Proceeding: International Conference on
Humanities, Economy and Technology (ICHET, 2018)
(eISBN: 978-967-15620-5-5)
Thistle Hotel Port Dickson, Negeri Sembilan, Malaysia

PATTERN OF INNOVATION PROCESSES IN NEW PRODUCT DEVELOPMENT: CASE STUDIES ON SME IN INDONESIA

Tommy Christian Efrata[1]
Wirawan E.D Radianto[2]
Maria A. E. Marlina[3]
Jawahir Muhammad[4]

[4]School of Management and Business, Universitas Ciputra Surabaya, Indonesia

---

Abstract: *Product innovation is the key to success in small and medium enterprises. Despite that the process of new product development (NPD) in food manufacturing in small and medium scale has not often been studied. This study aims to identify NPD innovation process in food and beverages manufacturing industry in Indonesia. The research methodology used is multiple case study on NPD in 4 small and medium scale food and beverage manufacturer with international target market in Indonesia. Study result indicate that for industry in this scale, NPD innovation process went through several stages, which are: idea formation, idea screening, concept development and evaluation, development and marketing strategy, business analysis, market testing and commercialization. Results from this study can serve as reference for companies with similar scale in innovating and developing new products for the society*

Keywords: *innovation process, new product development, SME*

Introduction

In the past few decades, innovation has gained much attention from academics and business practitioners around the world (Meissner and Kotsemir, 2016). Innovation is defined as "“… implementation of a new or significant improved product (good or services), or process, a new marketing method or a new organizational method in business practices, work place organization or external relation (OECD, Eurostat 2005). Innovation is also viewed as the key to corporate sustainability. In addition, on a macro scale, innovation is regarded as a determinant in a nation’s economic growth. One form of innovation in a company is new products development (NPD). A company’s need for new product development became crucial due to the dynamics and rapid changes in consumer behavior with the progression of information technology. For this reason, different companies has developed products through various ways and patterns, depending on internal and external conditions of the company.

On the other hand, it is important for small and medium scaled enterprises to be able to understand NPD innovation process. This understanding can assist them in doing NPD innovation effectively and efficiently. Studies that are often conducted mostly focuses on big companies that already has their own R&D department with vast resources capabilities and time consuming (Salerno et al., 2015). For SME, their industrial environment is characterized with high uncertainty and limited resources. Rise et al (2008), stated that to deal with this type of company a specific type of management model, tool and technique is needed to innovate. Therefore, study on NPD innovation process on SME became relevant to be conducted.

Literature Review

According to Fontana & Nesta (2009) innovation is an economic success from a new combination or way to replace the existing way of transforming input to output which can produce major changes in the value and benefits of the product as perceived by consumers with the set price from the manufacturer. Trainor et al. (2013) evaluated how corporate behavior trends, along with existing business resources, contribute to the formation of New Product Development (NPD) capabilities. The results show that the company's competence in marketing intelligence and its tendency to engage in pair-style relationships have a direct and interactive effect on NPD abilities. This ability is further shown to be positively related to organizational performance, and this relationship is moderated by technological uncertainty. Researchers also found that the ability of NPD is influenced by the company's internal marketing intelligence capabilities and its tendency to seek external market knowledge.

Akgün et al. (2002) examined the speed of companies in NPD innovation. Speed-to-market is regarded very important in a competitive, uncertain and volatile business environment. Many measuring tools and techniques are developed. One of which is the "team improvisation" technique. This technique gained much attention from both practice and theory. The researchers expanded and improvised on the previous study's model and tested it in the context of new product development. Result of the study indicates that team improvisation had a positive impact on speed-to-market under unstable markets, technological conditions, and there were several mechanisms that could facilitate the team's ability to improvise, such as team stability and teamwork. The researchers also found that having a clear project goal would reduce team's ability to improvise. On the other hand, the NPD innovation process is not without limitations. Millward et al. (2005) identify and analyze the main obstacles to new product development in the manufacturing sector SME. The researchers used longitudinal case-study methodology, which focuses on collecting data from three manufacturing companies that have carried out new product development activities at home. The researchers found three problems faced by product managers in developing products, namely focus on time, cost ahead of other key factors, and failure to understand the importance of product design.

Not all NPD innovations will successfully produce new products. Tzokaz et al. (2003) investigated the success probability of NPD. New product development requires management to navigate complex processes. This study presents empirical evidence of the determining criteria used by experienced NPD managers from the UK and the Netherlands to control the performance of different NPD processes. The researchers found from the usage pattern that emerged that the criteria used is is in accordance with the requirements from each stages of the process of developing a new product. This makes it possible to detect problems and make adjustments to increase probability of success in new products.

Research Method

The aim of this study is to identify the innovation process that took place in companies in the food and beverage industry that have succeeded in new product development (NPD). This research is expected to contribute to the theory of innovation processes. Following the research conducted by Eisenhardt and Graebner (2007), this study uses multiple case study approach. The unit of analysis in this study is the new product development innovation process in companies.

Data collection is done by the members of research team through conducting face-to-face interviews. The interviewees were: company leaders, or company owners who were directly

involved in the NPD innovation process or those who correctly understood NPD innovation process carried out by the company, such as the head of the production department. The researchers set several criteria for the sources to obtain credible results which include position in the company and the intensity or quality of involvement in the NPD project. This research uses several instruments and methods to prevent or control the occurrence of bias and distortion, including interview guides, guidelines and analysis process (coding process) and through source triangulation process.

Table 1: Study Informants

Company Name	Informant's Position	Company Characteristic	Target Market
A	Founder, owner and CEO	Food manufacturing company	Domestic and international
B	(1) Owner (2) General Affair and Marketing Manager	Snacks manufacturing company	Domestic
C	(1) Marketing Manager (2) Marketing	Beverages manufacturing company	Domestic and international
D	Founder, owner and CEO	Beverages manufacturing company	Domestic and international

Analysis and Discussion

Idea formation

This stage is a continuous and systematic search for new product opportunities. This stage is done to find new ideas about product creation. Methods for creating new ideas include brainstorming, analyzing existing products or through consumer surveys. The following is the identification of each company's idea formation.

Company A: idea formation is done by modifying a general idea from the observation of market trend information. Idea can also be formed through partnership

Company B: idea formation involves panelist, R & D team, and owner.

Company C: dea formation is based on findings or formulations of company recipes.

Company D: idea formation involves all divisions, without limiting employees' creativity.

Idea screening

After identifying potential product ideas, the company must then filter it. The purpose of screening ideas is to reduce the number of ideas through finding and eliminating bad ideas as early as possible. This screening process is usually a stage that removes most of the ideas from further consideration in the product development. Furthermore, the primary aim of this screening stage is to choose and dispose of bad ideas as early as possible. There are distinction between product failures in the market: an absolute product failure results a loss such that the sales can't cover all cost, and partial product failure, where the sale proceeds can't cover the variable costs and a portion of the fixed costs. The following is the identification of idea screening done by each of the company:

Company A: idea screening can be done by selecting products using sampling and product scoring tests

Company B: ideas screening is done by product category selection

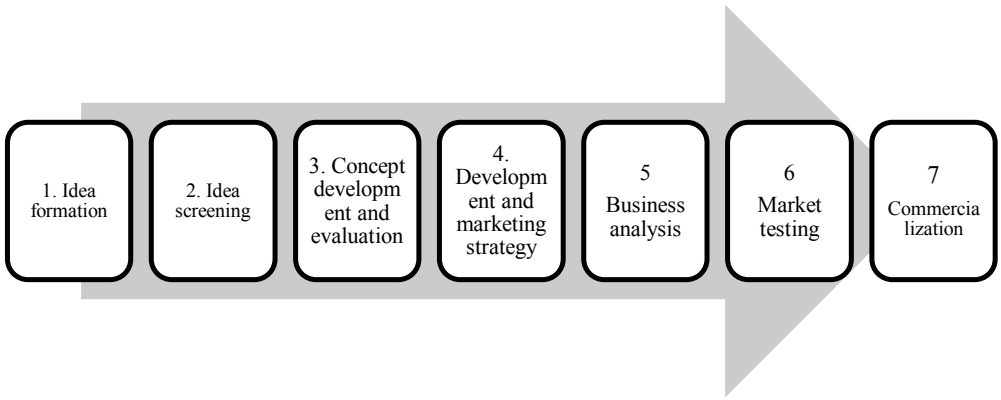

Figure 1: Innovation Process

Concept development and evaluation

Concept evaluation is the process of ensuring that the concept that has been screened to consumers and to measure consumer attitudes and interests on the initial concept of product development. Concept evaluation is a fast and inexpensive way to measure consumers' interest. Evaluation is carried out by asking potential consumers to interact with a sketch or written description of the product that is being developed. The following is the identification of the concept development and evaluation of each company.

Company A: concept development and evaluation through trial and error methods conducted on local residents. Because each country has distinctive tastes.

Company B: concept development and evaluation through distributing product tester internally in the company and externally in showroom outlets.

Company C: concept development and evaluation through animal testing, and to human internally in the company, and distribute questionnaires to determine the effectiveness of the product.

Company D: concept development and evaluation through distributing product testers internally in the company or external through exhibition events.

Development and marketing strategy

This stage is divided into three parts. The first part explains the size, structure and behavior of the target market, the planned product placement, sales, and profit targets to be achieved. The second part is determining product prices, distribution strategies and marketing costs. The third part is detailing the long-term sales plan, as well as the marketing mix strategy. The following is the identification of the development and marketing strategies of each company.

Company A: development and marketing strategies through product adaptation techniques, promotion adaptation, and overseas business expansion by finding franchise partners.

Company C: development and marketing strategy used is partnering with distributors to do product marketing.

Company D: Development and marketing strategy is by exporting 80% of the product, the company already has a foreign target market, the remaining 20% is done domestically by the company by exploring low end to high end or premium products

Business Analysis

In this stage analysis is conducted on several aspects such as market's demands, production cost estimation, and competitor mapping. Below is the identification of business analysis of each company.

Company C: business analysis is done through observing the progress of the product development process, company's permit documents has to be completed.

Company D: calculation analysis of competitor's prices, production cost analysis, packaging cost analysis, permit cost analysis, product design and layout cost analysis.

Market Testing

Market testing is where the products and marketing programs are introduced to more authentic customers to find out how consumers and suppliers manage, use and repurchase the product and how broad the market is. In addition, the company can also study the risks that they will face in the future and expanding the market. The following is the identification of market testing in each company.

Company A: market testing is done by launching products at certain outlets with limited promos, the aim is to see the market and customer response.

Company C: market testing of new products is carried out by producing approximately 1 batch of products using a permit for Home Industry products (PIRT), with the aim to feel out and absorb the market.

Commercialization

The commercialization stage involves planning and implementing a strategy to launch new products to the market. In launching a product, the company must decide when, where, to whom and how to launch the product. The following is the identification of commercialization in each company.

Company A: involving content creators and influencers, this is done because they have an appeal to the community. When product demand increases, products are ready to be distributed throughout the branches

Company C: collaborate with distributors with broad market. The company conducts everything from product testing to production process, when the product is ready for sale the company uses distributor services to market its products.

Company D: commercialization is done at the company café by introducing the product to customers. Then the company does canvasing or better known as sales activities that aim to promote products through offline and online marketing. Offline marketing targets exhibitions, offers to shops, and distributors, while online marketing targets websites, marketplaces, social media and various collaborations

Conclusion

The result of this study indicate that innovation process of new product development (NPD) in food and beverage manufacturing companies on small and medium scale follows these stages: idea formation, idea screening, concept development and evaluation, development and marketing strategies, business analysis, market testing and commercialization. Not all stages of the innovation process are carried out by each company. It varies depending on the characteristics of the product, the company's internal environmental conditions or the company's external environmental conditions. The results of this study are expected to help other small and medium scale enterprises in planning NPD innovation processes. Researchers realize that the innovation process model presented is not a one size fits all model that can be applied directly to all company. Future research is expected to be carried out by increasing the number of company samples to be able to produce several innovation process models that are distinguished based on product characteristics and companies.

Acknowledgment:

This research was funded by Directorate of Research and Community Services, Directorate General of Strengthening for Research and Development, Ministry of Research, Technology and Higher Education, Republic of Indonesia

References

Akgün, A. E., & Lynn, G. S. (2002). Antecedents and consequences of team stability on new product development performance. *Journal of Engineering and Technology Management*, *19*(3-4), 263-286.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *The Academy of Management Journal*, *50*(1), 25-32.

Eurostat, OECD. (2005). Oslo Manual. The Measurement of Scientific and Technological Activities. *Guidelines for Collecting and Interpreting Innovation Data*.

Fontana, R., & Nesta, L. (2009). Product innovation and survival in a high-tech industry. *Review of Industrial Organization*, *34*(4), 287-306.

Meissner, D., & Kotsemir, M. (2016). Conceptualizing the innovation process towards the 'active innovation paradigm'—trends and outlook. *Journal of Innovation and Entrepreneurship*, *5*(1), 14.

Millward, H., & Lewis, A. (2005). Barriers to successful new product development within small manufacturing companies. *Journal of Small Business and Enterprise Development*, *12*(3), 379-394.

Rice, M. P., OConnor, G. C., & Pierantozzi, R. (2008). Implementing a learning plan to counter project uncertainty. *MIT Sloan Management Review*, *49*(2), 54.

Salerno, M. S., de Vasconcelos Gomes, L. A., da Silva, D. O., Bagno, R. B., & Freitas, S. L. T. U. (2015). Innovation processes: Which process for which project?. *Technovation*, *35*, 59-70.

Trainor, K., T. Krush, M., & Agnihotri, R. (2013). Effects of relational proclivity and marketing intelligence on new product development. *Marketing Intelligence & Planning*, *31*(7), 788-806.

Tzokas, N., Hultink, E. J., & Hart, S. (2004). Navigating the new product development process. *Industrial Marketing Management*, *33*(7), 619-626.).