Innovation Capability and Supply Chain Management: Empirical Study of Indonesian Traditional Herbal Medicine Products

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Abstract—In today’s scenario, supply chain processes have been greatly influencing businesses and trades globally. The purpose of this research is to analyze the effects of the supply chain management on the model capabilities of innovation and competitive advantage of Indonesian traditional herbal medicine. Design research is qualitative and quantitative approaches and using data collecting technique: FGD and survey sample. The research sample was 150 people consumers of Indonesian traditional herbal medicine. The analysis tool is the Structural Equation Modeling (SEM). The results show that there is a relationship between positioning product and competitive advantage. Competitive advantage is the variable consequences of innovation capability and positioning product Indonesian traditional herbal medicine products.

Keywords—Competitive advantage, Supply chain management, Herbal medicine, Innovation capability, Positioning product.

1. Introduction

Supply chain management (SCM) has been the dominant research paradigm of the last few decades. Considerable efforts have been put forth in developing decision models for solving supply chain related problems [1]-[3]. Innovate capability is a factor that can affect sustainable competitive advantage [9]. Innovation is defined as the tendency of companies to enable and support new ideas, experiment, and the creative process that may be in the form of new products, new services, or process technology [15]. Innovation is the process of organizational change and the market bid is the key to winning the market and consumers so that it can be a sustainable competitive advantage [9],[18],[31]. Innovation plays a role in realizing a competitive advantage [9],[25]. In the European Union, traditional herbal medicines that are regarded as “acceptably safe, albeit not having a recognized level of efficacy” fit into a special category of drugs (“traditional herbal medicine products”) for which requirements of non-clinical and clinical studies are less rigorous [19],[32].

Herbalism is a product that is familiar to Indonesia society. More than 209 from 1.045 ethnicities in Indonesia have used herbal medicine in the treatment of hereditary traditionally. In addition to this support from the Government, the WHO, the tourism sector and the trend of the community for a healthier lifestyle by consuming the drug industry that gives an overview of traditional herbal medicine and herbal remedies have a huge market opportunity. The obstacles are faced by Indonesian herbal medicine industry which was the rivalry with herbal medicine made of chemicals and herbs imports that are easily found on the market. Buy interest societies against the import of herbal medicine seem to be higher. In Competitiveness small industries especially herbal medicine is still low compared to import herbal medicine due to its products which have not been standardized in accordance with the way of making a good traditional medicine (CPOTB). This has been the cause of the slowness of the development of small herbs and herbal industry although it is a superior product from Indonesia.

The results of the Research Institute of Science (LIPI) declared Indonesia has 30,000 species of plants of medicinal raw materials from 40,000 species of plants herbs in the world. Currently, there are only 16 large companies capable of competing in the market of traditional herbal medicine and herbs, while is hard for smaller companies to compete. The ability to compete for major companies and herbal medicine is high so that it can present modern packaging herbal medicine without removing the natural benefits as traditional medicine. On the other hand, small industrial competitiveness of traditional herbal medicine is still weak. A small industry of traditional herbal medicine as an alternative to traditional medicine should develop creative marketing. Wicaksana and Subekti found that
traditional medicine industry competitive power on the attributes of the delicacy and attractive packaging then a small traditional medicine industry competitive power at cheap price and attributes of natural deposits while modern medicine is leading with the clear information, high-quality product, practical packaging, Quality of standardized consumed and rapid healing effect. Special for small herbal industry required an appropriate positioning strategy formulation so that the perceived value of this herbal medicine and increased through the study of the strategy of empirically. Innovations will contribute to the strengthening of market share. Strengthening market by implementing and a strategy of positioning will affect sustainable competitiveness.

With increasing public awareness for the use of traditional herbal medicine provides an opportunity for the manufacturers of herbal medicine to increase its market share. The advantage of the herbal medicine industry is the availability of raw materials very much in Indonesia. But in the aspect of product innovation are still encountered some obstacles. Traditional herbal medicine Indonesia still in less perceived less, while the potential resource of raw materials is very high and is available.

Based on the background which has been described previously then the problems of this research among others:

1. What factors that become antecedent variable of the innovation capability of Indonesian traditional herbal medicine product?
2. Whether product positioning is mediation variable between an innovation capability and competitive advantage of Indonesian traditional herbal medicine product?
3. Whether competitive advantage of the product is the consequences variable on the model of innovation capability Indonesian traditional herbal medicine product?

2. Literature Review

Supply chain agility is defined as the focal firms’ ability to match demand with supply in conjunction with members in upstream and downstream of the supply chain. Innovation Capability of the enterprise Role in addition to producing products and services is to promote technology and information [28]. Little attention has been given to innovation capability in supply chain management process. Innovation ability is a way to accept or adopt innovative new concepts for the organization. This is the process to develop new concept and is used for the commercialization of the product and bring these innovations to the market. The ability to innovate a positive effect against a competitive advantage [9],[25], where the innovation capabilities can be measured from the dimensions of product innovation, process innovation, service innovation, and innovation organization. Reguia stated there are four innovation i.e. market innovation, basic innovation, incremental innovation, and technological substitution [25]. While a competitive edge consists of the superior quantity and quality dimensions of financial, physical and human resources as well as superior in engineering, management capabilities and has a favorable position [24],[36].

Stosic stated the innovation market in product design including changes significantly to important elements of the organization [8]. Organizational innovation is the whole new ideas, methods, and objectives of the organization that support the success of the market [2]. Organizational innovation is the primary factors considered for competitive advantage and gains long term success in market competition [13],[34]. Moreover, innovation is a social change [16]. The organization with the capabilities of innovation can respond to environmental change more quickly than with innovative organizations so have high performance [3],[11],[33]. In the era of the development of data and IT, the company should innovate and interact with the market [10],[29],[35]. Dimensions of organizational innovations include product innovation, process innovation and administrative innovation. Anna V and Anatoly K stated there are five dimensions of innovation capability, namely financial, people, technology, information and organizational [4].

Increased innovation and enterprise is an important condition for the strength of the competitive position, especially for small companies. Internal resource limitations of small companies are not enough to support individual innovation so that it requires a commitment of the leadership [7],[18]. The issues being faced by small companies are the lack of budget for developing new products and renewing technology to become more competitive [20]. The weakness of the SMEs (small medium enterprises) to do an individualistic attitude one breakthrough that caused each company faced its own marketing, purchasing, and technology innovation [30]. To gain a competitive advantage SMEs should be able to create, develop, adapt,
learn, practice and continuously improve its business [26],[27],[37].

A company can have a competitive advantage when the company is able to create higher economic value compared to competitors [24]. Competitive advantage has a positive influence on the success of the SMEC [26]. One of the factors which affect the business performance of the SMEC is the entrepreneurial orientation. Entrepreneurial orientation affects positively towards the exploration of the innovation enterprise [29]. There are interactions between organizational culture, IT skills and innovation capability.

Hypothesis 1a: Market innovation and organizational innovation are the antecedent variable of innovation capability.

Hypothesis 1b: Market innovation is the dominant variable that affects innovation capability.

2.1 Positioning Product

The goal of positioning a product is to create a different image in order to introduce the product in the minds of consumers. The role of brand positioning is very important in marketing and consumer perception relate directly to the performance of the company. In the initial stages of identifying and designing new products offer an analysis of the positioning of the physical products can provide useful information to the Marketing Manager. Determination of the physical product positions based on technical data can be an important step in implementing strategic marketing analysis. Besides the physical positioning of products can provide an important interface between marketing and r & d better by specifying the special products which are more important and help identify the structure of competition. The company should pay attention to marketing strategies by designing strategies include marketing management, strategic positioning, and targeting [17].

A simple comparison is based solely on the physical does not give a complete picture of the relative position because it is essentially a relative positioning of products in the consumer’s mind. Physical attributes such as product packaging, brand name, price, and service are often thought of as consumer characteristics that are not too important. Besides the attitude of consumers towards products often based on social or psychological attributes, so that analysis of the positioning of the perception became very important [7]. Frans and Roy stated In doing the fixing position of the product can be based on the following steps. First, positioning the product based on the price of the competing product. Second, the positioning of the product based on the content of the product. Third, the positioning of products based on product value. Fourth, the positioning of products based on product packaging [12], also stated that there are a few tips for medicinal products to successfully set the positioning of products in the consumer perceptions between determining attribute positioning, doing market research, communicate to internal teams and write the statement so that the positioning understood by all stakeholders.

The effort to create and submit a precise value is strongly influenced by the thought of to who addressed those values, and what are the specs of the value expected by the customers of the intended recipients. The required capabilities and competencies must be able to precisely set the specification value or value offered [21]. Basically, the marketing activity is an important activity in every effort at both the industrial sector is small, medium or large industrial level [23].

Hypothesis 2: There is a relationship between positioning product and competitive advantage competitive advantage

2.2 Competitive Advantage

Employers in the industrial sector are small it's time to apply the concept of marketing in running its business activities [22]. The core concept of marketing is to analyze the situation of the environment and market opportunities developing target marketing, marketing strategy and creating a set of tactics or actions of implementation. An entrepreneur must understand the three main things that are what marketed, who market and how to market.

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interactions between organizational culture, IT skills and innovation capability.

A fundamental change occurred today lies in the changes in the external business environment such as competitors and customers. More competition is good for similar goods as well as substitutes. On the other hand, consumers are increasingly demanding fulfillment of the satisfaction of a purchased product. This means that the current small businessman faced on the State of competition and the demands to meet the desires of the consumer. SMEs product must be unique and different from the products of other competitors in the same business [26]. With conditions such as that the most effective way is a product that should be produced in accordance with the wishes of consumers better than competitors. Marketing strategies have a relationship with the company's performance [17].

Hypothesis 3: Competitive advantage is consequences variable for innovation capability and positioning products.

3. Methodology and Data

3.1 Data Preparation

The population in this research is a small traditional herbal medicine industry and the consumers of Indonesia traditional herbal medicine. Determination of technique samples is convenience sampling. A minimum number of samples to consumers of traditional herbal medicine is 150 people. The research design is using a qualitative approach to analyze the antecedent factor of innovation capability and competitive advantage of traditional herbal medicine. The quantitative approach is to analyze the relationship model between innovation capability and competitive advantage.

3.2 Data Analysis

Analysis tools used are SEM by using software PLS (partial least square). Measurement of SEM with this SmartPLS uses outer and inner model. Evaluation model of measurement or outer model is done through Confirmatory Factor Analysis (CFA), with test validity by looking at the value of Loading Factor, the Average Variance Extracted (AVE), Communality, and test reliability model by looking at the Cronbach's Alpha value and the Composite Reliability Evaluation of structural models. or inner model aimed at predicting the relationship between latent variables by looking at the magnitude of the percentage of variance explained by looking at the value of R-Square value The t-statistics on the chart the Path Coefficients.

4. Empirical Results and Discussion

Supply chains need to aim at better synchronizing processes among significant actors in a network, with the aim of gaining and integrating knowledge leading to supply chain agility. By recognizing opportunities in business environment, supply chains are making an effort to seek new knowledge which may facilitate the process of innovation capability, which in turn help the firm to anticipate and help in innovating to meet customers changing needs, in a competitive manner. Measurement of reliability is used to see if the questionnaire quite reliable or not to be a research questionnaire. This questionnaire reliability measurement method using Cronbach's Alpha. The validity of the test used to determine whether the attributes of these questionnaires are able to describe what the consumer wants. The validity of the measurement method using composite reliability. Here's more about the reliability and validity of test results

<table>
<thead>
<tr>
<th>Table 1. Construct Validity and Reliability</th>
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<tr>
<td>Competitive Advantage</td>
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<td>Innovation Capability</td>
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<td>Marketing Innovation</td>
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<td>Organization Innovation</td>
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<td>Positioning Product</td>
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Cronbach's analysis results reliability would gain if the calculation of the coefficient alpha > 0.6. in this research, Reliability test with parameters Alpha Cronbach's to all of the variables meet the criteria value that is greater than 0.6 and innovation capability is in the top-rated i.e. of 0.819. But for variable positioning product is not reliable because of the number of coefficient alpha 0.581 0.6. This
shows the provision's accuracy, and measuring instrument which is performed in this study. Variable product position is weak in this research model.

To test the validity of the composite reliability with parameters, it can be said that the overall variable research meets the criteria is greater than 0.7. Variable competitive advantage, innovation capability, marketing innovation, organization innovation, and positioning product has an alpha coefficient greater than 0.7. Furthermore, the variable competitive advantage and innovation capability has the highest value i.e. 0.869.

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<th>Table 3. Total Effect</th>
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<td><strong>Sample Mean (M)</strong></td>
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<td>IC – PP</td>
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<td>MI – IC</td>
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<td>OI – IC</td>
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<td>PP – CA</td>
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Based on the above data, the known value of the t-statistic of the whole variable overall are at significant levels. Hypothesis 1.a predicts that innovation market and organizational innovation is the antecedent variable of innovation capability. Indonesia is a country that has an advantage as a manufacturing based on industrial sector. Small and Medium Enterprises is one of the drivers of economic growth in Indonesia. Those results also correspond to research Wioe Alderson in Hoffman, stated that the embryo from the development of the concept of competitive advantage is the company's specialty to find variations in terms of the buyer's request [14]. These specialties are acquired when the company did a deeper understanding of the buyers and competitors through innovation organization and market innovation. In relation to product innovation, herbal medicine, herbal medicine companies or entrepreneurs should create new herbal medicine products and unique so that it has value and benefits. One of the efforts of improving the ability of innovation of entrepreneurs among others conducts training so that employees can create an innovative product or perform a comparative study with other SMES in traditional herbal medicine are more advanced.

Hypothesis 1. b predicts that market innovation is the dominant variable that affects innovation capability. The coefficient value of market innovation markets against innovation capability is 5.575 is greater than the value of the coefficient of innovation organization of 3.548. If viewed from the coefficient value of the indirect effect of market innovation greater than 0.059 than the coefficient value of innovation organization 0.040. Furthermore, it can be concluded the hypothesis 1. b has been proven. The orientation of the market that focuses on the process of creating a new product to control the market is the key to success. According to LEIA Technological Development Centre (2000), between 60-80% success innovation comes from the market and only 20-40% originating from the company. Support from top management is helpful but not a guarantee of success.

Hypothesis 2 predicts that there is a relationship between positioning product and competitive advantage of Indonesia's traditional herbal medicine. A value of the t statistic is 6,921 above significance levels 1.96. It shows there is influence between the two variables. Variable positioning product mediates the relationship between innovation capability and competitive advantage as the consequences variable. Innovation capability has an indirect effect against competitive advantage and further positioning product has a direct effect towards competitive advantage. The perception of the consumer is to consume traditional herbal medicine consumers avoid the bad influence of chemical substances. The brand position that latched onto the consumer will enhance the ability of competitiveness against competitor products of chemical drugs.

Hypothesis 3 predicts that the competitive advantage of products is a consequence variable of innovation capability and positioning products. Based on the results of the research value of the t-statistic variables innovation capability against product positioning of 4.089 > 1.96 which means
there is a positive and significant influence between the two variables. Furthermore the values of T-statistic product positioning against competing for the ability of 6.921 > 1.96 which means there is a positive and significant influence between the two variables. next hypothesis 3 proved to be inconclusive. With the capabilities of traditional herbal medicine entrepreneurs innovate, will create the position of the product on the market and the consumer so that all aspects with excess owned traditional herbal medicine have a competitive advantage.

PLS software can figure out the result of the research model properly. Furthermore, the overall research model is shown on the following bootstrapping result:

![Figure 1. Bootstrapping Result](image)

This research discussed competitive supported by previous research, namely; Aima and Ansori [1],[5].

5. **Conclusion and Suggestion**

Based on the results of the analysis and discussion, the conclusion and suggestion are below:

1) Innovation and supply chain management of the Organization became the antecedent variable on the ability of traditional herbal medicine product innovation, Indonesia.

2) Positioning product is a mediation variable innovation capability and competitive advantage Indonesian traditional herbal medicine product.

3) Competitiveness advantage is consequences variable on the model of Indonesian traditional herbal medicine product against innovation capabilities and positioning products.

4) Traditional herbal medicine entrepreneur should be able to improve competitiveness by increasing innovation capabilities and positioning products.

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