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# Development of Vegetable Export Business Model Based on Farmer Partnerships

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## Abstract

This study examines the development of company's business model, which initially relied on a single supplier to source vegetables, later evolved into a new business model through the introduction of partnerships with farmers, including direct purchasing and growing cabbage on the farm. Financial analysis shows a significant improvement in the company's performance, highlighted by increased revenue and greater social impact. Additionally, the company is now able to meet market demand by shipping 300 containers per year, an unprecedented achievement for the Taiwanese market. Management implications and strategic recommendations include expanding partnerships, capacity building for farmers, commitment to sustainable agricultural development, active market research and diversification of agricultural products.

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## Keywords

business model development, farmer partnerships, financial analysis, vegetable export, sustainable agriculture, Taiwanese market.

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## INTRODUCTION

The horticulture sub-sector within the agricultural sector has significant potential to increase consumption, serve as a raw material for industries, as an export product and as a substitute for imported goods (Anne et al.2020). One of the products of the horticulture sub-sector is vegetables, which are known to be perishable due to their high water content (Thalib et al. 2019). Vegetables are also recognized as having the most diverse varieties, up to 80 different types compared to other products in the horticulture sub-sector, which includes 66 types of fruits and 60 types of medicinal plants that can be used by the community use and consumption such as food, household medicinal plants and artistic elements in the landscape (General Department of Horticulture 2020).

As a developing country, Indonesia has recorded significant growth in fruit and vegetable exports (Jaffee and Masakure 2005). Fruit and vegetable exports increased by 58.9% in the period 2017-2020, showing the significant future growth potential of Indonesia's fruit and vegetable exports, Development of fruit and vegetable exports brings opportunities due to ease of international trade, including in Indonesia, where free trade is becoming increasingly accessible (Smutka et al. 2016).

The growth of vegetable exports is further supported by the total export value of vegetable products in 2021, which amounted to Rp 1.25 trillion. The five destination countries for Indonesian vegetable exports in 2021 are Taiwan, China, Singapore, Malaysia and the Philippines, the challenges of growing vegetables in destination countries, such as limited land and annual natural disasters, have kept these countries dependent on vegetable exports from Indonesia (Pratiwi et al. 2015).

Cabbage (*Brassica oleracea*) is one of the vegetables with the second largest average yield in Indonesia, reaching 1,415,662 tons. Production increased by 24,738 tons from 2018 to 2021, This increase is due to high demand for vegetables in domestic and international markets (Marpaung 2017). In the context of export activities, requirements for vegetable exports include meeting criteria related to product quality, quantity and continuity (Perdana et al. 2013).

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**Table 1.**  
**The five largest destination countries for vegetable exports in 2021**

No	Countries	Volume (Kg)	Value (US\$)
1	Taiwan	23.705.983	13.456.940
2	Tiongkok	19.032.560	26.762.892
3	Singapura	13.771.826	11.416.212
4	Malaysia	13.139.371	6.375.338
5	Filipina	10.292.039	14.171.041

Source: Badan Pusat Statistik (2021)

The sample of this study is one of the company's supplying vegetables to Taiwan from 2021, especially focusing on cabbage products. In its commercial activities, they face challenges in sourcing vegetables in terms of continuity, quality and quantity due to intermediary cooperation with middlemen and farmers. Aware of these problems, their aims to establish a direct cooperation model with farmers, eliminating middlemen. This step is said to have a positive impact on vegetable producers, especially cabbage, in terms of development, increased income and improved quality of vegetables for farmers, while also bringing benefits in quantity and quality for the company (Saiful Amri et al. 2016).

Based on the data, the company is having difficulty meeting market demand because the products available from suppliers cannot meet the company's requirements. Additionally, supplier engagement is also an issue for the company. Therefore, the company needed an alternative system for purchasing from suppliers and developing innovative manufacturing partners was essential to meet the significant market demand.

"Innovation of vegetable export business model based on partnership" will be the basis for the company's decision-making (Krisnanto et al. 2022). With the aim of improving efficiency and increasing income for market gardeners by promoting vegetable exports to Taiwan, a new business model will be developed using the Business Model Canvas within the framework cooperate. This approach aims to create products that are high value and have a positive impact on gardeners in company's partner markets.

By posing a problem, proposing a solution and developing this business model, we can move forward in meeting the challenges of creating a business model capable of meeting market needs dynamic market, especially in the context of

cooperation. It is important to evaluate the feasibility of this model from both a non-financial and financial perspective to gain a comprehensive understanding of the strategy and its potential benefits. The research problem statement revolves around two main questions: the first is what company's business model will be when developing partnerships with farmers, and second, what will the company's financial situation be like after implementing the new business model?

In accordance with the context and problem formulation, this study aims to achieve the following goals: on the one hand, develop a business model in cooperation with farmers to improve business efficiency, on the other hand, analyze the situation financial form aspects of the company due to the implementation of the business model.

The expected benefits of this research are twofold: first, it can serve as a practical guide for company in conducting its business activities, offering insights highlights and recommendations based on research results. Second, for academics, this work can become a valuable resource for future learning, especially in the field of agribusiness, providing a basis for further research and understanding. Deeper understanding of cooperation models in a dynamic agricultural environment.

## **LITERATURE REVIEW**

### ***Business Model***

A business model is a design that gives a company the ability to meet future business challenges through an understanding of its

**Table 2.**  
**Export demand**

Year	Export demand	Products from Suppliers	Gap
2022	100 Container	50 Container	50 Container
2023	150 Container	75 Container	75 Container
2024	300 Container	150 Container	150 Container

Source: Company's Internal Data, (2023)

characteristics (Teece and Linden, 2017). Martins et al. (2015) define a business model as a blueprint that facilitates management to better understand the business in terms of value creation and exchange. Osterwalder and Pigneur (2010) argue that a business model is a tool consisting of a set of interconnected elements, thus representing the commercial logic of a company. In this context, the business model provides the value that the company offers to customer segments and partner networks to create markets, the relationship between value and resources to create revenue streams.

Osterwalder and Pigneur (2010) structured the components of a business model into nine business model components (commonly known as the business model canvas). The components of the economic model have been shown on the Figure 1.

### ***Business Model Innovation***

Bessant and Tidd (2015) define business model innovation as the activity of creating new or modifying existing business models to optimize the value created by the business. Koen et al. (2011) attempt to classify business model innovation into three dimensions: technological innovation, value network, and financial frontier. Osterwalder and Pigneur (2010) explain that business model innovation can come from one of the nine elements of the business model canvas.

### ***Farmer Partnership***

The existence of a partnership in business is a positive aspect because it gives certainty to the company in its operations. In companies dealing with agricultural raw materials, partnerships are established, among other reasons, to minimize risks. Business cooperation models are mainly associated with livestock products, as research has shown (Subkhie et al., 2012), evaluating the feasibility of poultry farming in case of

cooperation with a business. The study conducted by Amri et al. (2016) also analyze the business feasibility of entrepreneurs entering into partnerships, considering alternative models of cooperation that are beneficial to both parties.

A review of the relevant literature on fruit and vegetable exports is of considerable importance in the context of agriculture and international trade. The horticulture sub-sector, which includes vegetables, fruits, medicinal plants and ornamental plants, is an important pillar of agricultural development (Kusuma & Firdaus, 2015).

### ***Cabbage Export***

Analyzing the feasibility of fruit and vegetable export is an important step in developing this activity. This analysis includes two essential aspects: financial and non-financial. The non-financial aspect involves a thorough understanding of export barriers, international trade regulations as well as bilateral relations with export destination countries (Sucita & Prasetya, 2021). The financial aspect includes calculating costs and income related to vegetable export.

The export of Cabbage Vegetables plays a significant role in international trade. Cabbage vegetables are a highly potential horticultural commodity for export from Indonesia to various global markets (Conto & Greene, 2020). Diverse product variants of cabbage and kale allow for meeting the diverse demands in international markets, making research into product varieties and quality crucial (Liu et al., 2019). In addition to variety, another crucial aspect is compliance with strict food safety and sanitation regulations in international trade (Djekic et al., 2021). By ensuring that cabbage products meet the food safety standards imposed by the destination country, exports can proceed more smoothly. The success of cabbages exports is also strongly influenced by innovations in packaging and preservation

Business Model Canvas				
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
	Key Resources		Channels	
Cost Structure		Revenue Streams		

**Figure 1**  
**Business Model Canvas**

Source: Osterwalder and Pigneur (2010)

(Bai et al., 2018). Effective packaging and storage methods help preserve product freshness, enhancing competitiveness in international markets.

Additionally, a thorough understanding of the target export market is essential for successful strategic planning (Conto & Greene, 2020). This includes understanding consumer preferences, market competition and changing market demands. In terms of logistics, aspects such as efficient transportation and adequate storage systems also have a significant impact on the success of cabbage exports (Liu et al., 2019). By integrating these points into a theoretical framework, you will have a more complete understanding of the factors influencing cabbage (kol) exports from Indonesia. This will be a solid foundation for your research in the context of improving vegetable exports.

## **METHODS**

### ***Location and Research Duration***

The research was conducted within the framework of company's business operations in Pasuruan Regency and Malang Regency, Indonesia. The study site was selected based on the availability of cabbage producers from these two locations, who would participate as part of the cooperative model. The study will take place between March and April 2023.

### ***Type and Sources of Data***

This study uses two types of data: primary data and secondary data. Primary data was collected through interviews conducted during the research process. Copper and Schindler (2014) explain that interviews are the primary

data collection method in qualitative research and are beneficial for understanding the interviewee's perspective on a particular phenomenon. In addition to interviews with company's management.

The second type of data in this study is secondary data. Copper and Schindler (2014) argue that secondary data is the interpretation of previous studies. Secondary data was obtained from multiple relevant sources and included literature review through offline and online searches conducted during the research process.

### ***Data Collection and Analysis Methods***

Data collection techniques used in this study included face-to-face interviews, structured interviews, and observations. These data collection techniques are used to collect primary data. For secondary data, data collection methods included extracting internal company data and conducting a document review.

Data collection methods include in-depth interviews and surveys. In-depth interviews were conducted to gather detailed information about the development of company's business model. In-depth interviews involve interaction between an interviewer and an interviewee to gain in-depth information (Schindler, 2019). The interview was conducted with the General Director of the company to determine the company's current business model and future development plans. The interview questions are structured around the nine building blocks of the Business Model Canvas. The general director was chosen as the interviewer

Business Model Canvas				
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> <li>• Forwarder</li> <li>• Packaging Paper Provider</li> <li>• Vegetable Waste Services</li> <li>○ Cabbage Farmers</li> <li>○ Expedition Services</li> <li>○ Multi-supplier</li> </ul>	<ul style="list-style-type: none"> <li>• Grading</li> <li>• Packaging</li> <li>• Shipping</li> <li>○ Land Preparation</li> <li>○ Production and Harvesting</li> <li>○ Inspection and Weighing</li> <li>○ Transportation</li> <li>○ Further Processing (Grading, Packaging, Shipping)</li> </ul>	<ul style="list-style-type: none"> <li>• High-Quality Vegetables</li> <li>• Upfront and Non-deferred Supplier Payments</li> <li>○ Affordable Vegetables</li> <li>○ Large Quantities</li> <li>○ Available Year-round</li> <li>○ Cash Payments to Farmers</li> </ul>	<ul style="list-style-type: none"> <li>• Representative Company in Taiwan</li> <li>○ Traditional Supplier</li> </ul>	<ul style="list-style-type: none"> <li>• International Market</li> <li>• Supermarket</li> <li>• Traditional Market in Taiwan</li> <li>• Vegetable Processing Factory</li> <li>○ Domestic Traditional Market</li> </ul>
	<p><b>Key Resources</b></p> <ul style="list-style-type: none"> <li>• Storage Warehouse</li> <li>• Packaging Equipment</li> <li>• Capital Resources</li> <li>○ Human Resources for Farmer Education</li> </ul>		<p><b>Channels</b></p> <ul style="list-style-type: none"> <li>• Vegetable Logistics</li> <li>• Representative Company in Taiwan</li> <li>○ Indonesia Local Market</li> </ul>	
<b>Cost Structure</b>		<b>Revenue Streams</b>		
<ul style="list-style-type: none"> <li>• Cost of Purchasing Vegetables from Suppliers</li> <li>• Labor Costs</li> <li>• Management Costs</li> <li>• Shipping and Packaging Costs</li> <li>• Warehouse and Equipment Investments</li> <li>○ Farmer Financing</li> <li>○ Production and Post-Harvest</li> <li>○ Distribution and Transportation</li> </ul>		<ul style="list-style-type: none"> <li>• Vegetable Sales to Taiwan</li> <li>○ Sale of Rejected Products in the Domestic Market</li> </ul>		

**Figure 2.**  
**New Business Model**

Source: Author's Analysis, (2023)

because of his deep understanding of company and the information obtained must be accurate and complete.

Two data analyzes were performed in this study: qualitative analysis to map the collected data to a new business model and quantitative analysis in the form of Feasibility analysis to validate the feasibility of implementing company's new business model.

The partnership-based business model design was created using the Business Model Canvas by mapping nine elements. This step is also known as planning the market gardening activity and should be performed by the company. Through business model mapping in a collaborative approach, the existing business model is combined with a new business model using a collaborative model, which will also be explained in relation to contract farming.

Developing a business model requires a financial feasibility test to determine whether developing the business model is feasible. The financial feasibility test uses

secondary data obtained from internal company sources and analyzed quantitatively. Business feasibility is evaluated using net present value (NPV), internal rate of return (IRR), and payback period.

**RESULTS AND DISCUSSION**

The development of company's new business model by utilizing a partnership approach has resulted in a new Business Model Canvas (BMC) for the company. This new BMC accommodates the company's objectives and serves as a strategy to enhance its competitiveness in the vegetable export business (Umar et al., 2018). The BMC to be implemented by the company is based on the feasibility of the company in expanding its business through a partnership approach.

The information used to create this new BMC is obtained from key informants involved in the business development. The company's business model development is based on the Nine Building Blocks by Osterwalder & Pigneur (2010):

The partnership model with farmers demands that the company takes responsibility for collecting all the harvested products from the farmers. This leads to an expansion of the market segment. Initially, the company only exported 100% of its products, but now it has expanded by redirecting products that do not pass Quality Control (QC) to the local market to reduce losses due to rejected goods.

In addition to providing value to consumers, the company also offers favorable cash payments without credit conditions to farmers and suppliers. This is expected to boost productivity and product quality in the agri-food sector. The seamless payment process is expected to act as a catalyst for the continued growth of the industry and increase in annual vegetable production.

Unlike the previous business model, developing cooperative relationships with farmers requires the company to absorb all the best products from farmers. Products will not be returned after being delivered to the warehouse by the farmer because this is the company's commitment. The export process requires strict classification and quality control of products.

A reliable workforce is also a key aspect of the company's operations. Skilled and knowledgeable staff play a crucial role in ensuring that the product quality checks and packaging processes run smoothly. They have a deep understanding of the vegetables they handle, enabling them to quickly and effectively identify products that do not meet quality standards. Furthermore, their packaging skills are a crucial factor in maintaining product quality during shipping and storage.

Company's main business is exporting fruits and vegetables. The company sources vegetables from its partners. In addition, the company also classifies and standardizes export products according to customer criteria. Company also takes care of packaging to ensure vegetables are always fresh and of high quality during transportation until they reach customers.

With the change in business model, the company's operations have adjusted and expanded according to new needs and strategies. Based on the interview results after the company switched to a cooperative model, some main activities have changed and expanded. These activities reflect the company's change in business strategy to better support partnerships with local farmers.

The changes in cost structure reflect the company's strategy to increase efficiency and autonomy in sourcing raw materials by adopting a direct partnership approach with farmers. Although there are additional cost elements in the cost structure, the company aims to achieve greater efficiency and reduce overall costs in the long term. This is in line with the company's focus on sustainability and improving product quality.

The cost structure in the development of the BMC (Business Model Canvas) of the company has undergone significant changes with the adoption of the new business model involving direct partnerships with farmers. Financial analysis of the company.

## CONCLUSION

The development of the business model through partnerships with farmers has successfully increased the company's revenue. The results of the company's financial analysis show an increase of 80% from IDR 25,312,500,000 to IDR 46,912,500,000, illustrating the positive impact of this new business model on the company's financial performance. This reflects the success of the business model of linking with farmers to improve the quantity and quality of exported crop products.

This research provides a strong foundation for the company to continue and expand the development of the business model with a partnership scheme in an effort to respond to the growing market demand. Thus, this business model has significant managerial implications, and the strategic recommendations provided in this study can serve as a guide for the next steps in developing this business model.

Future research could explore the development of alternative economic models within the framework of collaborative programmes. This includes comparing different models to determine which is most effective in improving the quantity and quality of exported plant products. The research may involve further feasibility analysis, including financial and non-financial aspects of business development. In this case, the analysis may focus on the potential returns, risks and social impacts of the partnership. Case studies of the implementation of business-farmer partnership programs can provide valuable insights. Research can select multiple case studies and conduct comparative analysis to understand potential success factors and challenges.

Further research could deepen our understanding of the social impact of these partnerships on the sustainability of agricultural communities. This includes analysis of farmers' improved living standards, access to health and education services, and other social factors. Research can also further analyze sustainable agricultural practices applied in partnerships. Environmental impact assessment, such as waste reduction and sustainable use of natural resources, will be a top priority.

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