uncertainties of the successful innovative product in corporate, market and human levels. Even though the Thai enterprises are operating at the local level, they are competing at the global level. As a result, not only do they need to plan and implement the practice of the development of the innovative products as the whole process at the corporate level, but also they expect their innovative products to succeed in market.

To predict the success of the innovative products launched in market is extremely difficult, in particular 'blue ocean' products. The previous studies, as mentioned

above could not identify key factors to predict the success of the innovative products. The prediction of the success of the innovative products is not only extremely difficult for the local enterprises, but also the global ones. The critical point is that they are lack of a theoretical framework to analyse the success of the innovative products. As a result, the aim of this research is to identify a framework and critical success factors of innovative products at the product level. The following objectives are:

(1) To develop a theoretical framework for the analysis of the success of the innovative products based on Blue Ocean Strategy principle
(2) To analyse key success factors of the innovative products
(3) To suggest the analytical framework and critical success factors of the innovative products

1.2 Literature Review

Reviewing the literature (Von Stamm, 2008), product innovation is generally defined into five types: (i) New-to-the-World, (ii) Major Developments, (iii) Line Extensions, (iv) Minor Developments and (v) Me-Too. According to this classification, the levels of innovative products are categorised by the level of technology and the market entry. For example, New-to-the-World products introduce new technology and also new to the market, such as the first launch of mobile phone and desktop computer. Me-Too products represent the change of product appearance and trying to fit the existing products to segmented markets. In the creative world, the classification of product innovation based on the technology and marketing factors is too narrow to understand innovative products driven by design as the main focus of this research.

Regarding this research, innovative products driven by design have been categorised into four groups: (i) Basic Product, (ii) Creative Breakthrough Product (Cagan and Vogel, 2002), (iii) Unique/Inventive Product and (iv) 'Blue Ocean' Product (Kim and Maubourge, 2005). The level of the innovative products is defined by two aspects: style and function, not technology and market. These aspects are significant in industrial/product design practice. This is because design is applied, integrative, interdisciplinary knowledge discipline. Design cannot invent new technology, but it can invent and innovate new function and style of products. It also help to generate creative problem-solving and transferring ideas to tangible solutions. The basic product has existing/adjusted function and style. The unique/inventive product has

existing/adjusted function and distinctive style. The creative breakthrough product has distinctive function and existing/adjusted style. The blue ocean product has distinctive function and style. In this research, innovative products driven by design are used as 'the innovative products'. The innovative products include the following product categories: Basic Product, Creative Breakthrough Product and Unique/Innovative Product. Figure 1.1 illustrates four types of the innovative products according to function and style.

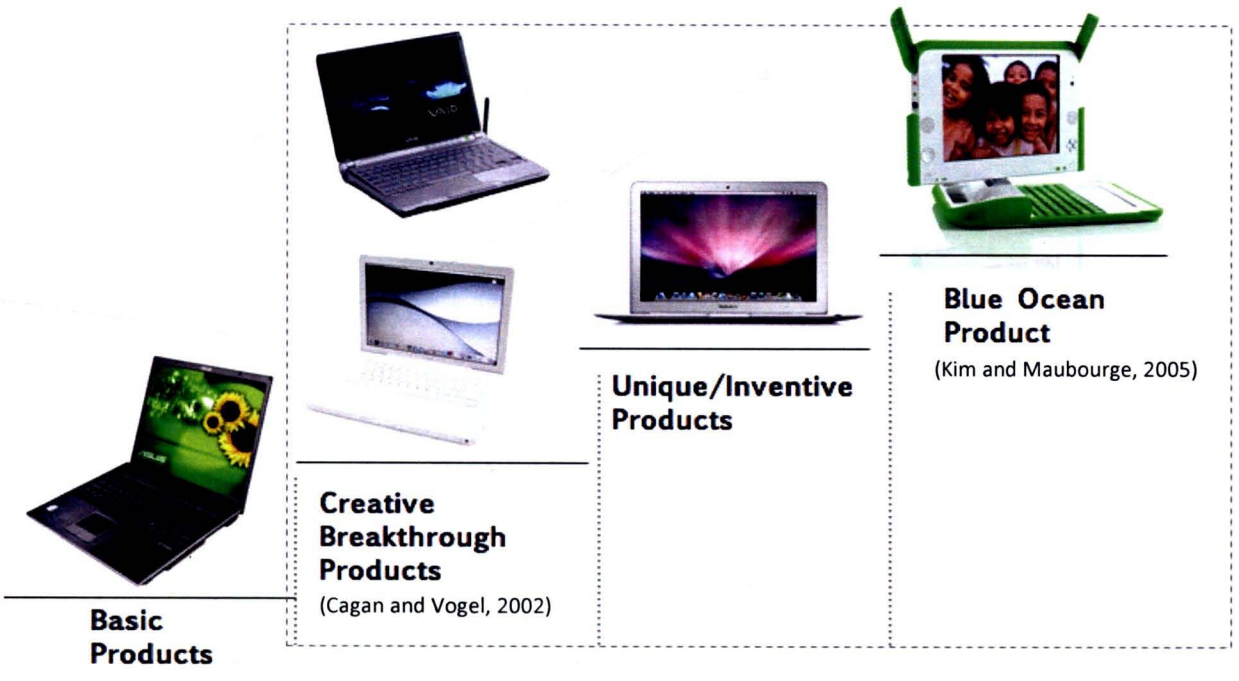

Figure 1.1: Four Types of the Innovative Products

To develop a theoretical framework to analyse the innovative products in order to predict their success, the research selects Blue Ocean Strategy (BOS) Principle as means to understand the success of the innovative products. The BOS principle has been developed by Kim and Maubourge. It has been initiated by the study of 150 strategic moves in more than 30 industries for over 100 years, from 1880 – 2000. 'Value Innovation' is the key success of the BOS principle by the simultaneous pursuit of differentiation and low cost to create new market space, as shown in Figure 1.2

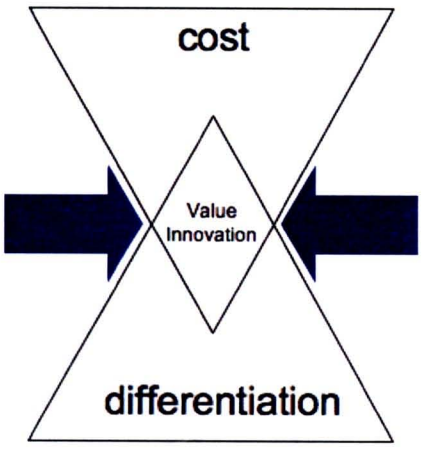

Figure 1.2: Value Innovation Concept

BOS offers a set of repeatable methodology and tools in the pursuit of value-driven innovation. It includes the followings: Strategy Canvas, Value Curve, Four Actions Framework, Six Paths Framework, Buyer Experience Cycle, Buyer Utility Map and Blue Ocean Idea Index. Reviewing these methods and tools, the key aspect of the BOS is the identification of the distinctive value curve for customers/buyers/users in the untapped market. The distinctive, differentiate value is the value-added on products, called value curve. Regarding the ERRC (Eliminate, Reduce, Raise and Create) Grid principle, in order to add the BOS value into products, there are the following guidelines:

(i) Which of the factors that the industry takes for granted should be eliminated?

For example, the following competing standard factors should be eliminated from products, i.e. take-it-for-granted and slow-down features. In the development of the economic class seat in the plane, the bulky-styled seat is taken for granted should be eliminated. Though the seat look and feel comfortable, this causes passengers have less room when they sit.

(ii) Which factors should be reduced well below the industry's standard?

For example, the following competing standard factors should be reduced, i.e. soar costs, inefficiency, long process, problematic cause and unnecessary issues. In the development of the economic class seat in the plane, the tight and cramp environment in the limited airplane space could be reduced.

(iii) Which factors should be raised well above the industry's standard?
For example, the following competing standard factors should be raised, i.e. potential benefits. In the development of the economic class seat in the plane, the following potential benefits for passengers may be raised, such as increasing more front legs room, seat size, seat accessibility and style.

(iv) Which factors should be created that the industry has never offered?
New competing standards should be created for products. Products should create new competing standards.

To identify the distinctive value or create a new value curve for a commercially viable, innovative product in the industry, the BOS Formulation Principle process is suggested:

- Reconstructing market boundaries. To reconstruct market boundaries from head-to-head competition to untapped one, industries need to analyse six key aspects, named Six Paths Framework, i.e. Industry, Strategic Group, Buyer Group, Scope of Product/Service Offering, Functional-Emotional Orientation and Time. This helps identify convincing blue ocean opportunities
- Focusing on the holistic picture. To visualise value curve, Strategy Canvas is used as a method and tool, as mentioned earlier. The value curve is the distinctive value of a blue ocean product in comparison with other existing products in the same industry.
- Reaching new demands. 3 types of noncustomers should be explored: Soon-to-be customers, Refusing customers and Unexplored customers. First, the soon-to-be customers are persons on the edge of the market, waiting to jump in. Secondly, the refusing customers are persons consciously choose not to use or cannot afford to use the product. Thirdly, the unexplored customers are persons are in the distant market.
- Get the Strategic Sequence Right. The aim of this final stage is to ensure blue ocean ideas are commercial viability. There are four sequential steps to ensure that: Exceptional Buyer Utility, Accessible Price, Target Cost and Adoption Hurdles.

Reviewing the four steps of the BOS formulation principles, these steps have been adopted as the following theoretical research framework:

(1) According to the principle of Reconstructing Market Boundaries, I selected the 10 innovative products based on the six paths framework. These products tend to offer blue ocean opportunities in any of the six paths. These products are in the following three innovative product categories: unique/Inventive product, creative breakthrough product and blue ocean product. To ensure the selected products offer blue ocean opportunities, the products are evaluated with substitute and alternative products in international market.

(2) According to the principle of Focusing on the Holistic Picture, the strategy canvas tool is used to identify the value curve of the product categories in comparison with the value curve of the innovative products.

(3) According to the principle of Reaching New Demands, both value curves as mentioned above are evaluated by noncustomers. The research employs random sampling. The random sampling represents the noncustomers population without defining the types.

(4) According to the principle of Get the Strategic Sequence Right, the research focuses on the first critical step, i.e. buyer utility, especially the concept of utility levers. BOS suggested six utility levers to provide exceptional utility for buyers. To provide exceptional utility is to provide exceptional value.

According to the BOS theory, the successful innovative products tend to create the distinctive value in comparison with its product category.

1.3 Research Structure

According the research framework mentioned above, Figure 1.3 shows the research structure.

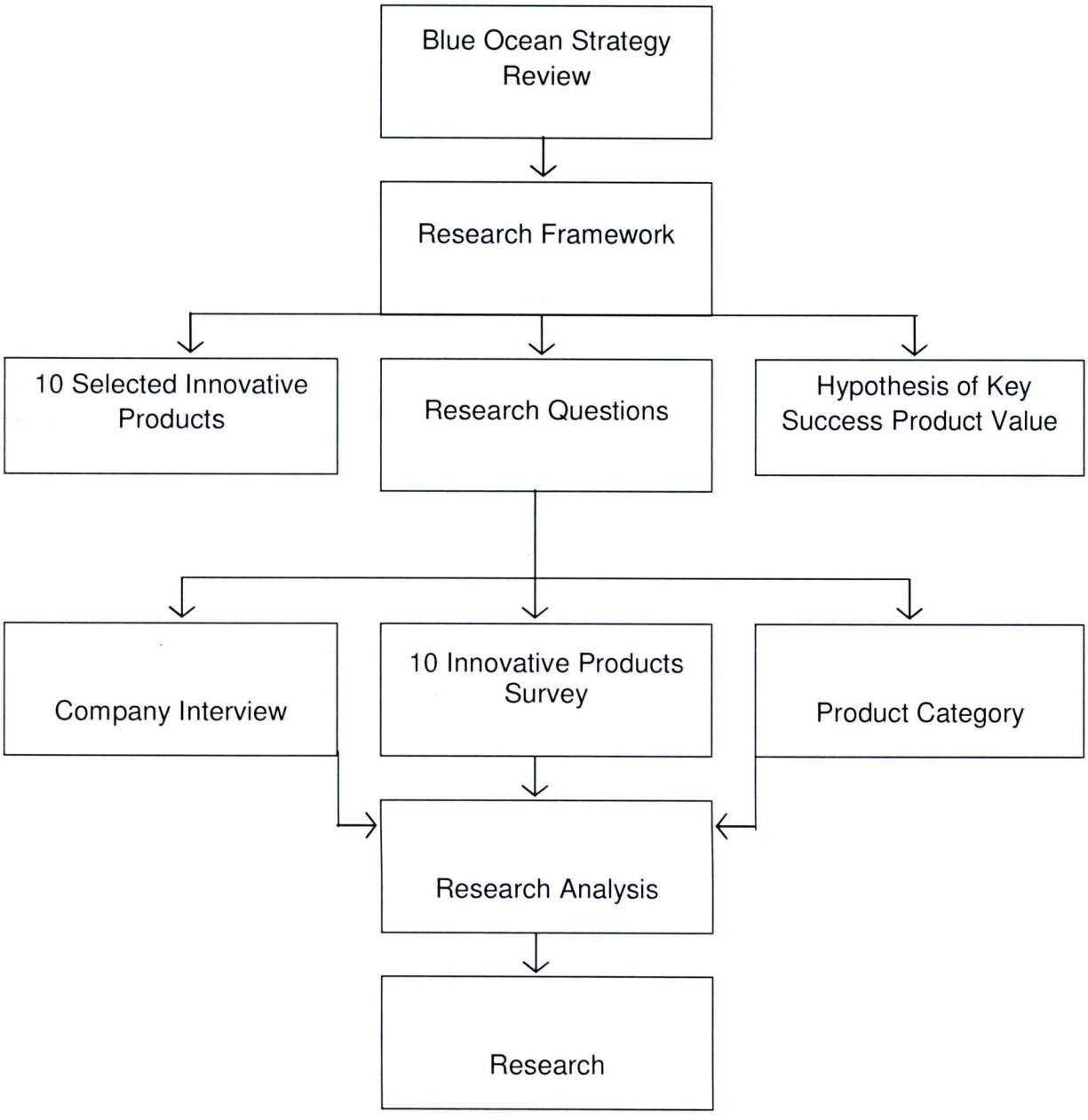

Figure 1.3: Overall Research Structure

As shown in Figure 1.3, the structure of the research process is illustrated. The details of each element are:

- Literature Review and Study Framework (Chapter 1)
- Research Methodology: 10 innovative products selections, identification of research questions, interview and survey methods and research design (Chapter 2)
- Research Data Analysis: the companies' perspective on their innovative products, the consumer's baseline analysis on three product categories and the consumers' perspective on the 10 selected innovative products (Chapter 3)
- Conclusions and Suggestions (Chapter 4)

1.4 Scope of Research

The scope of the research comprises two stages:

Stage 1 investigates a theoretical framework of Blue Ocean Strategy which would be implemented to the success of innovative products. Based on the analysis of BOS, Stage 1 suggests a theoretical framework for the analysis of the success of innovative products

Stage 2 is the main research focus. It examines critical success factors of the 10 selected innovative products in Thailand, in particular at the product level. These innovative products consist of two groups: successful and unsuccessful products. The criteria to identify the difference between both types of innovative products are explained in Section 2.3.

1.5 Intended Research Readership

The intended readership is 'leaders/owners/CEO of organisations', who have the authority and accountability to make decisions, direct organisations and change the dynamics of the business system. The belief of leaders represents that of their organisations. If leaders are willing to change their attitudes and have insights into critical success factors of the development of the innovative products, the whole dynamics of the product innovation system will be changed. Also, it has been widely recognised that the achievement of great design and product innovation within organisations is driven by leaders, owners and Top Management. In addition, my

study would be a general interest to any designers and readers (e.g. project managers, engineers, marketers and researchers) who are working in the development of the innovative products.

1.6 Research Limitations

A theoretical study and an empirical study are two research parts. The limitations emerge when the research tries to match a theoretical view with the empirical study. This is particularly significant when the theoretical 'Blue Ocean Strategy' (BOS) methodology is related to the empirical study of the ten selected innovative products. The research limitations occur beyond the controlled ability of the research because of the following reasons:

As I had not directly participated or worked in the development of innovative products, my research position is as a potentially threatening investigator and outsider of the products and their creation process. As a result, it is very difficult to observe and to get access to all of the information in details.

Secondly, the subject of the empirical study, innovative products, is related to both expected and unexpected sensitive issues: the former, the commercial sensitivity of innovative product information, and the latter, the internal product innovation evaluation process and business performance.

Thirdly, innovative products are difficult to be identified in Thailand. A majority of the new developed products are 'copy and development' products. There is unlikely to employ the stage of research, design and development at the outset of product development process. To prove the innovativeness of the selected innovative products, the research needs to compare them with existing product competitors both national and international level.

Fourthly, some innovative products are difficult to be tested. For example, the sanitary products need to be installed in a proper space. This requires a big investment to set up all the systems. To conduct the research in the official

showroom, it is very difficult to fit the research method with the showroom conditions. Instead of touching and feeling the real products, the research participants have to watch the video of product presentation to assess the innovative product value.

As a consequence, these problems cause the following limitations and difficulties: the accessibility of the in-depth investigation of the empirical study, the understanding of the whole product innovation evaluation process, the limited resources of Thai innovative products, and the assessment of the innovative product value in the sanitary product category. Inevitably, these problems affect the data collection during the empirical study and the study findings.