

A Model Design for Green Business Strategy in Coconut-Based Agroindustry: A Literatures Review

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ABSTRACT

The industrial challenges have consistently changed as response of technological development, environmental issues, consumer's needs, and competition. To deal with this situation, proper strategies are undeniably required by industries. Business model design and implementation of coconut-based green industry have been a dynamic topic and continuously received a noticeable attention. This paper was intended to offer a critical review on current situation of these topics: strategic model design, green business, and coconut-based agroindustry. Based on our literature review, the topics have been extensively researched, enabling us to carry out more structured investigation on the strategic model design for green business in coconut-based agroindustry.

Keywords- *Strategic model, Green business, Sustainable business, Coconut-based agroindustry*

I. INTRODUCTION

1.1. Background

In last decades environmental issues have emerged global impacts, including socioeconomic forces [1]. Numerous industries, as well as food supply chain in food industry—in each stage of production and consumption—significantly contributed to major cause of global warming, climate change, greenhouse effect, and emission gas [2].

As a part of food industry system, coconut agroindustry is of no exception as it uses a substantial amount of water, thereby generating a significant volume of industrial wastewater [3]. On the other hand, existence of coconut agroindustry is inevitable due to its importance in nutrition and food security [4].

Coconut trees could be a highly value-added commodity due to their versatility of uses, both food and non-food products [5]. Value addition as the rise in economic value of commodity as response of the increasing demand, through a processing that changes product shape, place, and time utility [6]. In this case, coconut agroindustry can generate not only food and raw materials for further industries, but also

employment, enabling to foster growth of nation's economy [7].

Globally, coconut trees are cultivated in more than 12 million ha, with coconut production about 11 million MT (equivalent to copra), widespread throughout 93 countries worldwide [8]. They are also known for versatile plant; most parts of the plant can be used as raw materials for a variety of industries [9]. Some high valuable products derived from coconut agroindustry, such as (i) virgin coconut oil (VCO), (ii) fresh and tender coconut, (iii) coconut flour, (iv) biofuel, oleochemicals and fatty acids, (v) desiccated coconut, (vi) coconut cream, milk and powder, (vii) nata de coco, (viii) coconut sap-based products, (ix) coconut shell charcoal, (x) coconut activated carbon, (xi) coconut water vinegar, and (xii) coir fiber [8].

Based on aforementioned description, coconut-based agroindustry could be a promising sector for development of the integrated industry while also implementing zero waste concept as significant part of green industry. Zero waste referred to the use of entire resources including waste, aiming at recycling of 100% solid waste produced by a system [10]. This also induces the integration of coconut agroindustry as an attempt to provide value addition and efficiency of smallholder coconut plantation [11]. Therefore, there is a need to study a model design for green business strategy of coconut-based agroindustry.

1.2. Objectives

The aims of this research are described as follows:

- To provide general description on strategy model design, green business, and coconut agroindustry.
- To uncover the research gaps in the area of strategy model design, green business, and coconut agroindustry.

1.3. Scopes

The scopes of this research are presented as follows:

- The discussion focuses on strategy model design, green business, and coconut agroindustry.
- The discussion provides descriptive explanation constructed from relevant sources (scientific papers and research reports).

II. LITERATURES REVIEW

2.1. General Classification

All references used in this study were obtained from scientific papers and research reports published between 1993 – 2018 by reputed media. Based on these articles, topic about strategic model design for

green business of coconut agroindustry was most discussed in 2015, no less than 35% of total reviewed articles. Distribution of reviewed articles by publication year can be seen on Fig. 1.

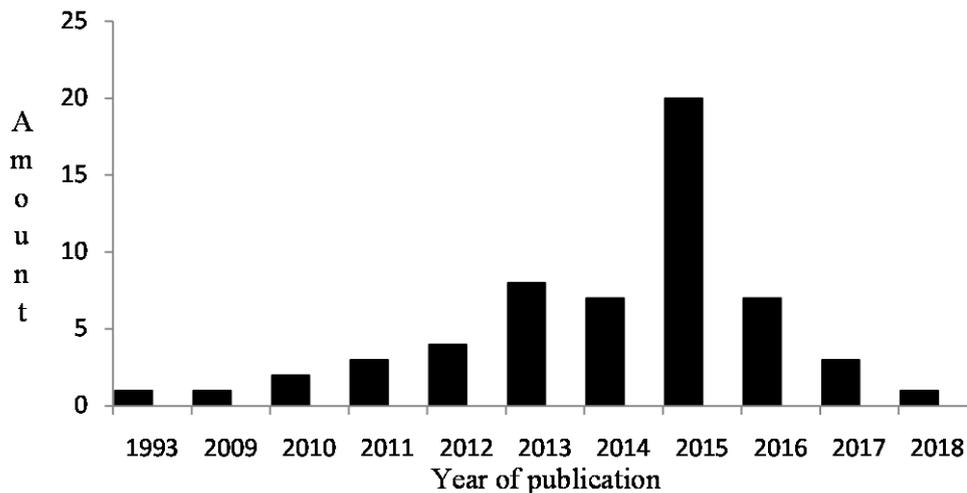


Figure 1. distribution of reviewed articles (by year of publication)

Furthermore, TABLE 1 presents distribution of articles by their main topic.

Table 1. Distribution Of Reviewed Articles (By Main Topic)

Number of articles	Main topic	References
26	Coconut and coconut agroindustry	[3], [4],[5], [6],[7],[8], [9], [11], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51],[52], [53], [54], [55], [56], [57]
15	Design of strategic model and business	[12], [13], [14], [15], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26]
16	Green business	[1], [2], [10], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39]

Based on article's topics discussed (as presented in TABLE 1), the highest percentage was attributed to coconut and coconut agroindustry (46%), as exhibited in Fig. 2.

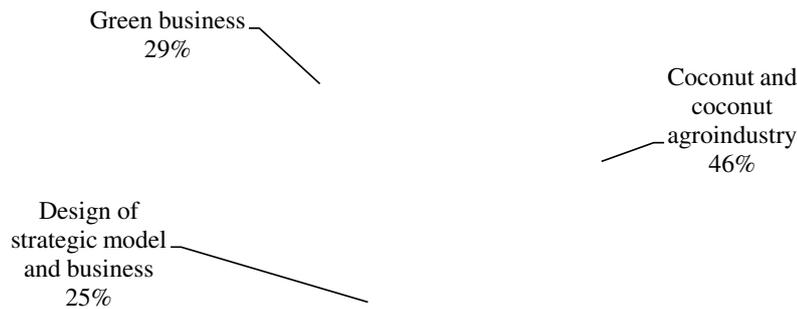


Figure 2. percentage of the reviewed articles by main topic

2.2. Design of Business Strategy Model

To achieve business goals and expected performance, industries need to consider two essential factors: strategy design and its application [12]. The strategy was further designed as strategy model, capable of assisting capacity of industrial strategic planning to respond changes in environment, market, and institutional uncertainty [13].

Numerous strategy model designs have been constructed. Develop business model connected with innovation and technology [14]. Perform strategy modelling using configuring heuristics [15]. Describe business model system as a model consisting of cause-effect factor, and providing a basis for classification [16].

Meanwhile, modelled business strategy connected to sustainable innovation [17]. Construct modelling of collaborative business for systemic and sustainable innovation [18]. In addition, perform modelling of critical factors for responsiveness in supply chain [19], while demonstrate a modelling relationship between firm-specific advantages and the firm's attempt to gain organization's competitive edge [20]. Modelling strategic management for the development of competitive advantage based on technology was reported [21]. Develop the modelling of lean startup as

a simulation tool for assisting the decision-making in entrepreneurial growth [22].

The established models with a variety of focus and function were constructed, in order to provide a clear definition on business model. This suggested that the scope of strategic model design covered not only firm internal element and external environmental factors, but also holistic perspective which enables the managers to have integrated view on each firm's activity [23]. The key point of the business model is more than a statement of "how value is created and captured", but it can exist in various guises and offer many purposes [24].

Furthermore, the main role of business model is to provide logic explanation of the process of value creation through coordination of firm's business activities [25]. A business model framework was constructed from three components: design principles, resource, and capability [26]. All the major factors of the business model existed in four dimensions, i.e. market, offering, operation, and management. Therefore, the proposed framework consisted of twelve interrelated elements, including design principles related to market, resources related to market, and capabilities related to market. The business model framework was presented in TABLE 2 [26].

Table 2. Business Model Framework

Dimensions	Design principles	Resources	Capabilities
Market	Market & customer definition	Customer & brand	Market & customer management
Offering	Offering design & earning logic	Technology	Offering management & R&D
Operations	Operation design	Infrastructure, suppliers & partners	Sourcing, production & delivery
Management	Management system	Human & financial resources	Management & leadership

Meanwhile, a template for business model design, as depicted in Fig. 3 [25].

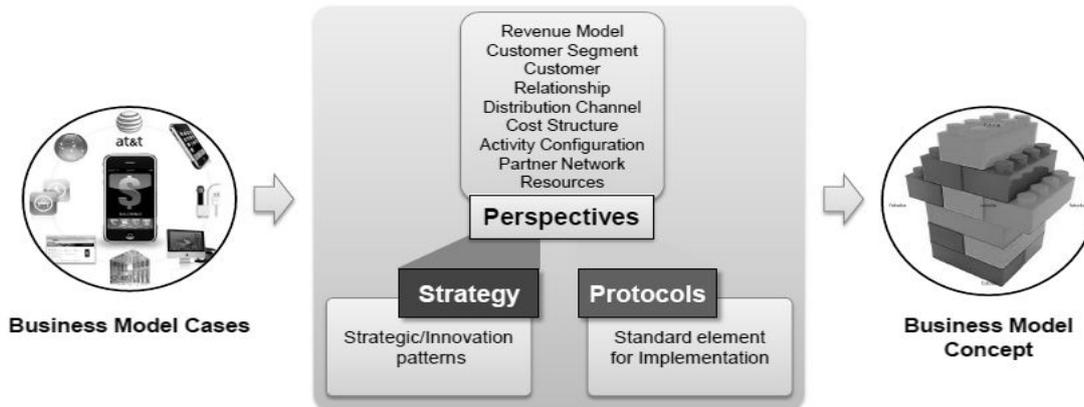


Figure3.template for business model design

As depicted in Fig. 3, there were two perspectives to create a new business model, i.e. strategy and protocol. A strategy refers to an upper-level decision which can business model can pursue, representing the entire logic of the firm and operation method in accordance with its specific purpose. Meanwhile, protocol aims to give standard elements required for implementation of a business model, enabling to ensure that the overall

logic of the firm is sound and synchronized. In short, strategy means the choice of business model that will be used by the firm to compete in market place, while protocol provides tactical guides to implement the strategy.

Based on our literature review, the focus of studies on strategic model design and business model is summarized in TABLE 3.

Table3 Focus of Research Contents On Strategic Model Design And Business Model

References	Research Focus
[12],[23],[24]	Strategic design and its implementation
[13],[26]	Strategic planning to respond environmental factors, market place, and institutional uncertainty
[14],[16],[17],[18]	Business model based on innovation and technology
[15]	Strategic model using heuristic configuration
[16]	Relationship between business model and cause-effect, and its classification
[19]	Modelling critical factors for responsiveness in supply chain
[20],[21]	A modelling relationship between firm-specific-advantage and competitive advantage
[22]	Modelling lean startup as a simulation tool for decision-making process in entrepreneurial growth
[25]	Business model for sustainable advantage

2.3. Green Business

Debate and discussion on sustainability have been emphasized in relation to the current business activities, since they are identified as a major cause of environmental challenges. Nevertheless, many counterparts are significantly able to create a sustainable growth and a sustainable future [27]. The dynamics on green industries closely related to the alteration of green economy sectors; thus, company needs to adopt green business strategy and practices

[28]. Practically, development of sustainability concept necessitates radical and systemic innovations [29].

Eco-label constitutes one of the significant examples with regard to the green business. It has been reported capable of creating positive influence to consumer's behavior in Italia in order to enhance awareness on environmental issue [30]. Eco-friendly products were also reported to influence the green purchase intentions [31]. The environmental conservation became an essential attempt over the globe, as indicated by the

rise of green product purchasing, eventhough consumers tended to paya relatively higher price [32]. The consumer's behaviors in making green purchase were significantly affected by their confidence on environmental benefits [33].

Besides, the managers also played a more crucial role in determining firm's decision to take part in eco friendly programs [35].Furthermore, thebusiness model that involves sustainability aspect substantially did not differ in comparison with traditional business model[35]. However, there is a need to adapt, especially for top managers, since they have a greater role in organizing transition process to meet

sustainable business practices. The adaptation on green technology and design led the firm to gain competitive advantages[36].

Theapplication of lean production and business activities related to sustainability and social responsibility have constinously increased[37];yet, adoption of green business design is rather scarce [38].The green business model was highly dependent on sociological construction, personal motivation, mission, locality, and a forward-thinking orientation related to sustainability[39].

Based on literature review, the research focus on green business is summarized in TABLE 4.

Table4 Summary of Research Focus In Terms Of Green Business

References	Research Focus
[1],[2],[27]	Business interest, and issues on sustainability
[28]	Strategy and practices of green business
[29]	Development of sustainability concept
[38],[31],[32],[33]	Eco-labeland gren product
[34]	Manager's role on green business
[35]	Green business vs traditional business
[36]	Green design and technology as the firm competitive advantage
[37]	Lean production system, green manufacture system
[38]	Law enforcement and green business
[39]	Green business amd role of education
[10]	Zerowasteconcept

2.4. Coconut-Based Agroindustry

Development of coconut agroindustry has been extensively researched by many researchers. For examples studies on development of coconut sugar industry [40], [41]; the constraints in production and marketing of coconut[42].Investigationthe problems in the network of coconut agroindustry[43]. The production chain of coconut oil was reported [44]. Theapplication of biotechnology on the coconut industry is necessary to meet demand on coconut-derivated products especially health and cosmetic products[45]. In addition, particleboard from coconut fiber has been successfully produced [46], resulting in eco-efficient product. Other studies also investigated the use of coconut oil [47], [48], while partially incorporated coconut shell as material for light weight concrete production [49]. The use of coconut by-products is also developed as potential alternative energy. Produce briquette made from tender coconut shells, to replace the use of traditional fuel from

coal[50]. Besides, Life Cycle Assessment of activated carbon production from coconut shell was studied [51].

Furthermore, supply chain model was optimized in order to determine the distribution center and inventory level in a coconut water agroindustry [52]. Coconut water agroindustry also generated high amount of waste; thus, to deal with this problematic waste, discoveredadsorption isotherms of green coconut pulp [53]. Mixed Integer Linear Programming in order to plan optimal production of aromatic coconut supply chain [54].Afterwards, implemented supply chain management as a competitive strategy in small medium enterprises, a case study on coconut firm [55]. The determinant factors for Crude Coconut Oil (CCO) export[56], while value chain analysis of the coconut subsector [57].

Based on literature review, the research focus on coconut agroindustry is summarized in TABLE 5.

Table5 Summary of Research Focus on Coconut Agroindustry

References	Research Focus
[40],[41]	Development of strategy for coconut sugar industry
[42]	Identification of problems in production and marketing of coconut
[43]	Problems in network of coconut agroindustry
[44],[47],[48]	Industrial use of coconut oil
[45]	Biotechnology for coconut agroindustry
[46]	Coconut coir
[49],[51]	Coconut shell
[50]	Tender coconut shell
[52]	Optimalised supply chain of coconut water agroindustry
[53]	The utilization of wastewater from coconut industry
[54]	Mixed Integer Linier Programming for production and supply chain of aromatic coconut
[55]	Supply chain management as strategy to compete in small medium enterprise based on coconut industries
[56]	Determinant factors of Crude Coconut Oil (CCO) export
[57]	Value chain analysis in coconut industry
[11]	Feasibility study on the integrated coconut industry

2.5. Literature Gap and Future Research

Considering that economy and industrial erabecome dynamics and noticeably depend onscience and technology, each model needs to be created more flexible to adapt with changes. This condition actually leads to create gaps, and continously requires a proper

and quick transformation of business model.The proper design of business model is a must, ensuring to survive in this competitive environment. For this reason, a framework for designing a business model is proposed (Fig. 4) [25].

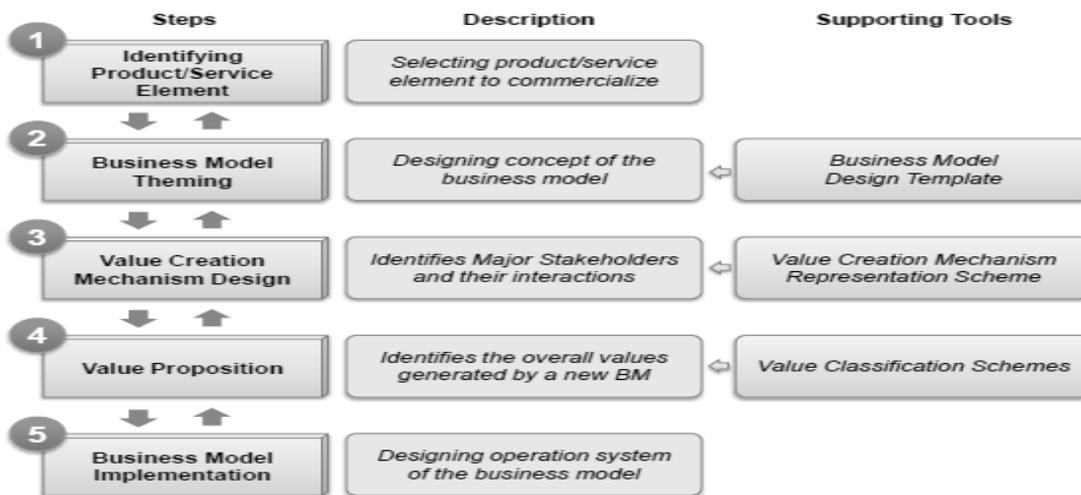


Figure 4.framework for business model design

Coconut industry also covers food products; therefore, it possesses three major production challenges, including increased efficiency, consumption (demand planning), and socio-economics in terms of governance improvement [2].Further studies on these topics are necessary, focusing mainly on strategic model design for development of coconut industry.

III. CONCLUSION

Based on aforementioned elaboration, numerous business models have been proposed, although some of them required further development. Nevertheless, no one of these reviewed articles discussed about partnership business model; thus, the topic offered a meaningful opportunity for future researchmajorily pertaining coconut-based agroindustry. This business model enabled the stakeholders to share decision-

making process and operational control, while also considering principles of equality, respect, and trust. Interestingly, partnership business model allowed to bring economical and social benefits to the stakeholders and other counterparts involved in this business activity.

In the context of studies on strategic model design, green business, and coconut-based agroindustry, they have continuously developed and covered many topics. This is noteworthy that changes in industrial problems continually exist; thus, strategic business model design needs to have ability to adapt, in accordance with the current challenges. Further researches on strategic model design for development of coconut agroindustry should consider three following challenges, i.e. production with emphasizing on the reduction of inefficiency, consumption through demand planning, and socio-economic approach related to governance improvement.

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