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Antecedent and Outcome of New Product Development in the Leather Industry, Bangkok and Vicinity, Thailand

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Abstract**—**The purposes of this research were to develop and to monitor the antecedent factors which directly affected the success rate of new product development. This was a case study of the leather industry in Bangkok, Thailand. A total of 350 leather factories were used as a sample group. The findings revealed that the new product development model was harmonized with the empirical data at the acceptable level, the statistic values are: χ^2=6.45, df= 7, p-value = .48856; RMSEA = .000; RMR = .0029; AGFI = .98; GFI = 1.00. The independent variable that directly influenced the dependent variable at the highest level was marketing outcome which had a influence coefficient at 0.32 and the independent variables that indirectly influenced the dependent variables at the highest level was a clear organization policy which had a influence coefficient at 0.17, whereas, all independent variables can predict the model at 48 percent.

Keywords**—**Antecedent, New Product Development, Leather Industry.

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I. Introduction

THERE has been a declining growth of the small and medium enterprises (SME) in Thailand of about 1.7 percent from 2011 to 2012. The SME in Thailand accounted for 36.3 percent of the Thai GDP [1]. The major cause of this decline was the inability to do new product development and the inability to provide new goods and services that customers need and want. The leather industry was no exception and was faced with similar problems. This industry includes shoes, belts, jackets, gloves, chairs, and household leather furniture. The leather industry is a labor intensive industry that creates about 200,000 jobs directly [2]. A strength, weakness, opportunity, and threat (SWOT) analysis revealed the following results. The strengths of the industry included cost saving from cooperation among the producers as well as the use of PVC material to reduce the cost of production. On the other hand, the weaknesses of the leather industry included the size of the producers who were generally small. This prevented the industry from capturing economy of scale benefits and cooperation with the government sector which may have been able to support the industry with low interest rate loans or provide assistance to help export the leather products to world market. The opportunities of leather industry included creating more jobs by expanding into the world market. The threats of this industry included emerging countries like Vietnam, Cambodia, and other ASEAN countries that were ready to compete with Thai leather industry with a lower cost of labor. In addition, there is a significant threat from Chinese production.

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II. Literature Review

The models for new product development are based on many theories. Nakata and Sivakuma (1996) stated that many organizations which have clear and transparent policies and understandable goals and a future direction for the organization often have a high rate of new product development [3]. Sengupta and Bushman (1998) studied how organization structure and culture influenced new product development and found the important factors that influenced new product development included: innovation, clear policy and goal, as well as teamwork [4]. Moreover, many researchers in the modern world have found that innovation often comes from the need to adapt to a fast changing world of business. Another important model of product development is known as the Fuzzy Front End which means the "Getting Started" period of new product engineering development processes: It is in the beginning process where the organization formulates a concept of the product to be developed as well as to decide whether or not to invest additional resources in further development. It is also the process of first consideration of new opportunities and the readiness to enter the structured development process [5]. The new product development model should include all activities from research for new opportunities through to the formation of an idea to the development of a concise concept. The process should end when an organization gives approval to begin formal development of a concept and to implement of new product design.

Although the beginning process may not be the most expensive part of product development, it can take much time if it is to be done properly. The beginning process of product development is where major commitments from top management are required and it is a process that involves time, money, and according to product's nature, thus setting the course for the entire project and end product. Consequently, this process should be considered as an essential part of product development where its cycle time should be included in the total development cycle time.

Koen (2004) explained five different processes of effective product development model. The five processes included: Opportunity Identification, Opportunity Analysis, Idea Genesis, Idea Selection, and ending with Concept and Technology Development [6]. The first process is the

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opportunity identification. In this process, an incremental business and technological opportunity are identified in a formal or informal way. Vital resources will be allocated to a new project of product development which then leads to the second process. The second process is the opportunity analysis. This is a process to translate the identified opportunities into implications for the business in a technology specific context. Therefore, extensive time, money, and efforts may be made to align ideas to target groups and do market studies of the target group. The process is idea genesis, which is explained as an evolutionary and iterative process progressing from incubation to maturation of the opportunity into a tangible idea. This process can be made internally or come from outside inputs such as employees suggesting new ways to solve customers' problems, suppliers offering new material/technology or from different customers with an unusual request. The fourth process is idea selection; the main purpose is of which to choose whether to pursue an idea or not by analyzing its potential future profit. The fifth process is concept and technology development. During this process, developed decisions are based on estimates of the total available market, customer needs, investment requirements, competition analysis and risk management.

III. Methodology

The objectives of this research were to study the current situation of the leather industry in Thailand, to study the influence five influential factors to the success of new product development. These five factors include clear organization policy, speed of marketing process, product quality, team satisfaction, innovation, project management, and marketing outcome. A random sampling technique was performed to get a sample group that included 350 owners of leather shops who were in the business for at least 5 years. A questionnaire was utilized as a tool for collecting quantitative data, while in-depth interviews of 8 owners of leather shops were performed to get qualitative data. There were four kinds of research tools for this study. First, the record book was used during the in-depth document research to record product development information, and opinion information. Second, the research and staff members worked in the field to get surveyed information. Third, a structured in-depth interview was designed to question important people who had been chosen. The validity of the in-depth interview form was tested by experts in the field of business and product development techniques. Fourth, another structured in-depth interview was designed to question mainly the focus group who had an expertise in the area of product development. The validity of the interview forms were also tested by experts in the field of business and product development of the leather industry.

The independent variables included clear organization policy, speed of marketing process, product quality, team satisfaction, innovation, project management, and marketing result, while the three important dependent variables included success rate, project management, and marketing outcome. Descriptive statistics utilized in this research including percentage, mean, standard deviation as well as t-test. The conceptual framework is shown in Fig. 1.

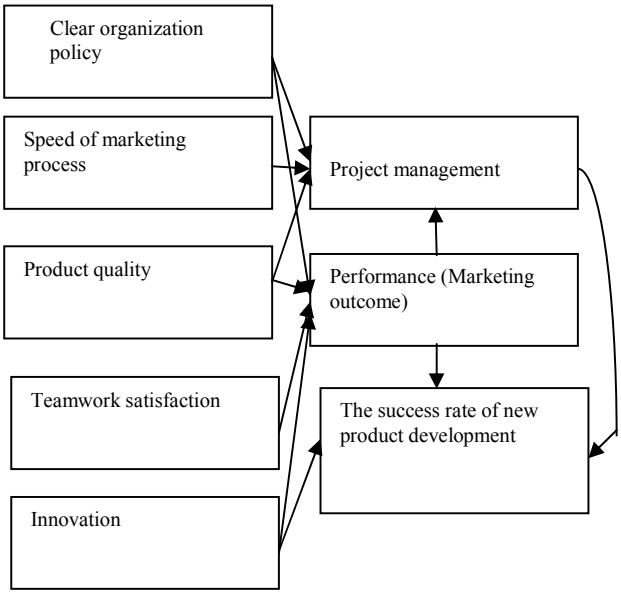


Fig. 1 Conceptual Framework

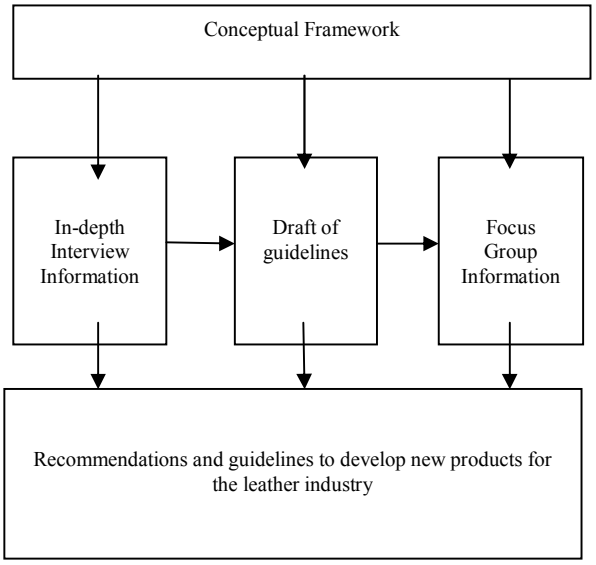


Fig. 2 The full framework

IV. Findings

The findings revealed that all variables in this study had mean between 2.68–3.42 which was at the medium level, while innovation was rated at the highest level or 3.42 and project management was rated at the lowest level or 2.68.

Table I shows direct influence of the independent factors acting on the dependent variables.

TABLE I
DIRECT INFLUENCE

Variables	Success Rate	Project Management	Marketing Outcome
1. Organization Transparency		.19	.35
2. Market Speed		.10	
3. Product Quality		.15	.12
4. Team work Satisfaction			.29
5. Organization Innovation	.31		.23
6. Project Management	.14		
7. Marketing Outcome	.32	.50	

TABLE II
INDIRECT INFLUENCE

Variables	Success Rate	Project Management	Marketing Outcome
1. Organization Transparency	.17	.18	
2. Market Speed	.01		
3. Product Quality	.07	.06	
4. Team work Satisfaction	.11	.15	
5. Organization Innovation	.09	.11	
6. Project Management			
7. Marketing Outcome	.07		

Table II shows indirect influence of the independent factors acting on the dependent variables.

Table III shows total influence of the independent factors acting on the dependent variables.

The five independent variables could explain about 69 percent of the success of new product development. Moreover, the new product development model was harmonized with the empirical data at an acceptable level, the statistic values are: χ^2=6.45, df= 7, p-value = .48856; RMSEA = .000; RMR = .0029; AGFI = .98; GFI = 1.00. The independent variable that directly influenced the dependent variable at the highest level was performance or marketing outcome which had an influence coefficient at 0.32 and the independent variable that indirectly influenced the dependent variable at the highest level was a clear organization policy which had an influenced coefficient at 0.17, whereas, all independent variables can predict the model at 48 percent.

TABLE III
TOTAL INFLUENCE

Variables	Success Rate	Project Management	Marketing Outcome
1. Organization Transparency	.17	.36	.35
2. Market Speed	.01	.10	
3. Product Quality	.07	.21	.12
4. Team work Satisfaction	.11	.15	.29
5. Organization Innovation	.40	.11	.23
6. Project Management	.14		
7. Marketing Outcome	.39	.50	

V. DISCUSSION

The findings disclosed that market outcome performance was the factor that highly influenced the success of new product development and the second and third factor were innovation and project management. These finding concurred with the findings of Henri (2004) who stated that the success rate of new product was the result of high performance in which the high performance resulted from effective management of the organization [7]. The finding also agreed with the idea of Cooper (1975) which stated that marketing was the key to success in terms of new product development and marketing together with innovation would make the organization successful with regular new products and services [8]. Moreover, it was important for the organization to have clear vision and goals for employees to be focused and motivated so as to work together effectively. Where should organizations go to get new product development ideas? A traditional marketer's answer is to ask customers what they need and what they really want. Certainly, this can yield useful ideas, but the ideas are probably incremental rather than breakthrough ideas. The fact is that good ideas can come from anywhere: customers, employees, and in the lab. It is important to find good ideas and rewards those whose ideas the company implements. For example, an organization can suggest every employee to place one or two ideas a month into the company's suggestion box concerning any improvement. If the idea is proved to be useful, there should be reward and recognitions to the particular employee.

VI. RECOMMENDATIONS

The development of new products for the leather industry must rely on marketing information. There is a need to create a marketing and consumer data base that producers can share the information and knowledge. The producer and management team of leather products need to brainstorm to generate new products and new product features. The top management must give a high priority to new product development in each organization. One of the most important factors is to have clear organization policy and goals. This will help all the employees to work towards the same goal and understand the future direction of the company.

From the study, the findings revealed that there is a high potential for expanding the leather industry in Thailand. The main problem is new product development. Therefore, there is a need for the Thai government to step in and provide some assistance such as providing knowledge and providing low interest rate loans for development.

Innovation should not be limited to new product development, but should include both new businesses and business processes. For instance, Nestlé sells coffee mainly in the grocery stores but Starbucks offers a new idea and a new way to create retail coffee. Barnes & Noble offers a new concept for a physical bookstore, but Amazon still was able to come up with a brilliant system for selling books online [9]. A modern organization needs to pursue both continuous improvement and new product development. Continuous improvement is essential, but new product development would be even better. A greater sustainable competitive edge can come from new product development. Certainly, there are cost and risk of new product development. The risks of new product development may come from changing technology, competing technologies, ill-defined market, lack of infrastructure and so forth. Furthermore, intense marketing

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research has important value to new product development. The success of new product development depends on good value of marketing research about what customers' need and want. Successful new product development must help the bottom line both in the short term as well as in the long term. The conventional new product development process works well if there is a continuous support from top management. Every business in the leather industry should examine its new product development index. This describes the proportion of its sales derived from new products. In the long run, no company will survive with a zero new product development index. A traditional business will have a hard time if its new product development index isn't at least 20%.

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