



Agribusiness Business Model Based on the Blue Economy: Synergy Between Agricultural Production and Maritime Logistics

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Abstract

Agribusiness plays a pivotal role in advancing economic growth, food security, and rural welfare, especially in archipelagic nations such as Indonesia where agriculture and maritime activities are geographically intertwined. Yet, fragmented supply chains, limited accessibility, and underdeveloped logistics infrastructure hinder the efficiency and competitiveness of agricultural systems. This study proposes a conceptual business model that integrates agribusiness with maritime logistics under the principles of the Blue Economy. Using a qualitative, desk-based analytical approach, it synthesizes academic literature, policy documents, and development reports to construct a framework aligning agricultural production with ocean-based distribution systems. The model is structured through an adapted Business Model Canvas emphasizing five interlinked components: (1) a value proposition centered on maritime connectivity and sustainability; (2) key integration activities between agricultural processing and sea transport coordination; (3) infrastructure and channel reconfiguration around coastal agrologistics hubs; (4) multi-actor partnerships among farmers, port authorities, and logistics providers; and (5) financial and environmental sustainability mechanisms. The findings highlight that maritime logistics can transform geographic fragmentation into an operational advantage by enabling cost-efficient, low-carbon, and inclusive supply chains. The proposed framework offers a strategic pathway for building resilient agribusiness ecosystems in island nations, supporting food security, regional equity, and sustainable development. While conceptual, the model lays groundwork for future empirical validation and pilot implementation to enhance coordination between agriculture and maritime sectors within Blue Economy-driven growth strategies.

Keywords: Blue Economy; Agribusiness; Maritime Logistics; Sustainable Supply Chain; Archipelagic Development

1. Introduction

The agribusiness sector plays a vital role in promoting economic growth, ensuring food security, and improving rural livelihoods. In archipelagic countries such as Indonesia, agribusiness holds strategic importance due to its capacity to produce abundant agricultural commodities, support employment, and drive development in rural and coastal areas [1]. However, the unique geographic challenges of archipelagic regions such as scattered islands, limited accessibility, and underdeveloped infrastructure pose significant barriers to the efficiency of agricultural supply chains. These conditions often result in high transportation costs, post-harvest losses, and reduced competitiveness of agricultural products in both domestic and international markets [2].

This structural gap creates a disconnect between production centers typically located in remote inland or coastal areas and consumption hubs in urban or export-oriented regions. As a result, local farmers and small agribusiness actors often face difficulties in accessing wider markets, capturing added value, and scaling up their operations. The problem becomes even more critical when considering Indonesia's vast geography, consisting of over 17,000 islands, where maritime transportation is not an optional channel but a logistical necessity [3].

To address these challenges, the concept of the Blue Economy offers a new perspective for developing more sustainable and integrated agribusiness systems. The Blue Economy promotes responsible and optimal utilization of ocean resources to support economic growth, environmental sustainability, and social inclusion. While this concept initially emerged in the context of marine sectors such as fisheries, coastal tourism, and ocean energy, it has evolved to encompass broader ocean-based or ocean-enhanced economic activities including maritime logistics that can support land-based sectors like agriculture [4].

One of the most critical and relevant elements of the Blue Economy in the context of agribusiness is maritime logistics [5]. Sea transportation has inherent advantages in archipelagic settings, such as its ability to connect isolated areas, transport large volumes of goods, and offer lower operational costs over long distances compared to land or air transport. For many coastal and island regions, maritime logistics is not simply a complementary system, it is the backbone of trade, supply, and food distribution [6].

Despite its importance, the integration of agribusiness and maritime logistics remains limited. In many cases, the agricultural value chain and the maritime transport system operate in silos, lacking coordination and synergy. This fragmentation leads to inefficient logistics networks, delays in delivery, increased operational costs, and reduced market responsiveness [7]. Consequently, the potential economic value of integrating these two sectors remains underexploited.

There is significant opportunity to foster synergy between agricultural production and maritime logistics to build more resilient, efficient, and inclusive food systems. By developing business models that strategically align agribusiness operations with maritime logistics infrastructure, it is possible to streamline supply chains, reduce transportation bottlenecks, improve market access, and increase the added value of agricultural products through timely processing and packaging [8].

This approach also aligns sustainable development goals, particularly those related to food security, poverty alleviation, sustainable infrastructure, and climate resilience. Integrating maritime logistics into agribusiness value chains not only enhances operational efficiency but also supports environmental objectives by promoting low-carbon transportation options and reducing dependency on road-based logistics that are often unfeasible in island regions [9].

Building agribusiness business models based on the Blue Economy requires a holistic and multi-sectoral approach. It involves not only farmers and agro-industrial players but also logistics providers, port authorities, regional governments, financial institutions, and investors. The business models developed must balance economic viability, environmental responsibility, and social equity [10]. This calls for an integrated business ecosystem in which stakeholders work collaboratively to support a cohesive and sustainable maritime-based agribusiness system.

The objective of this study is to develop a comprehensive agribusiness business model grounded in the principles of the Blue Economy, with a particular focus on the synergy between agricultural production and maritime logistics. This research aims to identify key bottlenecks in the current agricultural supply chains, explore opportunities for integrating existing maritime infrastructure, and design a collaborative strategy among stakeholders in both sectors. The proposed model is expected to offer a framework for implementing sustainable, competitive, and regionally inclusive agribusiness systems in archipelagic contexts [11].

The urgency of developing such a model is reinforced by the rising market demand for agricultural products that are high in quality, sustainable, and traceable. In parallel, government initiatives such as the maritime highway (tol laut) and the expansion of seaport infrastructure have opened new pathways for connecting remote agricultural areas with consumer centers and export markets. If strategically leveraged, these developments can serve as a foundation for



strengthening the agribusiness sector and turning it into a key driver of maritime-based economic development [12].

By enhancing the synergy between agriculture and maritime logistics, this study contributes not only to theoretical advancement in agribusiness and Blue Economy integration but also to practical solutions that can be implemented by local and national stakeholders [7]. The outcome of this research is expected to inform policymakers, investors, and development practitioners on how to foster inclusive and sustainable agribusiness systems that are adaptable to the geographical realities of island nations [9].

Moreover, this integration is vital in building food systems that are more resilient to external shocks, such as climate change, market volatility, and geopolitical disruptions. Strengthening maritime-based agribusiness models can enhance food distribution capacity, stabilize supply chains, and empower local communities to participate more equitably in the national and global economy.

2. Methods

This study adopts a qualitative, conceptual approach aimed at critically examining the potential integration of agribusiness systems with maritime logistics within the framework of the Blue Economy. The research does not rely on field data or interviews but is instead grounded in a comprehensive desk-based analysis of secondary sources. This includes peer-reviewed academic literature, national policy documents, planning reports, and global institutional publications. By synthesizing existing knowledge, the study seeks to construct a theoretically sound and strategically oriented business model that aligns agricultural production with maritime distribution systems in archipelagic regions.

The methodological framework of the study is rooted in interdisciplinary synthesis. The research draws upon concepts and theories from agribusiness management, maritime logistics, and sustainable development. The primary focus is to explore how these disciplines intersect and how their integration can support the development of more efficient, inclusive, and resilient agribusiness models. Through critical reading and thematic analysis of relevant literature, the study identifies recurring issues such as logistical fragmentation, supply chain inefficiencies, infrastructure gaps, and policy misalignment. These issues are then examined in relation to the guiding principles of the Blue Economy, particularly those that emphasize sustainability, efficiency, and social equity.

Secondary data for this study is drawn from a range of credible sources, including journal articles, government strategies, economic development reports, and planning documents related to maritime transport and agricultural infrastructure. Special attention is given to official publications on Blue Economy initiatives, sea toll programs, and national agribusiness development frameworks. These documents are analyzed to identify structural patterns, governance models, and areas of synergy or disconnect between the agricultural and maritime sectors. The data is then interpreted through a critical lens, focusing on the extent to which current systems enable or inhibit integrated development.

The analytical process follows a thematic content analysis approach. First, key concepts such as “agricultural value chain integration,” “maritime connectivity,” and “sustainable business models” are traced across various documents. The relationships between these concepts are then mapped to reveal underlying structures, tensions, and strategic opportunities. This process allows the researcher to construct a conceptual model that articulates how agricultural production systems and maritime logistics infrastructures can be harmonized within a Blue Economy paradigm. The emphasis is not merely on descriptive analysis but on generating a normative framework that proposes what such integration should ideally look like.

The business model developed in this study is structured using an adapted version of the Business Model Canvas. This framework is chosen for its capacity to represent complex interactions between value creation, partners, channels, customer segments, and cost structures in a visual and analytical manner. In the context of this research, the canvas is tailored to reflect Blue Economy values such as resource efficiency, environmental responsibility, and inclusive



economic participation [13]. Each element of the model is populated with insights derived from the literature, policy documents, and theoretical frameworks, resulting in a context-sensitive model for agribusiness development in archipelagic regions.

One of the limitations of this study is its lack of empirical validation. As conceptual and theoretical exploration, the findings and proposed model are not tested through field research or stakeholder consultation. This limits the study's ability to account for localized complexities or implementation challenges. However, the critical nature of this research offers a strong foundation for future empirical studies, pilot projects, or participatory design initiatives. It provides a strategic vision and a structured argument for why the integration of agribusiness and maritime logistics is both necessary and feasible under the Blue Economy framework.

In sum, this methodological approach prioritizes depth over breadth, theory over data collection, and strategic synthesis over case-specific analysis. It allows the study to propose an innovative and forward-looking business model that can serve as a reference for policy makers, development planners, and researchers working at the intersection of agriculture, logistics, and sustainable maritime economies.

3. Results and Proposed Model

This section presents the conceptual output of the study in the form of a strategic business model for agribusiness that aligns with the principles of the Blue Economy and integrates maritime logistics. The analysis culminates in five key components or sub-sections that form the structure of the proposed model.

3.1 Value Proposition in the Maritime-Based Agribusiness Context

The core value proposition of the proposed business model is the creation of a resilient and efficient agribusiness ecosystem that leverages maritime logistics to overcome geographic and infrastructural limitations. In archipelagic nations, agricultural production often occurs in rural or coastal areas with limited road access and poor connectivity to urban markets. By positioning maritime transport not as a supplementary mode but as the primary logistical backbone, the model enables timely and cost-effective delivery of agricultural goods to regional, national, and global markets [14]. This enhances product quality, reduces post-harvest losses, and enables small producers to participate more competitively in the value chain. The model also emphasizes sustainability as a value offering through reduced carbon footprints in transport and adherence to eco-friendly production practices aligned with Blue Economy principles [15].

3.2 Key Activities and Integration Mechanisms

The model identifies three main categories of key activities: agricultural production and processing, maritime logistics coordination, and value chain integration. Unlike conventional agribusiness models, where transportation is treated as an external support function, this model embeds logistics coordination as a core activity. This includes aligning harvest schedules with shipping timetables, coordinating storage and packaging at coastal aggregation points, and managing cold chain systems for perishable goods [16]. Processing activities are strategically located near ports or in logistics hubs to ensure seamless transfer from production to export pathways. Integration mechanisms also involve the use of digital platforms for supply chain visibility, demand forecasting, and inventory management. These activities collectively ensure that the agricultural value chain is not only vertically integrated but also spatially aligned with maritime infrastructure [17].

3.3 Infrastructure and Channel Configuration

Effective implementation of the proposed model requires a rethinking of physical and institutional infrastructure. Ports, coastal warehouses, and small-scale agro-processing centers



must be designed or upgraded to serve as agrologistics nodes facilities where agricultural inputs and outputs are exchanged, processed, and routed efficiently. These nodes function as bridges between inland production and maritime transportation. The model also introduces a multi-channel distribution configuration: direct maritime shipping for bulk exports, inter-island shipping for domestic distribution, and integration with land-based logistics where feasible. Institutional channels, such as farmer cooperatives and logistics consortia, also serve as intermediaries to facilitate coordination and information exchange. This spatial and organizational reconfiguration addresses existing fragmentation and enables a more coherent, route-optimized distribution system [18].

3.4 Partnerships and Stakeholder Alignment

A critical element of the model is the deliberate structuring of multi-actor partnerships. The agribusiness–maritime model cannot operate effectively without collaboration across traditionally siloed sectors. The proposed model includes farmers' groups, maritime logistics operators, port authorities, local governments, financial institutions, and private investors as co-actors within an integrated ecosystem [19]. These partnerships are formalized through shared governance structures, joint investment agreements, or public–private partnerships (PPPs). Each actor contributes distinct resources land, capital, logistics capacity, or policy support and shares in the collective benefits of value chain upgrading [20]. Moreover, the model encourages the establishment of regional coordination bodies to ensure that logistical planning aligns with seasonal production patterns, export timelines, and infrastructure readiness.

3.5 Financial Viability and Sustainability Framework

The proposed business model is designed to be both economically viable and environmentally sustainable. Financial viability is achieved through cost-sharing mechanisms in logistics, economies of scale via aggregated shipments, and value-added processing at logistics hubs. By reducing transportation redundancies and optimizing shipping routes, the model lowers per-unit logistics costs, thereby increasing producer margins [21]. The integration of processing and packaging close to port areas also allows producers to capture a larger share of the value chain. On the sustainability side, the model adheres to Blue Economy principles by promoting maritime modes with lower carbon emissions, encouraging the use of renewable energy in agro-processing, and adopting traceability systems that ensure environmental compliance throughout the supply chain. This dual emphasis on profitability and sustainability positions the model as a forward-looking framework for agribusiness development in archipelagic settings [22].

4. Discussion

The proposed business model addresses a structural gap that has long hindered the development of agribusiness in archipelagic regions: the disconnection between production systems and maritime logistics infrastructure. While agriculture and maritime transport are each critical to the national economy, they have historically evolved in parallel rather than in coordination [23]. This misalignment has led to inefficiencies in supply chains, high logistics costs, and limited access for small-scale producers to larger, more profitable markets. The model presented in this study offers a conceptual resolution to this issue by embedding logistics functions into the core architecture of agribusiness operations, effectively reconfiguring how value is created, moved, and captured [24], [25].

One of the most significant contributions of this model lies in its spatial logic. By repositioning maritime logistics from a peripheral to a central component of agribusiness strategy, the model responds directly to the geographic realities of island nations. In Indonesia, for example, over 60% of the population lives in coastal areas, and a significant portion of agricultural production occurs in remote regions far from urban demand centers. Traditional land-based logistics models are not only inefficient in such settings but often entirely infeasible. Maritime



transport, in contrast, offers scalable, cost-effective, and environmentally favorable solutions, especially when integrated with localized processing and aggregation facilities situated near ports. The proposed model thus transforms geographical fragmentation from a barrier into an operational advantage [26].

Furthermore, the model reflects a paradigm shift in how value is conceptualized within the agribusiness sector. Rather than focusing solely on yield or production volume, value creation here emerges through systems integration: efficient coordination between actors, infrastructure alignment, and responsive logistics planning. This system-level thinking aligns with the Blue Economy ethos, which emphasizes cross-sectoral cooperation and the sustainable use of marine and coastal resources [27]. The model suggests that strategic alignment between agriculture and maritime sectors does not merely improve logistical outcomes; it also enables more resilient, adaptable, and inclusive forms of economic development.

The proposed model also introduces a critical governance dimension. The success of such a system depends on coordinated action among a diverse array of stakeholders, including farmers, logistics firms, government agencies, and investors. This raises important questions about institutional capacity, regulatory frameworks, and the mechanisms by which incentives are aligned across the value chain [28]. Without robust coordination platforms or shared accountability structures, the integrated system risks reverting to fragmented practices. Therefore, the model implicitly calls for new forms of governance that are participatory, regionally anchored, and capable of mediating between economic, environmental, and social objectives [29].

Another important point of discussion concerns scalability and adaptability. While the model is designed with Indonesia as a reference point, its core principles are transferable to other archipelagic or coastal nations facing similar challenges. However, local context matters. The availability of port infrastructure, the maturity of agricultural cooperatives, and the digital readiness of logistics systems vary widely across regions. Thus, the model must be seen as a flexible framework rather than a rigid prescription [30]. Future research or pilot implementation will need to adapt the model's components to suit specific regional characteristics, including commodity types, transportation corridors, and institutional arrangements.

Finally, the model is notable for its integration of sustainability as a foundational logic rather than an afterthought. The business case for environmental responsibility is increasingly evident, particularly in global supply chains that are under pressure to meet traceability and carbon reduction targets [31]. By embedding sustainable practices such as low-emission shipping, energy-efficient processing, and reduced food waste, the model not only aligns with international environmental standards but also enhances the competitiveness of agricultural exports. It signals a move away from extractive development logics toward regenerative and circular models that reflect long-term economic and ecological health [32].

In summary, the discussion highlights that the proposed agribusiness business model does more than optimize logistics and it reimagines the structure and governance of agricultural economies in maritime regions. It contributes a strategic, scalable, and sustainability-oriented framework that aligns with national development goals, responds to global market demands, and empowers local communities to play a central role in value creation.

5. Conclusion

This study has proposed a strategic business model that integrates agribusiness systems with maritime logistics under the framework of the Blue Economy. The model responds to the spatial, logistical, and structural challenges faced by archipelagic countries particularly Indonesia where agricultural production is often disconnected from efficient distribution systems due to geographical fragmentation and inadequate infrastructure. By reconceptualizing maritime logistics as a central element rather than a peripheral function, the model offers a transformative approach to value chain management in the agricultural sector.

The core contributions of the model lie in its spatial alignment with maritime geographies, its integration of key activities such as coastal processing and logistical synchronization, and its emphasis on multi-stakeholder partnerships. Furthermore, the model embeds environmental



sustainability and financial viability as foundational principles, in line with the ethos of the Blue Economy. It not only enables cost reduction and market access improvement for producers, but also supports national goals related to food security, regional equity, and low-carbon development.

Nevertheless, as a conceptual framework, the model requires further empirical validation to assess its feasibility and effectiveness in diverse local contexts. Its implementation will depend on several enabling factors, including supportive policy environments, institutional coordination, digital infrastructure, and investment in port-adjacent agrologistics facilities. The complexity of inter-sectoral integration also demands clear governance mechanisms to align incentives and manage trade-offs among stakeholders.

Based on the findings and limitations of this research, several recommendations are proposed. First, policy makers should prioritize the development of coastal agrologistics hubs that co-locate processing facilities with maritime terminals, enabling more efficient upstream and downstream flows. Second, there is a need to foster institutional platforms that bridge agricultural cooperatives with logistics operators, including through digital systems that improve supply chain visibility and coordination. Third, future research should focus on pilot-testing the model in selected island regions to generate practical insights, measure socio-economic impact, and identify operational bottlenecks.

In conclusion, the integration of agribusiness and maritime logistics within a Blue Economy framework offers a powerful pathway toward sustainable, inclusive, and efficient agricultural systems in archipelagic nations. By reimagining how value is produced and moved across islands, this model paves the way for a new generation of agribusiness strategies that are better suited to the geographic realities and sustainable development ambitions of the 21st century.

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