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Sustainable product development for small and medium enterprises

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A B S T R A C T

Developing new products based on sustainable product development is not easy. It is necessary to consider various aspects such as price, quality, consumers, competitors, and others. Large-scale companies have the resource capacity to develop new products. However, for small and medium enterprises (SMEs) with limited capital and equipment, developing new products that are successful in the market response is a complicated job. This community service activity aims to educate SMEs about sustainable new product development and the basic procedures for developing a new product. It is carried out in collaboration with partners from PERMAI Penang, targeting Indonesian workers in Malaysia who may be trying to develop independent businesses. Specifically, this training will help participants 1) Identify the type of product to be developed, 2) Understand all aspects related to new product development, 3) understand the standard stages of product development. By increasing the knowledge of independent entrepreneurship among workers in Pulau Pinang, Malaysia, we hope that more SMEs will succeed in developing products or services for consumers. Empowering employees to prioritize their welfare by knowing the basics of new product development will create additional income for migrant workers who take part in this training.

Contribution to Sustainable Development Goals (SDGs):

SDG 9: Industrial Innovation & Responsible Production

SDG 12: Sustainable Production & Consumption

SDG 11: Sustainable Cities and Communities

SDG 17: Partnership for Sustainability

1. INTRODUCTION

1.1. Research Background

This Community Service activity is partnered with PERMAI Penang which is an abbreviation of the Indonesian Community Association in Pinang, Malaysia. PERMAI is an NGO or non-political non-governmental organization engaged in social, educational, and cultural fields. PERMAI members or experts consist of Indonesian people domiciled in Malaysia, including workers, expatriates, students, and teachers/educators. Currently, its members who come from construction workers have limited knowledge and skills related to SME's development. As job

market competition in Malaysia becomes increasingly tight, migrant workers also need to prepare their skills to start and develop SME-scale businesses independently. Currently, several workers are trying to develop creative craft products that are produced and marketed independently. Migrant Population: The Indonesian community in Pinang is one of the largest groups of foreign workers, many of whom have established small businesses to support their livelihoods. These migrants face distinct challenges, including language barriers, legal restrictions, and limited access to financial and business support networks. Business Ownership: A large percentage of Indonesian migrant own businesses that are family-operated, with limited external employment. These businesses are essential for providing for the migrant's family and creating employment for other members of



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the community. Business Areas: The businesses operated by Indonesian migrants in Penang cover various sectors, including: (1) Retail and Wholesale: Shops selling Indonesian goods, clothing, and daily necessities, (2) Food and Beverage: Small food outlets that cater to local tastes, often offering Indonesian cuisine, (3) Manufacturing and Handicrafts: Small-scale production of clothing, accessories, and traditional crafts, (4) Services: Beauty salons, repair shops, and cleaning services, and others. Indonesian migrant workers in Malaysia are generally laborers in the formal sector on plantations, processing factories, construction, and others [1].

1.2. Literature Review

The development of MSMEs is not only carried out by MSMEs, but must also be supported by all stakeholders [2]. These challenges include limited marketing strategies. By providing targeted support through a series of capacity-building workshops, hands-on training, and expert consultations, the program aims to: Sustainable product development for small and medium enterprise. Successful product development is when the product or service produced is well received by the market because it has value for consumers [3, 6]. The initiative aims to introduce digital marketing tools and sustainable marketing strategies that will help SMEs expand their customer reach. Several stages in classic product development have been widely implemented. Developing new products based on consumer needs will have the potential to be well-received by the market [4]. Quality is a major indicator that determines whether consumers will accept or reject a product or service [5]. The product development process generally consists of stages or is often referred to as the 6 (six) phases of classic product development by Ulrich and Eppinger [4]. The six phases are identified as: Phase 0. Planning, Phase 1. Concept Development, Phase 2. System Level Design, Phase 3. Detail Design, Phase 4. Testing and Improvement, and Phase 5. Initial production. Large companies with adequate resources generally use this approach in developing new products. The advantage of following this stage is to ensure that the new product to be produced is technically and non-technically confirmed to be able to be processed for manufacturing and has a good market share.

However, the implementation of product development stages like this becomes complicated in small-scale industries (Small and Medium Enterprises-SMEs). The availability of resources owned by SMEs generally chooses an easier and more practical approach in developing new products. SME creative products tend to be simple with low costs, but with special uniqueness. The product development approach for SMEs can apply the E-R-I-C (Eliminate-Reduce-Increase-Creat) concept. Existing products are then analyzed and determine product features that [5]:

- Eliminate (eliminate all unnecessary competition factors)
- Reduce (reduce all competition factors that consumers do not need)
- Increase (improve all the competitive factors that consumers want)
- Create (creating new value for consumers)

1.3. Research Objective

The primary purpose of this community development initiative is to address the critical challenges faced by Indonesian migrant SMEs and local SMEs in Pinang, Malaysia.

2. MATERIALS AND METHODS

As a migrant community in Penang, Malaysia, there are several problems and obstacles in increasing economic independence, especially for SMEs. The main problems include: (a) Problems in developing SMEs that are managed independently, (b) Limitations in analyzing consumer needs to be sold to the community, and (c) Limitations in developing ideas related to new product types that will be developed based on cheap materials but have artistic value and benefits for consumers.

The solutions offered to overcome this problem are: (i) Problems in developing SMEs that are managed independently. Providing education on developing SMEs based on the basics of classic product development by considering the limitations and opportunities that are owned. (ii) Limitations in analyzing consumer needs to be sold to the community. Providing training in analyzing consumer desires and needs to be adopted in new products that will be developed. (iii) Limitations in developing ideas related to new product types that will be developed based on cheap materials but have artistic value and benefits for consumers. Providing product development ideas by utilizing environmentally friendly materials that have artistic value and functions that are attractive to consumers. The problem faced is the lack of knowledge and skills of Indonesian workers in Malaysia related to the development of SMEs by utilizing waste materials that have value. Lack of ability to conduct situational analysis related to consumer needs. As a result, they cannot develop simple products with low capital. To overcome this problem, we propose a comprehensive solution that includes community service activities, training and education, as well as monitoring and supervision. This solution aims to create creativity in developing products that have value for consumers.

3. RESULT AND DISCUSSION

3.1. Canvas Strategy

After all the competition factors have been mapped, the next step is to describe them in the As-Is Canvas Strategy. Through the As-Is Canvas Strategy, the current strategy position can be seen to determine which competition factors are eliminated, reduced, increased, and created.

Table 1. E-R-I-C items mapping (illustration)

Treatment	Competition factors
Eliminate	A, B, D
Reduce	C, E, F
Increase	G, H
Create	Z

The next step is to plot it on the To-Be Canvas Strategy, to see the position of the strategy that will be carried out. At this stage, the differences that will be implemented based on E-R-I-C do not only focus on the items that are eliminated, but it must be ensured

that the items that will be increased are able to answer the needs and desires of customers when the product is marketed.

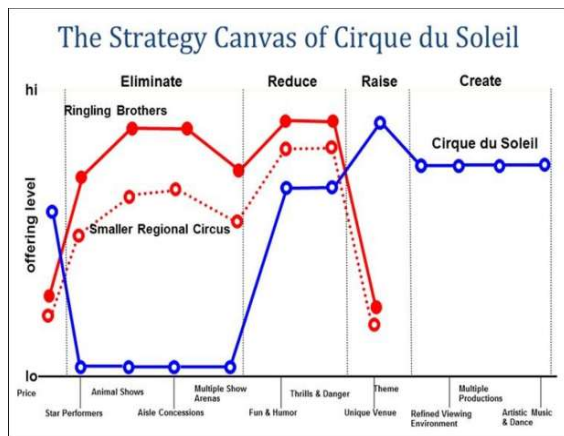


Fig.1. Canvas strategy example [6]

3.2. Case Study: Craft Product



Fig. 2. Development of craft products made from waste materials



Fig. 3. Community service activity team

4. CONCLUSION

SME scale product development tends to be done in practical ways with low costs. The key to the success of new product development lies in uniqueness and differentiation from existing products. The E-R-I-C concept tends to be more appropriate to be applied to SMEs compared to the 6 (six) phases of product development because it requires a comprehensive and detailed analysis. Product development in SMEs with the E-R-I-C concept can be easily described in the Strategy Canvas to determine the process of each Competition Factor of a product. The main focus of E-R-I-C is not only on the items that are improved and eliminated, but how innovative it is to create one or two Competition Factors that differentiate from existing products as an attraction for potential buyers of the product to be developed.

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