Reconstruction of Structural Flexibility And Acceptance Model (SFAM) in Green Marketing Mix Strategy

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Abstract. This research reconstructs the Structural Flexibility and Acceptance Model (SFAM), as a concept / theory / proposition step on statistical modeling. Existing and widely used statistical modeling, such as SEM, PLS, GSCA, and WarpPLS, have flaws and still lack some flaws. SFAM reconstruction is done by reducing existing weaknesses and by adding some new and often needed statistical concepts to statistic users. Structural Flexibility and Acceptance Model (SFAM) is a very intense method of data analysis, especially in the field of social and humanities education. Research in the field in general is to investigate the system, in which one of the properties of the system is complex. The simplification solution can be done through statistical modeling. The reconstruction of Structural Flexibility and Acceptance Model (SFAM) will also be equipped with the concept of path analysis with category data, so it can be used to analyze category data. It is also integrated with a flexible and robust modeling approach based on nonparametric smoothing spline regression analysis (RNSS) capable of capturing the form of relationships that depend on empirical data, and the uniformity of free assumption-based models of assumptions and the assumption of homosexuality of variance errors.

Keywords: Structural Modeling; Flexible and Robust; SFAM; SEM; Disruptive Innovation

1. Introduction
This study will reconstruct the Structural Flexibility and Acceptance Model (SFAM) as a step in developing concepts/theories/propositions about statistical modeling. In details, the meaning of each word in the model is: structural, reflects the structural model (system) built; flexibility, means a flexible model; acceptance, implies a model that is strong and free in assumption; model, describes the reconstruction of stochastic (probabilistic) statistical modeling. The widely used statistical modeling such as SEM, PLS, GSCA, and WarpPLS have side weaknesses and thus will be improved by reconstructing SFAM model. The disruption effect which brings the logic of future thinking to today is one of the answers to solve the problem. The people can follow the disruption of innovation if the
basis or perspectives in the preparation of relationships between variables in the research model are expanded as follows: (1) Finality norms (scriptures), (2) Axioms, (3) Theorems/theories/propositions, (4) Results of empirical research, (5) Adoption of theories and/or results of empirical research on the relationship between variables from other fields of science, (6) Norms such as government regulations, laws, SOPs, etc. 7) Empirical conditions, (8) Expert judgment, and (9) Intuition/logic. The element number (1), (6) to (9) allows the people to do a construction or reconstruction in the model (theory)[1].

The main pressure lies in the impact due to the disruption of innovation. This means that every action will have an impact either in the field of science or in the general community. One of the system modeling analysis that has been developed and widely used is Structural Equation Modeling (SEM). In general, all of those methods have not included the concept of transforming data from scores to scales. Therefore, the development of the model is needed including the concept of transforming data in the form of scores into scales. The reconstruction of SFAM will also be complemented by the concept of path analysis with category data so that it will also be used to analyze the categorical data. On the other hand, the development of SFAM is also equipped with a flexible and strong model approach based on nonparametric regression and smoothing spline (NRSS) that is able to capture the relationships that depend on empirical data and model-based conservation of distribution assumptions or homoscedasticity error variance as well as longitudinal/panel data and time series [2]. This study applies the SFAM model to test the influence of environmental orientation model towards the competitive advantage in the green marketing mix strategy.

2. Literature Review

This research uses the flexible structural model based on the robustness of linear assumptions in classical structural modeling. This research also reconstructs the model of Structural Flexibility and Acceptance Modeling (SFAM) based on data-driven for each relationship. In classical structural modeling (Structural Equation Modeling or SEM), the estimation is based on model parameters while in SFAM, the estimation is based on the function of each relationship. The approximation of this function is based on the smoothing spline estimation that depends on Optimized Least Square (PWLS) optimization. In other terms, SEM is known as Covariance structure model, Latent variable model, "LISREL" model, and Structural Equations with Latent Variables. The two components of SEM are [1]:

- Latent variable model
  The relationship between the latent variables:
  \[
  \eta = B\eta + \Gamma \xi + \zeta \tag{1}
  \]

- Measurement model
  The relationship between the latent and observed variables:
  \[
  x = \Lambda_{x} \xi + \delta \tag{2}
  \]
  \[
  y = \Lambda_{y} \eta + \varepsilon \tag{3}
  \]

SFAM is a covariance structure with latent and manifest variables that are based on Open Source Program (with R) and covariance structure. Besides that, it is possible that SFAM is generated from Nonparametric Regression, Non-linear Factor Analysis, and Non-linear Principal Component Analysis. SFAM is practical for Non-Metric and Metric Scale and flexible for small sample size (using resampling/bootstrapping approach). SFAM is also possible for a nonlinear relationship and mix measurement model as well as formative and reflective indicators.
3. Research Methods
This study applies the SFAM model to test the influence of the environmental orientation on the green marketing mix strategy and its impact on competitive advantage. Some studies show that companies have developed marketing strategies that have an impact on the natural environment [3,4,5]. Thus, many companies have made steps to adopt an orientation that is environmentally friendly or known as "green" orientation [5,6,7]. According to the study of sustainable marketing strategy, adopting the green (environmental) orientation means that the operation of the company is done by conveying goods or services for the consumer by minimizing the impact on the natural environment [8].

The level of company’s green orientation was conceptualized by combining intra-organizational entrepreneurship with the environmental sensitivity of the company [9]. In this conceptualization, rather than seeing the ecological issues as a threat, green-oriented companies utilize a combination of competencies (referred to as ‘enviropreneurialism’ by [10] to redefine potential threats as opportunities.

Similarly, [11] also proposed a green orientation which consisted of three strategies, namely: pollution prevention, product supervision, and sustainable development. Based on the natural resource-based view (NRBV) of the company, Hart suggested that companies can obtain competitive advantages based on the relationship with the natural environment.

According to [12], at this time, there is more than 75 percent of consumers which stated that they are "green" consumers and prefer products that are environmentally friendly. The company recognizes the arising social awareness of consumers and begins to use marketing strategies that are more focused on environmental factors than just financial profitability, known as environmental quality and social justice. Non-market factors are considered to be the most influential thing in the company’s business activities as for examples, air and water pollution, erosion of natural resources, changes in the composition of the atmosphere, etc.

Corporate social responsibility is a response to consumer demand where the company shows its responsibility to overcome the negative effects of all their actions or business practices [4]. Corporate social responsibility (CSR) evolved by adopting the concept of environmental marketing and management mechanisms as a profitable business strategy [4].

As highlighted by [13], green marketing is a tool for companies to achieve economic goals (profitability) by satisfying the needs and demands of consumers from the changing environmental awareness in the society (ethically develops the source of material/raw materials and products as well as the processes that are environmentally friendly). Therefore, companies that create good quality products must be responsible for the environment and the society as well as must use strategic messages in communicating their actions that can create a strong reputation in the customer (image value).

All parties both the government, companies, and consumers in various countries began to take steps in the environmental transformation which previously focused on purely economic benefits into a commitment to social responsibility [14]. Green marketing has evolved in each period of time. According to [15], the evolution of green marketing has three phases namely, "Ecological" green marketing, "Environmental" green marketing, and "Sustainable" green marketing. Companies that develop new products and innovative products or services by incorporating environmentally friendly elements can provide easy access to enter new markets, increase the sustainability of company profits, and enjoy competitive advantages compared to other companies that do not care about their environment. From this series of processes, the research model is illustrated as the influence of environmental orientation on the green marketing mix strategy and its impact on competitive advantage.

4. Results And Discussion
The use of SFAM in this study involves several variables with mixed indicators, namely demographic indicators on the variable of environmental orientation. The application of SFAM model for the conceptual model of green marketing mix strategy is presented in the following section:
Based on the results of the study, it can be known that the effect is positive which means that the higher the environmental orientation, the higher the competitive advantage. By that, the lower the environmental orientation, the lower the competitive advantage. Environmental orientation does not directly affect competitive advantage whereas there is an indirect influence of environmental orientation on competitive advantage through the implementation of green marketing mix strategy. For this matter, further discussion is elaborated in the discussion section of the research results based on each hypothesis.

The inner model estimation results for the influence of environmental orientation on green marketing mix strategy show the p-value (0.000) with a level of error $\alpha$ by 5%. This indicates that the direct influence of environmental orientation on green marketing mix strategy is significant. The effect is known to be positive which means that the better the environmental orientation, the better the implementation of green marketing mix strategy. Consequently, the lower the environmental orientation, the lower the implementation of green marketing mix strategy.

On the other hand, the inner model estimation results for the direct effect of green marketing mix strategy on competitive advantage show a p-value by 0.000 with a level of error $\alpha$ by 5%. This points out that the there is a direct and significant influence of the green marketing mix strategy on competitive advantage.

The effect is positive meaning that the better the green marketing mix strategy, the more competitive advantage will be and vice versa; the lower the green marketing mix strategy, the lower the competitive advantage. The final test of the research model that is conducted by using SFAM analysis shows that there is a direct effect of environmental orientation (EO) on competitive advantage (CA) resulting in a p-value of 0.132.

The result indicates that the first hypothesis (H1) saying that the environmental orientation has an effect to increase the company's competitive advantage is rejected. This means that the better the environmental orientation is not proven to be able to significantly increase the competitive advantage of companies.

Environmental friendliness and environmental sustainability are a major concern for green services and manufacturing, as well as green organizations [16] and all are reforestation activities. Providing a clean, ethical, and safe environment for humans and all beings is the goal of the green movement, and it requires the efforts of all people, industries, and governments. The green marketing mix is reflected through the use of environmentally friendly materials, consideration of environmental aspects on pricing, efforts to communicate environmental care activities, eco-labeling in promotional activities, environmentally friendly home location, environmentally friendly public facilities, provision of true information on eco-friendly lifestyles, provision of waste recycling facilities, and adoption of the value of environmentally friendly culture by the staff. This means that in reality a good environmental orientation will have an effect on the implementation of an eco-friendly marketing mix strategy implemented in an integrated manner by the companies in building an environmentally friendly real estate in line with the expectations of all parties. The results of this study extend the results of the study by Miles and Covin [17] that an environmentally friendly marketing strategy significantly affects the reputation and performance of a company as a whole. In addition, this study also expands the findings of Bradley [18] that the marketing strategy by the residential housing developer has

| Relationship of the Variables                              | Coefficient | p-value | Description       |
|-------------------------------------------------------------|-------------|---------|-------------------|
| Environmental Orientation (EO) → Competitive Advantage (CA)  | 0.112       | 0.132   | Not significant*  |
| Environmental Orientation (EO) → Green Marketing Mix Strategy (GMM)  | 0.411       | 0.000   | Significant       |
| Green Marketing Mix Strategy (GMM) → Competitive Advantage (CA)  | 0.302       | 0.000   | Significant       |

Description: $p$-value < 0.05 = significant
shown a positive impact on all aspects ranging from public relations, brand reputation, and employee motivation to the attitudes and intentions of consumers to consume green products or services. The concept of this study will be more interesting if awareness about the importance of the green marketing mix is not only seen from the companies' side, but also from the target market or the customers. It is very common for consumers or customers to create their own 'judgment', which in this case can be interpreted as their own assumption of the company’s products or services. Thus, in this case, the main thing is not the statement of the company, but rather the perspective of stakeholders (consumers or customers) about the implementation of the green marketing mix by companies.

5. Conclusions and Suggestions

5.1. Conclusions
The results of SFAM model application show that environmental marketing, at the strategic and tactical level, positively influences the increase in the company's competitive advantage. The implementation of effective green marketing strategy enables companies to maximize their economic results. These strategies include the use of environmentally friendly materials, the consideration of environmental aspects in pricing, the efforts to inform environmental care activities, the provision of eco-labels in promotional activities, the location of environmentally friendly homes and public facilities, the provision of correct information about eco-friendly lifestyles, the provision of waste recycling facilities, and the requirement to adopt environmentally friendly cultural values in each activity for management staff. All of those efforts not only have an impact on reducing operational costs but also can improve the quality of company products/services as well as the innovation capacity of real estate developer.

5.2. Suggestions
This study limits linearity relationships between variables. Therefore, more in-depth studies are needed for SFAM's robust model of linearity.

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