

# the effect of product

*by* Herning Indriastuti

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## Preface

We are honored and delighted to present the publication of the International Conference on Business and Management Research (ICBMR) 2016, held in Lombok, Indonesia.

ICBMR is an academic conference with a motivation to provide an excellent international platform for academicians, researchers and budding students around the world to share their research findings and to find international linkages for future collaborations.

This proceedings volume is the collection of selected papers of the 10th ICBMR 2016 Conference, held October 25–27, 2016 in Lombok, Indonesia. ICBMR's theme was Enhancing Business Stability through Collaboration. This book presents theories, conceptual frameworks and empirical evidence of current issues in study areas including Business, Management, Finance, Accounting, Economics, Islamic Economics, and competitiveness. All topics include aspects of multidisciplinary and complexity of safety in research and education.

Without the dedication of the people involved in organizing ICBMR 2016, it would not have been possible to make another success of it. We would like to extend special words of gratitude to all contributors to the conference program, keynote speakers, our sponsors, and especially the conference staff. We are grateful to have had an intellectually stimulating conference, thoughtful discussions, and an engaging experience with fellow attendees.

We hope this book contributes to literature on business and management research.

Editors of ICBMR 2016

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# The effect of product innovation, value co-creation, and market sensing on Indonesian Batik firms' performance

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**ABSTRACT:** The aim of this study is to analyze the effect of product innovation, market sensing capability, and value co-creation on firms' performance. Small and Medium Enterprise (SMEs) Batik firms in Central Java are used as a sample. Sampling was done using a purposive sampling technique. Data were collected using a questionnaire given directly to the respondents. The total data that can be further analyzed comes from as many as 211 respondents. Data was analyzed using Structural Equation Modelling – (SEM) with the AMOS program assistance. The results shows that the product innovation has significant effects on value co-creation. In addition, value co-creation as a mediator in the product innovation relationship has significant effects on firms' performance.

## 1 INTRODUCTION

The problem of developing business now of values from firms to customers. The tight competition and limited innovation by the firms necessitate customers and market to be actors who change this situation. Innovation is the key factor for companies to survive in the midst of competition, making the companies grow a lot faster, more efficiently, and more profitably Alpay *et al.*, (2012). It is also becoming the way for companies to maintain a competitive market Lin *et al.*, (2013), increase the value of the products Aydin *et al.*, (2007), compete in global competition Akman & Yilmaz (2008), create growth and sustain dynamic performance in a changing environment, and improve the competitiveness and performance of the companies. Competitive capability in the organization is the ability to learn, innovate and respond to global challenges, dynamics, and ambiguity, which are used to develop strategies and make innovations more effective.

Therefore, as a consequence, product innovation is considered very important for firms' performance. Although generally product innovation is accepted as the main key to achieve a better performance, still there are differences in the results of previous studies on the relationship between product innovation and firms' performance (e.g; studies of Hoonsopon & Ruenrom (2012); Avlonitis & Salavou (2007); Akgun, *et al.*, (2009); Augusto *et al.*, (2011); Fu *et al.*, (2008); Al-Zyadaat, *et al.*, (2012)).

Innovation is essential for the firms' survival. Co-creation acts as a problem-solving element for the firms to survive. In particular, cooperation through co-creation will facilitate access to new resources, intangible capabilities, innovation, and a greater adaptation to enormously dynamic environments. Therefore, organizations need to take advantage of the involvement of customers and other stakeholders because they can offer new and unique resources, such as knowledge and experience. However, although this is a very topical subject, there has been a lack of research in the field of industrial marketing on procedures and methods for establishing effective processes of co-creation to encourage innovation in the development of solutions and to promote market sensing. This article aims to contribute to the discussion by analyzing how value co-creation can influence firms' performance and how market sensing affects value co-creation. In particular, we aim to answer the question of how to create product innovation and market sensing through co-creation to enhance firms' performance.

## 2 THEORETICAL FRAMEWORK AND HYPOTHESES

In order to answer the question, we use Social Exchange Theory and that stems from the Resource-Based View (RBV), as well as the marketing approach called Service-Dominant Logic (S-D L). The combination of these approaches enables us to consider the dual challenge associated with the above question—on the one hand encouraging cooperation and, on the other hand, managing relations to seek mutual benefits.

With the above aim, we present qualitative research carried out in different RBVs while maintaining that differences in performance can be attributed to the possession of a set of unique resources that are strategically valuable Barney (1991). It includes the role taken by customers and other stakeholders (suppliers, distributors, border agents) when drawing up solutions, called co-creation Prahalad & Ramaswamy (2004). The criterion behind this principle is that value is created collaboratively through mutual exchange interactions in general and services in particular, arguing that value is co-created by multiple factors through the processes of exchanging and integrating public, private, and market-facing resources Vargo *et al.*, (2008). Lusch & Vargo., (2014) and Vargo & Lusch (2004) argued, based on S-D logic, that value is always co-created, jointly and reciprocally, in interactions among actors through the exchange of services (i.e; applied resources such as competences and skills).

Payne *et al.*, (2008) argue that the analysis leads to the suggestion that co-creation includes: (1) active involvement between at least two actors; (2) integration of resources that create mutually beneficial value; (3) willingness to interact, and (4) a spectrum of potential forms of collaboration. Based on these factors, Gornroos (2008) analyzes the value co-creation process and provides (1) active involvement; (2) integration of resources that create mutually beneficial value; (3) willingness to interact, and (4) a spectrum of potential forms of collaboration. In the process of co-creation both customers and organizations are equally important. Through interaction, the organizations get an opportunity to influence the customers' value creating process, which means that the customers' process and the organizations' process merge into one process.

Sensing capability is defined as the ability of a firm to sense and identify opportunities and options in its scan, search and exploration across technologies and markets for its new product development Zhang & Wu (2013). By making use of sensing capability in scanning, searching, and exploring across technologies and markets for product innovation, firms are capable of exploring opportunities and options, detecting new opportunities and product solution options, spotting new technology possibilities, and identifying trends in customers' needs.

Based on the inconsistencies of the effect of product innovation and firms' performance in the previous studies, this study is conducted to analyze the role of value co-creation in mediating the relationship of product innovation, market sensing and firms' performance.

## 3 CONCEPT DEVELOPMENT AND HYPOTHESES

### 3.1 *Product innovation and value co-creation*

Value co-creation is a coalition of different economic factors to reconfigure and integrate competence to generate a shared value. Saarijärvi *et al.*, (2013) explain that the value co-creation always has two sides, which are value creation based on perspectives corporations and customers. Both parties then provide resources in order to create value by integrating the

resources of each party through the mechanism of co-design, co-development, or co-distribution.

Value creation is a concept which describes the firms' efforts to deliver superior performance for the desired customers through innovation. Innovation enables companies to update their products with the attributes that ultimately meet the needs of customers more than those of the existing products O'Cass & Ngo (2012). Value creation is a concept to create superior performance for customers O'Cass & Ngo (2012). Parthasarathy *et al.*, (2011) have found that product innovation is an instrument for the creation of value. Vargo *et al.*, (2008) state that value creation is a core purpose and the central process of economic exchange. Value is co-created by this reciprocal and mutually beneficial relationship.

Hypothesis 1: The higher the product innovation, the higher the level of value co-creation.

### 3.2 Co-creation and marketing performance

Value co-creation makes the maximum capital increase for the firms. The study of Aspara & Tikkanen (2012) discusses two strategies of value creation as value capture—strategies that ensure that the maximum value of the portion captured or provided by the firm itself is in the form of profits, instead of members of the value chain or competitors. Meanwhile, value creation is a strategy that refers to the value of the utility (benefit) in which products or other offers of the company are created by the customers. They hypothesize that the emphasis on value capture strategies has a negative effect on firms' performance, while the emphasis on value creation strategy has a positive effect on firms' performance. The results of the study of Aspara & Tikkanen (2012) show a positive and significant effect of the emphasis on value creation strategy on firms' performance, while the emphasis on value capture strategies has no significant effect on firms' performance. Similar results are also found in the study conducted by Sullivan, *et al.*, (2012) that show a positive influence of value creation on firms' sales performance.

Hypothesis 2: The higher the level of value co-creation, the greater the firms' performance.

### 3.3 Product innovation and firms' performance

Avlonitis & Salavou (2007) state that the innovation of products consisting of uniqueness and newness in Small and Medium Enterprises (SMEs) has a positive and significant impact on the performance of firms. It is evident in the market share and sales volume. Research conducted by Lau *et al.*, (2010) suggests that product innovation is a source of productivity and agent of organizational change for companies to survive because only companies with full and powerful product innovation will open up greater opportunities to challenge product marketing by competitors. This research is supported by Prajogo (2006); Bates & Khasawneh (2005), Akman & Yilmaz (2008), and Rosli & Sidek (2013).

Hypothesis 3: The higher the product innovation, the greater the firm performance.

### 3.4 Market sensing and value co-creation

Experience provides a clear illustration of how market-oriented firms create value for both customers and shareholders. This paradigmatic transformation requires changes

Avlonitis & Salavou (2007) state that the innovation of products consisting of uniqueness and newness in Small and Medium Enterprises (SMEs) has a positive and significant impact on the performance of firms. It is evident in the market share and sales volume. Research conducted by Lau *et al.*, (2010) suggests that product innovation is a source of productivity and agent of organizational change for companies to survive because only companies with full and powerful product innovation will open up greater opportunities to challenge product marketing by competitors. This research is supported by Prajogo (2006); Bates & Khasawneh (2005), Akman & Yilmaz (2008), and Rosli & Sidek (2013).

Hypothesis 3: The higher the product innovation, the greater the firm performance.

### 3.5 Market sensing and firm performance

Market sensing is an organization's capability to change the market and predict accurate market response as a potential organization development to enhance its performance Foley & Fahy (2004). According to Teece (2007), firms conduct searching, sensing and adventuring to investigate customers, industry structures, technology and new opportunities. Therefore, they need good sensing of the market or customers cause it makes an effective identification of new knowledge. Sin *et al.*, (2005) state that market sensing makes superior values and a continuous performance.

Hypothesis 5: The higher the market sensing, the greater the firm performance.

## 4 RESEARCH METHOD

### 4.1 Sample and data collection

The role of value co-creation done in Batik industries is investigated in Batik Tiga Negeri in Central Java, Indonesia, which is a collaboration among three Batik-related parties namely the producers, suppliers and customers. They come from Lasem, Pekalongan and Surakarta. One Batik brand contains three motifs from three places to do co-creation. The sampling was done using a purposive sampling technique. Data were collected by providing direct questionnaires to 211 respondents, who are business owners. The data is analyzed using Table 1. Scale & measurement–construct validity.

Indicator	Standardized loadings	$\alpha$	CR
Product Innovation:			
Level of product uniqueness	0.72		
Product novelty to get other new ideas	0.76		
Development of product creative collaboration	0.75		
Development of the old design for a new product	0.75	0.83	0.83
Value Co-Creation:			
Mutual exchange interaction	0.80		
Sharing information and knowledge	0.76		
A spectrum of potential forms of collaboration	0.81		
Willingness to reciprocal interactions	0.77	0.86	0.87
Market Sensing:			
Exploring opportunities and options	0.69		
Detecting new opportunities	0.72		
Spotting new technology possibilities	0.67		
Sensing customer need trends	0.64	0.77	0.84
Firm Performance:			
Sales volume	0.74		



Sales growth	0.81		
New customer level	0.80		
New area level for sales	0.79	0.86	0.88

#### 4.2 Data analysis

The data that has been collected is validated and used for further testing. Thus, the analysis of hypothesis testing can be done accordingly. The results of hypothesis testing based on hypotheses that have been formulated can be seen in the following Table. Indicators of product innovation are level of uniqueness, novelty, development of product creative collaboration, and development of the old design for a new product Killa (2014). Indicators of value co-creation are mutual exchange interactions, willingness to interact and a spectrum of potential forms of collaboration Payne *et al.*, (2008). Market sensing indicators are exploring opportunities and options, detecting new opportunities, spotting new technology possibilities, and sensing customer need trend Zhang & Wu (2013). Firm performance indicators are sales volume, sales growth, and new customer level Avlonitis & Salavou (2007).

#### 4.3 Research findings

The research uses an estimation of Cronbach's Alpha Coefficient ( $\alpha$ ), Composite Reliability (CR), and Average Variance Extracted (AVE) to construct a reliability assessment. Statistical results for all databases with a value of alpha and the value of the Composite Reliability (CR) must be above 0.7 (see Table 2). The value of (AVE) is recommended to be above 0.5. Table 2 shows the measurement scales, the confirmatory factor analysis, and reliability. Cronbach's Alpha Coefficient and AVE estimation are also done using the Sobel test to determine whether the value co-creation would fill the gap between product innovation and firms' performance. The Sobel test is also used to comprehend the influence of market sensing towards firms' performance. Sobel will be of significant value when the test has a value  $> 2$  and a two-tailed probability of  $< 0.05$  (Soper, 2016).

The statistical results show that product innovation and market sensing capabilities have a positive and significant impact on value co-creation and product innovation, and that market sensing capabilities have a positive and significant impact on the firms' performance. Statistical results are presented in Table 2 below:

Table 2. Regression weight.

	Estimate	S.E.	C.R.	P	Label
Value_Co-creation <--- Product_Innovation	0.370	0.083	4.462	***	Significant
Value_Co-creation <--- Market_Sensing	0.387	0.086	4.522	***	Significant
Firms'_Performance <--- Value_Co-creation	0.594	0.158	3.764	***	Significant
Firms'_Performance <--- Product_Innovation	0.248	0.105	2.369	0.018	Significant
Firms'_Performance <--- Market_Sensing	0.268	0.108	2.486	0.013	Significant

#### 4.4 Measurement validation

The measurement model used AMOS 20 by applying the Maximum Likelihood (ML) procedure. The statistics resulted in a model that fits  $Chi-square = 111.53$ ,  $df = 98$ ,  $CMIN / DF = 1.138$ ,  $GFI = 940$ ,  $TLI = 990$ ,  $CFI = 0.992$ ,  $RMSEA = 0.026$ , and  $Hoelter = 230$ . The value of the Sobel test is  $> 2$  and the two-tailed value is  $< 0.05$  which means significant.

Multi-items are analyzed by estimated factor loading, Cronbach alphas, (CR) and (AVE). All results are positive and have significant factor loading ( $p \leq 0.05$ ) Cronbach alphas, (CR) range between 0.77 to 0.86 and 0.83 to 0.88, and all values are above 0.7. Lastly, AVE of all

cases is above 0.5. All of the indicators and construct reliability on the results support this study. Because Hoelter value is > 200 at a rate of 0.01 and 0.05, the model is considered fit, and the sample number of 211 is considered sufficient to make the model fit. Results of Sobel test = 2.544 and 44 and two-tailed value of < 0.05 mean that the value of Sobel test shows that product innovation and firms' performance are capable to be mediated by value co-creation. The Sobel test also shows that value co-creation is able to mediate between the market sensing capabilities and firms' performance.

#### 4.5 Structural model

Final results of the study show the structural models of the relationship between dependent and independent variables with a satisfactory value or goodness-of-fit. *Model Chi-square = 111.53, df = 98, CMIN/DF=1.138, GFI=940, TLI=990, CFI=0.992, RMSEA = 0.026, and Hoelter =230.*

Output regression coefficients are shown in [Table 1](#), indicating a strong correlation for all the hypotheses that have been tested. Hypothesis testing produces a positive and significant correlation between the influence of product innovation and the value co-creation (H1 supported), and market sensing capability has a positive and significant relationship to the advantage of value co-creation (H2 supported). Value co-creation has a positive and significant impact on firms' performance (H3 supported). Product innovation has a significant positive effect on firms' performance (H4 supported). Market sensing capability has a positive and significant relationship to firms' performance (H5 supported).

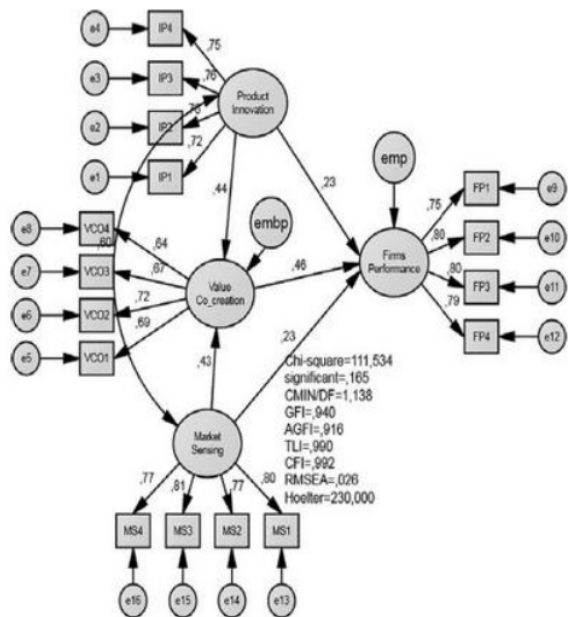


Figure 1. Full structural model.

## 5 DISCUSSION AND IMPLICATION

### 5.1 Discussion

The results of this study confirm the argument that product innovation is a consequence of the pursuit of performance, and proves that product innovation which is indicated by the level of uniqueness, novelty, development of product creative collaboration, and development of the old design for a new product, improves firms' performance Zhang & Wu (2013). Furthermore, product innovation also has a significant positive effect on value co-creation, which means that the higher the firms in creative industries improve their product innovation, the higher the cocreation value. Thus, these results support the view that the value co-creation can be obtained through product innovation Parthasarathy *et al.*, (2011). The analysis indicates a positive and significant effect of value co-creation on firms' performance, which means that the higher the level of value co-creation done by firms in the Batik industry, the higher the firms' performance. These results confirm the argument of Payne *et al.*, (2008) that the value creation in the networking has impacts on enterprises' performance improvement. This finding provides a strong support for the importance of product innovation and value co-creation in improving firms' performance, proven by a significant positive effect on product innovation and a significant positive effect of product innovation on firms' performance. On the other hand, the results of this study confirm the importance of value co-creation as an important aspect of the relationship between product innovation and firms' performance, which proves the positive effect of product innovation on value co-creation, and the positive effect of value co-creation on firms' performance.

#### 5.2 Managerial implication

The results of this study provide two possible alternatives for owners of SMEs in the Batik industry in Indonesia. The first is managing product innovation by increasing the uniqueness of the product, including the attributes of the products, increasing the variance of motives of the products continuously, and increasing the quality of the products. Increasing product innovation leads to the increase in firms' performance. The second alternative is using the value co-creation approach with customers to achieve high firms' performance. Owners can manage value co-creation by increasing the responsiveness to changing customers' demands, increasing flexibility to changing customers' needs, and delivering quality products to customers. The value creation occurs when product innovation improves.

## 6 CONCLUSION

The results of this research indicate the important role of value co-creation in bridging the gap between product innovation and firms' performance. Even though there are research results claiming that there is a contradiction between product innovation and firms' performance, such as the study of Yalcinkaya, *et al.*, (2007); Fu *et al.*, (2008), and Al-Zyadaat *et al.*, (2012), these contradictory results are concluded with a clear statement that value co-creation is able to mediate the gap between product innovation and firms' performance. Value co-creation is also capable of mediating market sensing capability to increase firms' performance. Five results support the stated hypotheses.

## 7 FUTURE RESEARCH

To win the global business competition, Batik SMEs must be able to innovate in order to improve firms' performance. They should be able to continue product innovation to survive. Surely, it is better when Batik SMEs are able to make their own branch label simple enough for their consumers to identify in the market. Finally, this research gives a focus on the Batik SME industries in Indonesia to develop a new strategy of Indonesian SME marketing in the

future. Hopefully, the next research on the advantages of value co-creation will be applied to other industries such as the Batik to perfect patterns in order to compete with other products.

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