

IDENTIFICATION OF INNOVATION PROCESS ON NEW PRODUCT DEVELOPMENT IN SMALL AND MEDIUM ENTERPRISES

JAM

17, 4

Received, August 2019

Revised, September 2019

October 2019

November 2019

Accepted, November 2019

Tommy C. Efrata
Wirawan E.D Radianto
Maria A. E. Marlina

School of Management and Business, Universitas Ciputra Surabaya, Indonesia

Abstract: Understanding the innovation process of new product development (NPD) is expected to support the company's sustainability. This study aims to identify the NPD innovation process in the food and beverage industry in Indonesia. The research method uses a qualitative multiple case study approach in 4 small and medium scale firms in the food and beverage industry in Indonesia. The results show that the NPD innovation process went through several stages, namely: idea generation, filtering idea, concept development, and testing, marketing development and strategy, business analysis, market testing, and commercialization. The results of this study can be used as a reference for companies on the same scale to innovate new products.

Keywords: innovation process, new product development, small and medium enterprise

Cite this article as: Efrata, T. C., W. E. D. Radianto, and M. A. E. Marlina. 2019. *Identification of Innovation Process on New Product Development in Small and Medium Enterprises*. Jurnal Aplikasi Manajemen, Volume 17, Number 4, Pages 662–667. Malang: Universitas Brawijaya. <http://dx.doi.org/10.21776/ub.jam.2019.017.04.10>



Journal of Applied
Management (JAM)
Volume 17 Number 4,
December 2019
Indexed in Google Scholar

Corresponding Author:
Tommy C. Efrata, School of
Management and Business,
Universitas Ciputra Surabaya,
Indonesia, DOI: <http://dx.doi.org/10.21776/ub.jam.2019.017.04.10>

Innovation viewed as the key to corporate sustainability. Innovation conducted through new product development is one of the ways for a company to maintain the continuity of its business performance growth, especially for companies which has produced products massively rely on technology (Yeh, Pai, and Yang, 2010). The company's ability to generate profits massively depends on its ability to introduce new products to the market (Davila, 2000). The need for

companies to develop new products is essential given the dynamics of fast-moving consumer behavior as information technology increases (Athaide, Zhang, and Klink, 2019; Cui and Xiao, 2019; Goffin and New, 2001). For this reason, various companies have developed products through various methods and patterns, depending on the company's internal and external conditions (Salerno, de Vasconcelos Gomes, da Silva, Bagno, and Freitas, 2015).

On the other hand, SME needs to understand the NPD innovation process. This understanding can help them to introduce NPD effectively and efficiently. The results of past empirical studies found that the structure and methods used in the product development process are the keys to success (González and Palacios, 2002). Most prior studies focus on large companies, equipped with RandD

departments with significant resource capabilities and long-time consumption (Kim, Kim, Sawng, and Lim, 2018; Salerno *et al.*, 2015). In SME companies, the environment the industry is characterized by high levels of uncertainty and limited resources (Freel, 1999). Rise *et al.* (2008) suggested that to deal with companies of this type, they required separate models, tools, and management techniques for innovation. The innovation process at SME shows a different pattern compared to other types of industries (Robbins and O’Gorman, 2016). For this reason, the NPD innovation process research at SME is relevant.

Literature Review

Innovation as a key in developing NPD has received much attention from researchers. Innovation marked as a process that transforms ideas into valuable products or products to gain a competitive advantage in the market (Chandler, Hagström, Sölvell, and Press, 1998). On the same line, Fontana and Nesta (2009) stated that innovation is an economic success due to the combination or a new way to replace the old way of transforming inputs into outputs that can produce substantial changes in the ratio of use-values perceived by consumers or can be called the benefits of a product at a price set by the manufacturer. Trainor *et al.* (2013) found that the company’s internal marketing intelligence capabilities and its tendency to seek external market knowledge influence NPD’s ability.

The existence of specific characteristics and constraints in SMEs is causing the innovation process in these companies to undergo different processes compared to large companies (Jeong, Chung, and Roh, 2019; Kim *et al.*, 2018; Robbins and O’Gorman, 2016; Woschke and Haase, 2016). The results of past studies about the innovation process at SME have also revealed several critical factors for successful NPD development. Robbins and O’Gorman’s (2016) research on the innovation process at SME found that most of the innovation process work informally, and this did not have an impact on decreasing company performance. The results of research conducted by Woosche and Haase (2016) have implications for the importance of SMEs

to manage the innovation process in NPD. The results of their study found differences in managerial treatment in the management of the innovation process in the initial phase and the final phase of NPD. On the other hand, with the limited RandD resources it has, SMEs in the NPD process are advised to partner with other companies (Kim *et al.*, 2018). Besides, to support the success of the NPD process, SMEs also need to pay attention to customers as a source of knowledge (Cui and Xiao, 2019; Jeong *et al.*, 2019).

Within the NPD process, speed and accuracy are critical to be able to anticipate market needs in a competitive and uncertain business environment. Akgün *et al.* (2002) examined the importance of speed in implementing NPD innovation, and the research found that team improvisation had a positive impact on speed-to-market in during the dynamic market needs conditions. On the other hand, the NPD innovation process is not without obstacles. Millward *et al.* (2005) identified three main problems in the process of developing new products, namely focus on time, cost ahead of other key factors, and failure to understand the importance of product design.

NPD innovation processes in companies have received much attention from researchers (Cooper, 2008; Salerno *et al.*, 2015; Tzokas, Hultink, and Hart, 2004). Research by Tzokaz *et al.* (2004) found that the patterns of usage that emerged showed that these criteria match the requirements of each stage in the process of developing new products. That makes it possible to detect problems and initiate adjustments that increase the chance for success on new products.

METHOD

The purpose of this study is to identify the innovation process that occurs in SME in the food and beverage industry group. These companies have also succeeded in the new product development (NPD) process. Following Eisenhardt and Graebner (2007) research, this study uses a multiple case study approach. The unit of analysis in this research is the process of innovation in the development of the company’s new products.

Data collection was carried out by conducting face-to-face interviews conducted by members of the research team and research assistants. The interviewees include company owners, company leaders, or heads of departments who are directly involved with the NPD innovation process or those who understand the NPD innovation process that has been carried out by the company, for example, the head of operations. Several criteria have been set by the researchers to obtain credible results, which include positions in the company and the in-

tensity or quality of involvement in NPD projects. To prevent or control the occurrence of bias and distortion, the study uses several instruments and methods (Voss, 2010), namely (1) establishing the objectives of data collection (2) profiling companies that are made into objects; and (3) arrange interview guidance. Data is processed and analyzed (coding process) and refined through the process of triangulation of sources (Miles, Huberman, and Saldaña, 2014).

Table 1 Research Informants

Name of the Company	Informant's Position	Product	Market Reach
A	Founder, owner, and CEO	Food manufacturing company	National and international
B	(1) Owner (2) General Affair and Operation Manager	Snack manufacturing company	National
C	(1) Operation Manager (2) Marketing	Beverage manufacturing company	National and international
D	Founder, owner, and CEO	Beverage manufacturing company	National and international

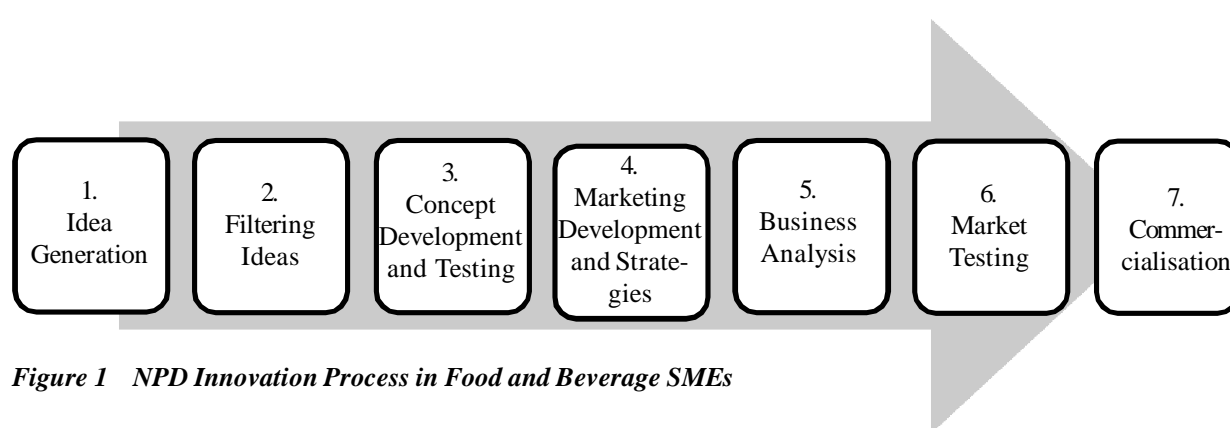


Figure 1 NPD Innovation Process in Food and Beverage SMEs

Idea Generation

This stage requests the company to do a continuous and systematic search for new product opportunities. This stage aims to find new ideas about product creation. The emergence of this idea can come from ideas that arise from specific departments, between departments within the company

or come from external companies (Hansen and Birkinshaw, 2007). Methods for creating new ideas include brainstorming, analyzing existing products, or through consumer surveys. In this study, the four companies identified to not relying on ideas from outside parties. Below is the detail identification of idea generation for each company.

- Company A, Ideas are obtained by modifying general ideas by looking at market trends. Ideas can also be made by involving partnerships.
- Company B, Formulating ideas involve a team of panelists, RandD, and owner.
- Company C, Ideas based on the company's findings or its recipe formulations.
- Company D, The appearance of ideas, involves all divisions that do not limit employee creativity.

Filtering Ideas

In this stage, the company can assess the feasibility and uniqueness of the product associated with consumer perceptions and the existence of market potential (Tzokas et al., 2004). At this stage, too, most ideas will not proceed and leave only a few. In this step, the company aims to select and discard false ideas as early as possible. The manager who is responsible for this part should determine the ideas that will be selected for the next stage. The difficulty lies in determining market viability, so the manager's experience and business intuition play an important role. Here is an identification of the appearance of the ideas of each company.

- Company A, Filtering ideas is completed by selecting products through product sampling test and product scoring
- Company B, Filtering of ideas is done by selecting product categories.

Concept Development and Testing

At this stage, the idea is measured through the consumers' attitudes and interest in the initial concept of product development and the technical feasibility of the concept (Tzokas et al., 2004). Concept testing is a fast and inexpensive way to measure consumer interest. Testing is done by asking potential customers to interact with the initial prototype in the form of illustrated images or written descriptions that describe the product to be developed (Elverum, Welo, and Tronvoll, 2016). The company's concept development and testing are seen in these activities stated below.

- Company A, Development and testing of concepts

are conducted by trial and error methods that are tested on the residents of the local country/area because each country has its unique tastes.

- Company B, Development and testing of concepts are completed by distributing product testers in internal and external companies through marketing outlets.
- Company C, Development and testing of concepts are based on animal testing methods, then humans within the internal company, and distributing questionnaires to determine the efficacy of the product.
- Company D, Development and testing of concepts is carried out by distributing the product testers internally and externally through exhibitions.

Marketing Development and Testing

This stage allows the company to determine its target market, selecting distribution channels through the process of adaptation and adjusting to market characteristics, and carrying out a process of partnership and collaboration with external parties (Trainor et al., 2013). Each company's marketing development and strategies are conducted as follows.

- Company A, Development and marketing strategies using product adaptation techniques, adaptation promotion, and business expansion abroad by finding partners as franchisees.
- Company C, Development and marketing strategies rely on partnering with distributors who specialized in product marketing.
- Company D, Development and marketing strategy of 80% of products exported; the company already has a target market abroad. 20% of companies' product is released in the domestic market; from low-end products to high-end or premium products.

Business Analysis

In this stage, the management team conducts a thorough study of technical, marketing, and financial aspects of the business (Tzokas et al., 2004). The product will be assessed whether it can reach several sizes set for business viability, such as sales targets and margin or profit targets. The technical aspects involve all the requirements required by the regulators, such as product quality standards and other permits. The marketing aspect includes several things, including market demand, estimated production costs, and competition maps. Below is further detailed information regarding the company's business analysis.

- Company C, Business analysis is done by observing the extent of the product development process. Before the production department starts its job, any licensing documents from the company must be completed.
- Company D, Calculates competitor price analysis, production cost analysis, packaging cost analysis, permit cost analysis, layout analysis, and product design.

Market Testing

In market testing, products and marketing programs are introduced to the target markets in the hope of finding out how consumers manage, use, and repurchase these products (Tzokas et al., 2004). Besides, companies can also study the possibility of product use risks and can determine the market potential. The companies conduct market testing in the following ways.

- Company A, Market testing performed by launching products at certain outlets in a limited way; the aim is to see the market and customers' responses.
- Company C, Testing a new product market is carried out by producing approximately one batch of products using a Home Industry product permit (PIRT). The aim is to check and absorb the market.

Commercialization

At this stage, the company needs to prepare a strategy to launch its new product to the market. In this case, the implementation includes when, where, to whom, and how to launch the new product(s) (Salerno et al., 2015). The possible partners will also be invited to complete the process. The information below identifies each company's commercialization activities.

- Company A, Includes the content creator and influencer; they are chosen because they are capable of increasing people's interest. When the level of demand increases, the product is ready to be introduced throughout the branches.
- Company C, Collaborate with distributors who already have a large market group. The company is working on product testing for production alone. When the product is ready, the company uses distribution services to market its product.
- Company D, Commercialise the product in the company's café to introduce the product to costumers.

CONCLUSIONS

This study identifies that SMEs of food and beverage industry has carried out the NPD innovation through the 7 stages: (1) idea generation; (2) filtering ideas, (3) concept development and testing; (4) marketing development and strategy; (5) business analysis; (6) market testing and (7) commercialization. However, not all companies went through all stages of the innovation process. It depends on the characteristics of the product and the company's internal or external conditions. The researchers realize that there is no innovation model, especially in NPD, that portrays a *one size fits all* nature. Nevertheless, the results of this study contribute to the mapping of the NPD innovation process, specifically for the food and beverage industry. Further research in different industries is

expected to map different NPD innovation processes.

Acknowledgment

This research was funded by the 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., and 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.
- Athaide, G. A., Zhang, J. Q., and Klink, R. R. 2019. *Buyer relationships when developing new products: a contingency model*. Journal of Business and Industrial Marketing, 34(2), 426-438.
- Chandler, A. D., Hagström, P., Sölvell, Ö., and Press, O. U. 1998. *The Dynamic Firm: The Role of Technology, Strategy, Organization, and Regions*. Oxford University Press.
- Cooper, R. G. 2008. *Perspective: The stage gate® idea to launch process—update, what's new, and NexGen systems*. Journal of Product Innovation Management, 25(3), 213-232.
- Cui, A. S., and Xiao, Y. 2019. *The role of market and technical information generation in new product development*. Journal of Product Innovation Management, 36(3), 305-330.
- Davila, T. 2000. *An empirical study on the drivers of management control systems' design in new product development*. Accounting, Organizations, and Society, 25(4-5), 383-409.
- Eisenhardt, K. M., and Graebner, M. E. 2007. *Theory building from cases: Opportunities and challenges*. Academy of Management Journal, 50(1), 25-32.
- Elverum, C. W., Welo, T., and Tronvoll, S. 2016. *Prototyping in new product development: Strategy considerations*. Procedia CIRP, 50, 117-122.
- Fontana, R., and Nesta, L. 2009. *Product innovation and survival in a high-tech industry*. Review of Industrial Organization, 34(4), 287-306.
- Freel, M. S. 1999. *Where are the skills gaps in innovative small firms?* International Journal of Entrepreneurial Behavior and Research, 5(3), 144-154.
- Goffin, K., and New, C. 2001. *Customer support and new product development—An exploratory study*. International Journal of Operations and Production Management, 21(3), 275-301.
- González, F. J. M., and Palacios, T. M. B. 2002. *The effect of new product development techniques on new product success in Spanish firms*. Industrial Marketing Management, 31(3), 261-271.
- Hansen, M. T., and Birkinshaw, J. 2007. *The innovation value chain*. Harvard Business Review, 85(6), 121.
- Jeong, S. W., Chung, J.-E., and Roh, J.-S. 2019. *Impact of External Knowledge Inflow on Product and Process Innovation of Korean SMEs: Absorptive Capacity as a Mediator*. Clothing and Textiles Research Journal, 37(4), 219-234.
- Kim, M., Kim, J.-e., Sawng, Y.-w., and Lim, K.-s. 2018. *Impacts of innovation type SME's RandD capability on patent and new product development*. Asia Pacific Journal of Innovation and Entrepreneurship, 12(1), 45-61.
- Miles, M. B., Huberman, A. M., and Saldaña, J. 2014. *Qualitative data analysis: A methods sourcebook*. 3rd: Thousand Oaks, CA: Sage.
- Robbins, P., and O'Gorman, C. 2016. *Innovation processes: do they help or hinder new product development outcomes in Irish SMEs?* The Irish Journal of Management, 35(1), 104-107.
- Salerno, M. S., de Vasconcelos Gomes, L. A., da Silva, D. O., Bagno, R. B., and Freitas, S. L. T. U. 2015. *Innovation processes: Which process for which project?* Technovation, 35, 59-70.
- Trainor, K. J., Krush, M. T., and Agnihotri, R. 2013. *Effects of relational proclivity and marketing intelligence on new product development*. Marketing Intelligence and Planning, 31(7), 788-806.
- Tzokas, N., Hultink, E. J., and Hart, S. 2004. *Navigating the new product development process*. Industrial Marketing Management, 33(7), 619-626.
- Voss, C. 2010. *Case research in operations management Researching operations management (pp. 176-209)*. Routledge.
- Woschke, T., and Haase, H. 2016. *Enhancing new product development capabilities of small and medium-sized enterprises through managerial innovations*. The Journal of High Technology Management Research, 27(1), 53-64.
- Yeh, T.-M., Pai, F.-Y., and Yang, C.-C. 2010. *Performance improvement in new product development with effective tools and techniques adoption for high-tech industries*. Quality and Quantity, 44(1), 131.