

Commercial Product Development and Its Sustainability Impact for Rattan Cluster in Desa Trangsan

Bambang Kartono Kurniawan^{1*}, Ira Samri², Gihon Nugrahadi³, and Dyah Ayu Sekarningrum⁴

¹Faculty Member, Interior Design Department, School of Design, Bina Nusantara University, Malang, East Java, Indonesia

²Faculty Member, Product Design Department, Faculty of Engineering and Science, Paramadina University, Jakarta, Indonesia

³Faculty Member, Product Design Department, Faculty of Art and Design, Trisakti University, Jakarta, Indonesia

⁴Student, Interior Design Department, School of Design, Bina Nusantara University, Malang, East Java, Indonesia

Abstract. Export-based rattan industry manufacturers hold significant roles in national income, especially those in Desa Trangsan, Sukoharjo. However, the rattan industry manufacturers still have limitations in product design development, affecting design innovation. Most rattan industries in Desa Trangsan produce their products to fit their global buyer demands, including design criteria and quality the buyers set. This research focuses on the furniture design analysis for the export market in Desa Trangsan, produced by small and medium rattan manufacturers. This research aims to identify the commercial product development process and the designer's role in the innovation process. The research uses literature study and field observation methods with a descriptive qualitative approach. The study aims to identify the most impactful commercial product development in the furniture industry in Desa Trangsan. The result shows that furniture manufacturers face challenges in performing research for new product development and need to collaborate with furniture designers or academicians who are more industrial-oriented to deliver better designs and fresh ideas to give added value to the products and companies. The research findings can pave the way for future studies that aid manufacturers in conducting research for product and design development, which is crucial to promote innovation and drive the success of the rattan industry in Desa Trangsan.

1 Introduction

The national income from rattan product export reached USD 133.161 in 2020 and rose 43% to USD 190.970 (dataindustri.com) in 2021 which shows the importance of this industry for the country's income. Until recently, Indonesia export destinations are still dominated by countries such as USA, 41.11%, Netherlands, 8.19% and Germany 7.27%. [1] Before the 1986, Indonesia was popular as the largest raw rattan material exporter in the world, until the Government decree from the Ministry of Trade no. 247/KP/X/1986 regarding rattan raw material export ban which caused a shifting in the industry where the manufacturers started to process rattan raw material into rattan products. The number of manufacturers was also increased rapidly from only 20 companies to 300 companies [2]. Nevertheless, the rattan industry experiences a decrease due to global economic crisis in 2013-2015 [3].

Desa Trangsan in the district of Sukoharjo is one of several rattan clusters industry in Indonesia that produces rattan furniture for export. This cluster delivers approximately 100-120 containers per month worth USD10.000 - USD14.000. The Trangsan rattan industry has been already existed since 1970, in which its people

used to work as farmers. Rattan products rose significantly in 1986. Recently, even though the development of UMKM increase sharply, the low productivity is remained to be the main problem [4]. The industry was also glorious in 1990 despite having problem in material procurement caused by its rareness and its fluctuated price. This problem holds back the manufacturers to except big order as anticipation to avoid failure in meeting the large demand. [5]

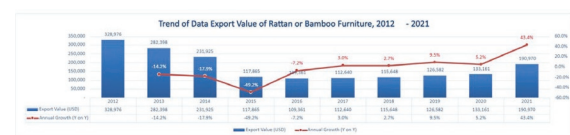


Fig. 1. Trends of Data Export Value of Rattan or Bamboo Furniture 2012-2021 (Source: dataindustri.com)

Rattan industry in Desa Trangsan which supported by small and medium manufacturers is still in need of help and guidance in business and management in order to increase their sales and competitiveness through innovation. Unfortunately, 91% of the UMKM export their product through a third party or a broker [4]. Here, supports from the government, academicians, and private institutions to educate and improve their skill

* Corresponding author: bambang.k@binus.edu

and knowledge are realized by, for example, giving them workshops or seminars related to business strategy, innovation and market understanding. Another problem the Trangsan rattan manufacturers encounters is innovation since most of them do not have research and design department in their companies. This is caused by the amount of investment they need is relatively big. This innovation problem happens in all development process such as forming design concept, material experiment, market research, and prototype making. Not to mention that there is a lot of furniture manufacturers in Desa Trangsan that do not set product development for innovation as their main strategy in the business. The main aspect for companies to survive in global competition is to develop new product designs. [6] The manufacturer only produces their product for buyer's order and design, or develop their new product by copying existing designs from resources such as Pinterest. It clearly does not give long term value to the company so that they cannot reach their full potential and always behind. To be able to create a successful export-oriented product, one needs the knowledge about consumer needs, audience, culture, and quality standard in the export destination country. [7] A company can successfully meet market and customer needs through product design [6].

In engineering and management many different product development approaches are used and taught [8]. Product development assists designers and directs the managers in supporting decision making [8]. Design has an important role in a product development process. [9] Gao [10] stated that a design concept holds an important aspect for the sustainability of the company and the industry. There are three phases in the design process such as Inspiration, Idea, and Implementation which is one of the design thinking approaches in a product development. [8] Sustainable product development is proposed based on the perspective of economic, social, and environmental values. [11]

Ahmad [6] stated that other issues such as quality, cost and delivery of new product developments can be the cause of product failure to compete in the global market. The new design failed because it did not match the machine's suitability factor in the production process. Companies need to think about the idea of making designs that can last a long time due to the anticipation of the fast reaction of a product for consumer consumption. [12] A product that can last a long time can be understood from the derivative properties and characteristics of the previous product. [12] According to Villamil and Hallstedt [13] Most companies from the beginning of the product development process evaluate and set criteria by considering aspects such as production costs, product quality, risk, revenue, time, and market objectives in making product innovations, hence the product will sustainable.

2 Methods

According to Rogers [15] commercialization product development is a process of a supply chain management that provides structure aiming for developing and bringing new products to market. In general, commercialization is conducted after a small business grows. It needs marketing strategy which covers ideation, business process, and stakeholder stages. This research discusses small and medium manufacturer companies of rattan industry to see their product development stages and how they can manage to gain success in commercializing new products. The new products are needed in a company to show unique value to global buyers. The research data of rattan industry manufacturer in Desa Trangsan was held in February 2022.

This research uses qualitative descriptive approach to four companies running rattan furniture business in Desa Trangsan with descriptive analysis of how they treat rattan products for export purpose in their companies. The research also aims to identify problems which the subject of research comes across in product development, design innovation and other business-related activities. The research is conducted by using field observation and primary data collection from interview between the researchers and respondents or resource persons.

Respondent samples are chosen randomly by a certain criterion. Those who have vast experience in rattan industry and export process are priority considering that they understand the problems in the industry. Main approach of this research focuses on rattan furniture product development. Deep interviews were held to Punky from Pratama Rotan Interior, Wardoyo from Bengawan Putra Jaya, and Sukisno from Lingga Inori Rotan as the results shown in Table 2. The Interview dedicate to figure out which design role area needs improvement. Question script, stationary and digital camera are used as the research tools.

A content analysis was undertaken using classic codification to inspect the data. According to Creswell [15], an adequate content analysis describes the thematic content of interview transcriptions by identifying common themes in the texts. Content analysis tries to follow this pattern:

- (1) highlighting in the text what is relevant to the topic of the research;
- (2) initially coding each distinct first-order category;
- (3) grouping similar codes to create more focused categories;
- (4) identifying theoretical themes.

3 Results and Discussion

3.1 Dataset

Figure 2 shows the production of rattan in the Trangsan industrial company based on container capacity and

destination country. America ranks highest with total production of 680 pcs, followed by Belgium with 600 pcs, Italy 210 pcs, 200 pcs, Spain 200, England 200, Australia 120, and Canada 100 pcs.

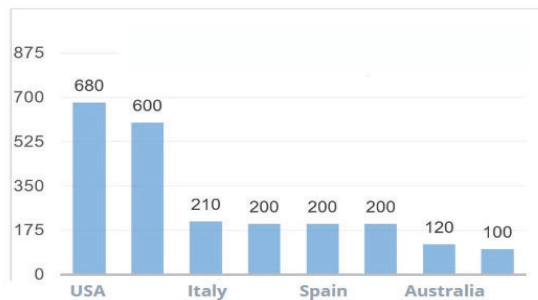






Fig. 2. Transgan Rattan Industry Export (Source: Personal doc. based on data collecting)

All of the analyzed companies analyzed were found to have carried out a new product development process based on a brief from the buyer. The company obtains references from internet sources and then manufactures prototype sample products, manufactures them, and continues with product delivery. All respondents agreed that the company produces for sale to other companies, the finished products are sold to foreign consumers abroad known as Original Equipment Manufacturing (OEM).

The company asserts that there are no obstacles in the process of developing a new design, the design is obtained from the buyer. The company shows not doing trend research in a broad socio-economic context in developing new ideas to meet buyers' desires. It was found that several companies took advantage of the internship student resources to be able to produce new design product developments.

This study highlights the collaboration between companies and designers from local universities to collaborate in research and development of innovative products. Table 1 shows that not all designs are obtained directly from buyers and companies still have limitations in carrying out ideal design innovations that are able to compete in intense global competition, companies are very open to collaborating with design educational institutions if the output of new designs can be in accordance with market tastes and is accepted by buyers.

Table 1. Export Product Request

NO	Furniture Figure	Export Request	Analysis
1		Company A, the source of Mr. Rofl, produces for the purpose of the American market with an average number of requests reaching as many as 200 pcs/container.	Single chair
2		Company A, the source is Mr. Rofl, with the aim of the American market with a total export request of 200 pcs/container	Sofa chair
3		Company B, sourced by Mr. Wardoyo, with the aim of the American market with a request of 250 pcs/container	Arm chair
4		Company C, source Mr. Sarjito, with the aim of the American market with a quantity of 20-30 pcs/container.	Lounger

In particular, all respondents agreed on the importance of the role of product design development in the company for the development of creativity and product innovation in order to be accepted by the market. Some companies do not yet have collaborations with designers, especially professional designers, however, companies have the awareness to invest by building a research and development division within the company so that products are able to have added value and industrial sustainability in the long term.

Table 2. Interview result with Rattan Industry player/craftsman

Questions	Punky from Pratama Rotan Interior	Wardoyo from Bengawan Putra Jaya	Sukisno from Lingga Inori Rotan
1. Are there any obstacles in the design development process?	Yes, sometimes the design from designer are hard to make because the construction doesn't compatible.	Yes, but not much. Sometimes the technical of design references from Pinterest is hard to make/applied.	No. We usually work with the design from buyer. Our company only work as craftsman.
2. Does the industry	Not yet for now, but there	Yes. There are some students	No, but usually there are

have cooperation with designers ?	should be one.	from Sebelas Maret University and Muahammadiah Surakarta University who usually have product-related project.	project-based accompaniment from Indonesia Institute of the Arts of Surakarta and Sebelas Maret University.
3. Does the industry willing to collaborate with designers ?	I am open to any collaboration with designers .	Yes, we are willing to.	Yes, if the design is acceptable for client/buyer.
4. Does the reference design (eg Pinterest) have a long-term effect / provide economic value?	Yes, it helps.	Yes, there are a good long-term effect.	No, because the design was from client/buyer and meant for their order.
5. As a business man, are you willing to invest in the development of export products so that the products have higher value? (Investments such as the establishment of a design research and development division, or the addition	We already working on that.	Yes.	Yes.

of designer human resources)			
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Efforts are still needed to harmonize the mechanism of the partnership pattern from the role of the designer at the stage of product development ideas to the commercialization of new products. Companies are more interested in marketing and production performance, while designers focus on research and development performance, forecasting trends, and design concept generation. Product innovation targets to become sales performance that can have an impact on the socio-economic community of the industrial community, which is a challenge.

4 Conclusion

The result shows that companies do not have designers involved in their product development process. Rattan industry manufacturers in Desa Trangsan have not invested much in research and new product development. However, some companies have started collaboration with local universities through student's apprenticeship as designers. By analyzing interviews and survey results, conducting deep interview, and studying design role literatures, this research is expected to give opportunities to improve higher value and long-term sales as well as giving sustainability impact to local rattan industry manufacturer.

Recommendation to the manufacturers in order to increase added value regarding innovation is for them to start collaboration with academics, furniture design association. It is important for them to produce new creative products that meet global customer demand. Manufacturers can also work together with professionals for the same purposes.

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