

# The Product Innovation of Seaweed Moringa Chips: An Antecedent to Customer Value and Competitive Advantage

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The purpose of this study was to determine the effect of the product innovation of Seaweed Moringa chips on customer value and competitive advantage. This research was conducted in Wakatobi Regency, Southeast Sulawesi Province by taking a sample of 225 consumers as respondents. The analytical tool used to analyse the influences between variables in this study is path analysis. The results of this study indicate that the efficacy of Seaweed Moringa chips' product innovation has a direct effect on customer value and competitive advantage, with path coefficients of 0.483 and 0.334, respectively. The efficiency of Seaweed Moringa chips' product innovation also has a direct effect on customer value and competitive advantage, with path coefficients of 0.364 and 0.326. The results of this study also found that there is a direct influence of customer value on competitive advantage, with a path coefficient of 0.368.

**Key words:** *Product innovation, Customer value, Competitive advantage, Seaweed Moringa chips.*

## Introduction

The development of the seaweed-based processing industry in Wakatobi Regency is directed to create value-added commodities, especially for micro and small industries. This is expected to be able to improve the welfare of the community while at the same time supporting the development of regional creative products that can directly have an impact on improving the welfare of the community. One form of processed seaweed that widely involves people in Wakatobi Regency is the seaweed chips processing industry. In order to give more value to the processed seaweed chips, industry players are now starting to innovate products through the development of seaweed chips combined with moringa leaves. This is

done with the consideration that the consumer community, especially those in Southeast Sulawesi Province, consume a lot of Moringa leaves. It is believed that Moringa leaves are efficacious in curing various diseases. The results showed that Moringa leaves are efficacious in curing hepatitis B (Wahyuni, et al: 2013). In addition to its properties, Moringa leaves are also widely used as an additional ingredient for various food products, including as a mixture with noodles and yogurt drinks (Trisnawati, et al: 2015; and Diantoro, et al: 2015). The product innovation performance of Seaweed Moringa chips is expected to be able to increase customer value, which in turn can create a competitive advantage.

Seaweed Moringa chips' product innovation is getting enough attention from consumers. This is indicated by the increasing demand for these products. Consumers think that the combination of seaweed and moringa leaves is a very interesting breakthrough. Seaweed is a commodity that is used to facilitate the digestive tract. Moringa leaves have properties to prevent and treat hepatitis, so the combination of the two is considered very effective for maintaining human health.

Research results show that product innovation performance can affect customer value (Flint, et al: 2005). The development of a product based on innovation will have an impact on increasing customer value received by consumers (Nasution, et al: 2011). Increasing customer value will have an impact by increasing the competitive advantage of a product (Woodruff: 1997).

## **Literature Review**

### ***Product Innovation***

The very turbulent business world of today requires innovation of products that will later create competitive advantages (Cooper: 2005). For some people, product innovation is seen as a very risky thing (Cooper and Kleinschmidt: 1987). However, if it is successful, it will provide enormous benefits for the development of products in the future. Product innovation is seen as a process that combines techniques, experience and knowledge directed to product development that seizes business opportunities (Lundvall: 2016). In addition, product innovation is defined as the process of bringing new technology into use. Product Innovation can be separated into three basic categories: (1) line extensions, (2) me-too products, and (3) new-to-world products. Product extension lines are still familiar to business organisations but new to the market. Me-too products are considered new to a business organisation but familiar to the market; that is, imitations of competitor products. New-to-world products are considered new to both the business organisation and the market (Luke and Ferrell: 2000). To win business competition, product innovations that are subsequently contained in a business strategy are very necessary. The success of product innovation will provide significant

benefits for a business (Zhou and Fang: 2010). Various instruments can be used as measurements of the success of product innovation. In this research, product innovation will be measured based on product innovation performance using two dimensions: (1) efficacy, and (2) efficiency (Alegre, Lapiedra, and Chiva: 2006). The efficacy dimension refers to the measurement of the efficacy or usefulness of product innovation, and the efficiency dimension leads to the measurement of the cost efficiency of product innovation.

### ***Customer Value***

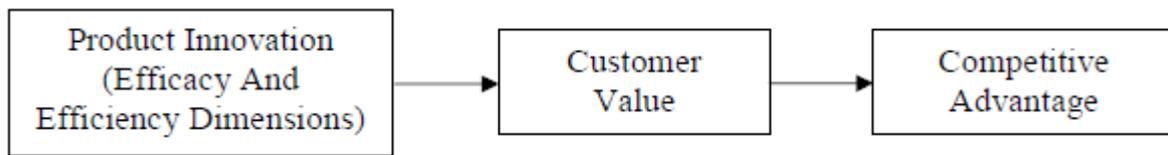
Customer value is part of an effort in customer-oriented management practices. It illustrates the idea that creating value for consumers is a strategy to understand what consumers want (Woodruff: 1997). Customer value is defined as a consumer's overall assessment of the utility of a product based on the perception of what is received and what is given (Zeithaml: 1988). Customer value is provided by evidence supporting the influential role of value in purchase decision making (Haemoon: 1999). Customer value can be used as a comparison element regarding how much value is able to be offered to consumers compared to competitors. In the end, whether there is a competitive advantage over competitors through the creation of innovative products that provide customer value can be established (Anderson, et al 2006). Customer value has a role in building a competitive advantage (Slater and Narver: 2000). In this study, the measurement of customer value will use 3 indicators: (1) value of attributes, (2) value of consequences with costs and benefits, and (3) value of emotions (Kristanto: 2005).

### ***Competitive Advantages***

A competitive advantage is a benefit strategy of companies that collaborate to compete more effectively in a marketplace (Kusumawati: 2010). Competitive advantages are a company's ability to create superior value by utilising its various resources. The right marketing strategy must be accompanied by a reliable company in competitiveness planning. Competitive advantages are the heart of marketing performance to face competition. (Slater and Narver: 2000; Porter: 1990; and Zhou, Brown and Dev: 2009). The indicators used to measure competitive advantages are product uniqueness, product quality, and competitive prices. The uniqueness of a product is the uniqueness of a company's products that combine the value of art with customer tastes. Product quality is the design quality of the company's products. Competitive pricing is the company's ability to adjust the price of its products to general prices in the market (Setiawan: 2012).

Based on the theoretical review in this study, the next model is constructed as follows:

**Figure 1:** Conceptual Research Model



### *Hypothesis*

Based on the conceptual framework of the study described in Figure 1, the hypotheses built in this study are as follows:

- H1: Efficacy in product innovation has a significant effect on customer value
- H2: Efficacy in product Innovation has a significant effect on competitive advantage
- H3: Efficiency in product innovation has a significant effect on customer value
- H4: Efficiency in product innovation has a significant effect on competitive advantage
- H5: Customer value has a significant effect on competitive advantage

### *Originality*

The originality of this study regards two things: (1) This study uses product innovation measurements based on the dimensions of efficacy and efficiency. It will be seen how they affect customer value and competitive advantage. (2) The development of the two dimensions of product innovation will then be applied to Seaweed Moringa chips to find out whether the innovation of Seaweed Moringa chips is able to create customer value and a competitive advantage.

### **Research Methods**

#### *Population and Research Samples*

The population of this research is all consumers of Seaweed Moringa chips in Wakatobi Regency. Seaweed Moringa chips producers in the Wakatobi Regency include 45 industries (which are small industries). Furthermore, the research sample was determined based on purposive techniques by taking 5 consumers from each of the existing industries. Hence, the total number of respondents in this study 225. The sampling technique used in selecting respondents was an accidental sampling technique.

### ***Variable Measurement***

#### ***Efficacy of Product Innovation (X1)***

Efficacy of product innovation involves the product innovation of Seaweed Moringa chips based on the properties and benefits of the product. This variable uses eight indicators adopted from the research results of Algree, et al (2006), where all indicators in this variable are measured using a Likert scale.

#### ***Efficiency of Product Innovation (X2)***

Efficiency of product innovation involves the product innovation of Seaweed Moringa chips based on the efficiency of the costs incurred to produce the product. This variable uses four indicators adopted from the research results of Algree, Lapiedra, and Chiva (2006), where all indicators in this variable are measured using a Likert scale.

#### ***Customer Value (Y1)***

Customer value is the value contained in the innovation of Seaweed Moringa chips. This variable uses three indicators adopted from the results of Kristanto's (2005) research, where all indicators in this variable are measured using a Likert scale.

#### ***Competitive Advantage (Y2)***

Competitive advantage is the ability of Seaweed Moringa chips to create superior value to face competition. This variable uses three indicators adopted from the results of Setiawan's study (2012).

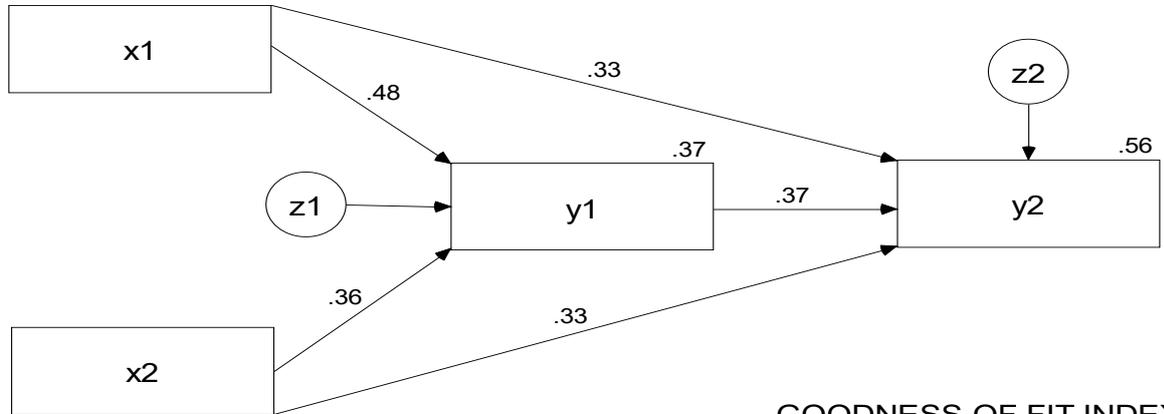
### ***Analysis***

The analysis used to determine the effect of the hypothesis in this study is the path analysis model using the SPSS version 18.0 software package and AMOS (Analysis of Moment Structural) software version 18. The reason for using path analysis in this study is to find out and analyse the direct influences between variables.

### **Results**

The results of testing the path model can reveal the direct effect of the path coefficient value of each path, as seen in Figure 3. Analysis of the direct effect between the variables of the model can be compared by evaluating each variable in terms of a direct effect on the Path coefficient. The path test results of the research model are as follows:

**Figure 2:** Hasil Uji Model Jalur (Path)



GOODNESS OF FIT INDEX  
CHI-SQUARE=18.874  
PROBABILITY=.000  
GFI=.858  
AGFI=.419

**Table 1:** Hasil Uji: Direct Effect Hypothesis

| Independent Variable             | Intervening Variable | Dependent Variable    | Coefficient Path Effect (Estimate) | Probability P (value) Regression Weights | Information |
|----------------------------------|----------------------|-----------------------|------------------------------------|--|-------------|
|                                  |                      |                       | Direct Effect                      |  |             |
| Efficacy of Product Innovation   | Customer Value       |                       | 0,483                              | 0,000                                    | <b>Sig.</b> |
| Efficacy of Product Innovation   |                      | Competitive Advantage | 0,334                              | 0,011                                    | <b>Sig.</b> |
| Efficiency of Product Innovation | Customer Value       |                       | 0,364                              | 0,010                                    | <b>Sig.</b> |
| Efficiency of Product Innovation |                      | Competitive Advantage | 0,326                              | 0,010                                    | <b>Sig.</b> |
|                                  | Customer Value       | Competitive Advantage | 0,368                              | 0,002                                    | <b>Sig.</b> |

Source: 2019 Results Data.

Based on the results of testing the hypotheses in Table 1, it can be seen that:

- H 1: Efficacy of product innovation has a positive and significant effect on customer value.
- H 2: Efficacy Product Innovation has a positive and significant effect on Competitive Advantage.
- H 3: Efficiency of product innovation has a positive and significant effect on customer value.
- H 4: Efficiency of product innovation has a positive and significant effect on competitive advantage.
- H 5: Customer value has a positive and significant effect on competitive advantage.

Analysis of the indirect effect between the variables of the model can be compared to evaluate the relationship of each variable directly (multiplied by the direct influence of other variables). The results of testing the indirect relationship can be seen in Table 2.

**Table 2:** Indirect Effect Test Results

| Independent Variable             | Intervening Variable | Dependent Variable    | Coefficient Path Effect (Estimate) | Total Effect | Information  |
|----------------------------------|----------------------|-----------------------|------------------------------------|--------------|--------------|
|                                  |                      |                       | Indirect Effect                    |              |              |
| Efficacy of Product Innovation   | Customer Value       | Competitive Advantage | 0,178                              | 0,512        | Mediasi Semu |
| Efficiency of Product Innovation | Customer Value       | Competitive Advantage | 0,134                              | 0,460        | Mediasi Semu |

**Source:** 2019 Results Data.

Based on Table 2, it can be seen that customer value has an indirect mediating effect on efficacy of product innovation and competitive advantage, and competitive advantage indirectly plays a role in mediating the effect of efficiency of product innovation on competitive advantage.

## Discussion

The findings in this study indicate that the product innovation of Seaweed Moringa chips has a positive and significant effect on customer value. These results are in line with the findings of a number of researchers, namely Flint, et al (2005; 2008); Nasution, et al (2011); Slater and Narver (2000); and Nasution and Mavondo (2008). This explains that the innovation of a

product can have an impact on the creation of customer value. This proves that the innovations made in Seaweed Moringa chips are able to create value for consumers.

Other findings from the results of this study indicate that the product innovation of Seaweed Moringa chips has a significant influence on competitive advantage. These results are in line with the findings of a number of researchers, namely Shepherd and Ahmed (2000); Reguia (2014); Mon (2001); Angelmar (1990); and Luke and Ferrell (2000). They found that product innovation can be the basis in creating a competitive advantage in a product.

Regarding the originality of this study, the product innovation of Seaweed Moringa chips refers to aspects of efficacy and efficiency. The research findings explain that both aspects have a significant and positive influence on customer value and competitive advantage. The test results show that consumers have more respect for the efficacious aspects of Seaweed Moringa chips. This is based on the results of the analysis, which shows that the path coefficient of efficacy regarding product innovation in relation to customer value and competitive advantage is greater than the path coefficient of efficiency.

## **Conclusions**

Based on the results of the research and discussion: (1) Product efficacy in the innovation of Seaweed Moringa chips has an impact on increasing customer value and a competitive advantage. (2) Efficiency in the innovation of Seaweed Moringa chips has an impact on increasing customer value and a competitive advantage. (3) The customer value of Seaweed Moringa chips is able to mediate the relationship between product innovation (both in terms of efficacy and efficiency) and a competitive advantage.

## **Recommendation**

Some suggestions that can be offered based on the results of this study are: (1) There needs to be a detailed measurement of the product innovation performance of Seaweed Moringa chips as a basis for future product development in accordance with consumer needs. (2) Product development is needed mainly in the physical form and product packaging of Seaweed Moringa chips. (3) There should be an addition of several variables to the model developed in this study, such as consumer familiarity and trust in Seaweed Moringa chips.

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