Mass Customization and Personalization Prospects in Developing Country: Indonesian Context

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Abstract. The advancement of information technology (IT) has changed many modes and ways for people in doing their businesses. Mass Customization and Personalization (MCP) is one example of business modes that has been dramatically evolve, mainly due to the currently very fast IT development. MCP has enabled people to involve in adjusting some design parameters of a product to meet their personal requirements before purchased. The advancement of IT has made MCP more successful as it makes the process faster, easier, simpler and more joyful. The success stories of MCP are easily found in many developed countries, where the IT infrastructure has firmly been established. For developing countries, there are very few industries have implemented the MCP concept, including Indonesia. This paper discusses a descriptive study to depict what people think about MCP implementation in Indonesia especially in Small and Medium Enterprises (SMEs). Kano model was used to see the perception of both producers and consumers in relation with MCP implementation. Five dummy MCP prototypes were developed for five creative products including plaques, hats, invitation card, t-shirts and leather bags. Based on the KANO questionnaire analyses, it is clear that there are big opportunities to implement MCP in Indonesia especially for creative products produced by SMEs. Identifying the correct product features is an important key for successful MCP implementation in developing countries.

Keywords: Mass Customization and Personalization, creative product, KANO, SME

1. Introduction

Every enterprise will always try to satisfy its customers. Total customers experience has been identified as a vital factor for manufacturers to focus on. Berry (2002) argued that premium value can be perceived by customer if the quality of product (superior solution to the need, fair price) and the quality of services (convenience, treatment with respect and emotional connection) could be provided by manufacturer. This means manufacturers have to understand what people need and how to fulfil the need better than competitors.

How to ensure that the real need customers demanded is the need manufacturer perceived is challenging as it will differentiate between a successful product and the fail one. It is noteworthy that understanding customer need is not a simple task especially in this era where voice of majority has been replaced by voice of personal. The extent of market-of-one has been foreseen as a prospective driving force for the next transformation of global economy (Pine 2009). As each customer may have

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her/his own preference, a flexible responsive-based product specification should be adopted as an alternative of the rigid predictive-based one. In other words, the domination of mass production paradigm has slowly been decreased and the concept of mass customization and personalization (MCP) has increasingly adopted. Customer involvement in value creation becomes a new important concept for manufacturers in addressing customer satisfaction (Risdiyono and Koomsap 2011).

There are many aspects considered by customers in making buying decision. Flexibility is one of them (Anderson 2006). In mass production system, flexibility is usually offered in terms of prices, services and delivery while MCP extends the flexibility to product specifications by enabling individual customers to involve in value creation. They are enabled to define the fittest alternative that meet the cost, schedule and the product requirements through the capabilities of a company. The flexibility is depended upon three main factors including (1) customer interest, (2) manufacturing issue and (3) engineering and super system issues (Risdiyono, 2015). It is important to note that the conditions of these three factors in developed countries are different with those in developing countries. Hence, the success story in some countries is not a warranty that MCP will be successfully implemented di all countries.

In 2014, there are 970 international web-based product configurators which are included in the Configurator Database. The objective of this report is to provide market information, statistics and an overview about diverse product configuration offerings of MCP companies. This documentation platform was started in 2007 and grew to the biggest collection of online configuration tools that are used in mass customization approaches (Blazek, 2014). Among those 970 companies, none of them is located in Indonesia (Table 1).

Table 1. Number of product configurators offered by companies based on country of origin.

| Country          | Frequency | Country         | Frequency |
|------------------|-----------|-----------------|-----------|
| Germany          | 470       | Thailand        | 4         |
| United States    | 332       | Finland         | 3         |
| Austria          | 33        | Norway          | 3         |
| United Kingdom   | 28        | New Zealand     | 3         |
| Switzerland      | 20        | China           | 2         |
| Netherlands      | 15        | Czech Republic  | 1         |
| France           | 12        | Denmark         | 1         |
| Australia        | 9         | Ireland         | 1         |
| Canada           | 9         | India           | 1         |
| Sweden           | 7         | Lithuania       | 1         |
| Belgium          | 4         | Latvia          | 1         |
| Spain            | 4         | Niger           | 1         |
| Italy            | 4         | Slovakia        | 1         |

The prospect of MCP implementation in developing countries needs to be evaluated. This research is one initial attempt to get a brief depiction about MCP in the perspective of people of Indonesia. The result of this paper is very useful for all stakeholders in many sectors, including industries, academics and government in order for them to take important measures to deal with the dynamic competition in this global era.

2. Research Method

2.1. Dummy MCP Prototypes Development

In MCP concept, personal experience is one important thing that customer will deal with. Hence, in this research, in order to make the respondents become more familiar with the MCP concept, five
dummy prototypes were developed for creative product configurators including plaques, hats, invitation card, t-shirts and leather bags. The prototypes were then demonstrated in front of the respondents before the survey is conducted. This demonstration is very important to be presented so that all respondents get a similar perception about what MCP is. Figure 1 shows the example of two dummy prototypes of product configurators, i.e. t-shirt and plaque. The dummy prototypes were provided in both English and Bahasa Indonesia.

![Figure 1. Two examples of the product configurator dummy prototypes](image)

### 2.2. Data Collection and Analysis

By using the five dummy prototypes developed, data collection processes were then conducted. Five groups of respondents consisting about 70 persons each were incorporated in this research. The survey utilized a questionnaire based on Kano model as it is a useful tool to classify and prioritize customer needs based on how they affect satisfaction. The relationship between product performance and customer satisfaction can be easily reflected on four types of product attributes, including: (1) must-be, (2) one-dimensional, (3) attractive, and (4) indifferent. Must-be (basic) attributes are expected by the customers and their absent leads to extreme customer dissatisfaction. One-dimensional (performance) attributes are those for which the level of customer satisfaction is linear to the degree of attribute fulfilment. Attractive (excitement) attributes are usually unexpected by the customers and their availability can result in great customer satisfaction. Indifferent attributes are those that the customer is not interested in the level of their performance (Sauerwein et.al., 1996). Hence, by using this method, the customer perception about MCP concept can be depicted and each feature provided by each configurator can be evaluated.

### 3. Results and Discussions

#### 3.1. Results

As the dummy prototypes are product-specific (built based on each product flexibility), then the number of features for each product configurator are slightly different. For example, the features of leather bag configurator (which are mainly focused on selecting model, configuring shape and choosing material) will be different with the features of t-shirt configurator (which are mostly in relation with inserting image and text). The same situation is applied to all five product configurators in question. The customer perception is then configured by the tendency of all Satisfaction Index (SI) and Dissatisfaction Index (DI) plotted in the Kano diagram. Based on the position of all features in the diagram, the attractiveness level of the concept can be then concluded. The result of Kano questionnaire for all product configurators can be found in figure 2.
Figure 2. Results of Kano questionnaire for product configurators (A = hat, B = plaque, C = t-shirt, D = leather bag, E = invitation card, F = average of each product)
3.2. Discussions

From aforementioned Kano questionnaire results, it is clear that all examples of product configurators gave good impressions to respondents which indicate a positive signal for MCP implementation in Indonesia. This finding corresponds to the previous research conducted by Risdiyono (2015) which discussed SWOT analyses and showed the attractiveness of MCP concept from SMEs perspectives. The detail of the attributes of the product configurators are not shown in this paper since the objective of the development of dummy prototypes is to capture the initial response of the respondents. However, the details are available and will be used as basic references for building the real web-based product configurator for each product. In order to see the general perception of respondents about MCP implementation for the five products under investigation, the global satisfaction and dissatisfaction indexes were calculated. These indexes are the average of all features of each product configurator indexes and can be used to get a brief idea about what customers think about the matter in question. From figure 2F it is clear that in general, the concept of MCP can be implemented for all five creative products as it seems able to give attractiveness (excitement) to customer.

4. Conclusion

Based on the results and discussion it is concluded that there is a big opportunity to implement MCP concept in Indonesia. The prospect is positive, especially for creative products where the creativity of customers can be involved in the value creation. As the implementation of MCP is not only based on market opportunity, but also manufacturing process and infrastructure, it is recommended to evaluate the level of customization by considering all those aspects before implementing the concept. IT and payment system are two main infrastructures that should be evaluated in advance.

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