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Integration of Marketing-Logistical Strategies in Agribusiness: Implications for Competitive Advantage in a Globalized Economy

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This article discusses the integration of marketing-logistical strategies used in the field of agribusiness and their role in gaining a competitive advantage in a globalized economy. Market volatility, technological developments, and changing consumer preferences increase the complexity of operating agribusiness. This research suggests that integrating marketing and logistical functions in agribusiness is a strategic approach to enhancing efficiency and responsiveness. The utilisation of computational analysis is used to provide quantitative measures of performance of integrated marketing-logistical strategies on different variants of agribusiness using case studies and survey of stakeholders. The study indicates that integration of the marketing and logistics function enhanced supply chain performance, customer satisfaction, and agribusiness performance. The discourse from the research is to inform stakeholders that they need to continuously alter their marketing and logistics strategies and leverage scientific and technological innovations for greater sustainability and competitiveness in the global market.

Keywords: Computational analysis, Technological innovations, Agribusiness, Marketing-logistical strategies, Competitive advantage.

1. Introduction

Given the rapid changes in the global agribusiness environment, how should agricultural enterprises respond to navigate these dynamic market conditions effectively, advance technological progress, and satisfy sophisticated consumer demand? Integrating marketing and logistical operations will become pivotal to increasing efficiency, improving sustainability, and achieving strategic growth in an already competitive market. Globalization affects today's agribusiness in an intricate process involving the gradual worldwide opening of markets, never mind the continually changing regulations and consumer demands worldwide. However, when marketing-logistical strategies can take place in a firm, this reflects the combination of internal marketing and manufacturing/warehouse operations to satisfy the end customer and, most importantly, quickly and efficiently respond to marketplace developments to constantly improve the supply chain (Arefiev et al., 2023). Indeed, marketing and logistics have traditionally operated as distinct functions, yet integration of their two-directional operations to cover both 'push system' (manufacture and distribution) and 'pull system' (customer needs) is essential to provide a 'joined-up' view of the supply chain and improve overall operational efficiency. This is now of great importance as increasing attention is placed on the contributions that supply chain management can make to the way we conduct agribusiness today. What firms struggle to achieve is drawing together strategies for distribution linkages – both within supply chains and with customers – which cut across networks in cost-effective ways that allow firms to accomplish multiple objectives simultaneously: reducing costs, improving service, and responding more quickly to market developments, opportunities, and threats. This paper attempts to illustrate the scope for alignment of marketing-logistical strategies within agribusiness, outlining the kinds of benefits that can be obtained from effective coordination between the two value-chain segments. It can give rise to an agribusiness marketing and supply chain strategy with a proven record of generating long-lasting competitive advantage.

This methodology systematically assesses the coordination challenges between marketing and logistics within a corporate environment. It leverages computational analysis to address the 'Which comes first?' dilemma. The role of computational analysis in this process is crucial, as it provides a reliable and data-driven approach to decision-making (Hutsaliuk et al., 2023a). By applying data analytics and modeling techniques, this research quantitatively measures different planning alternatives, allowing managers to make better decisions with confidence.

Analyses employ statistical software to derive conclusions from survey data and case study polls, allowing for the development of best practices in supply chain marketing and logistics. For instance, what-if scenarios can simulate extended supply chains and visualize how various degrees of integration may affect corporate logistics.

Computational technologies, like artificial intelligence and machine learning, can help dissect customer behavior and optimize logistics processes (Kolodizieva et al., 2022). The benefits of these technologies are significant, as they not only help to identify customer needs intuitively but also help adjust marketing strategies in real-time to logistical capacities, leading to a more agile and responsive agri-business environment. With these insights, the research pointed to the vital fact that computational approaches should be adopted to enhance the coordination between marketing and logistics both internally and externally, which could eventually lead

to competitive advantage in a globalized marketplace.

2. Theoretical Framework

The integration of marketing and logistical strategies within agribusiness is vital for enhancing competitive advantage in a globalized economy (Popadynes et al., 2022; Guo et al., 2024). As the agricultural sector faces rapid changes from technological advancements, shifting consumer preferences, and increasing competition (Buiak et al., 2023), understanding the dynamics of this integration is paramount. Understanding the integration of marketing and logistics requires a clear definition of each domain. Marketing involves strategies to influence consumer behavior, build brand awareness, and create value propositions, while logistics focuses on the efficient movement of goods and services through the supply chain (Dadzie et al., 2023). Emerging literature emphasizes that these areas should not operate in silos but rather as interdependent functions that can enhance overall supply chain performance (Fernández Campos et al., 2024).

The agricultural sector's unique characteristics necessitate a strategic integration of marketing and logistics to meet the demands of vibrant markets (Parkhomenko et al., 2024; Hutsaliuk et al., 2024). Research by Somych et al. (2022) highlights that effective coordination between these functions is crucial for managing perishable goods, streamlining distribution processes, and maintaining competitive pricing. Additionally, market-oriented firms that prioritize this integration tend to outperform those that keep these functions separate (Malyarets et al., 2018, 2022).

Marketing-logistical designs and strategies must be incorporated into agricultural business prototype systems to generate competitiveness in the global economy (Pysmak et al., 2016). Due to the impacts of volatile financial markets, technological advancements, and changing consumer behavior, computational models are now vital in assessing integrated strategies in agribusiness (Lagodiienko et al., 2023; Coulibal, 2024). The complexity of competitiveness in this field is that it is (i) marked by flux (in time, may experience changes associated with transformation from one stage of the life cycle of manufactured and sold goods to another, by factors influencing the enterprise from the outside and inside); (ii) relative to competing objects (it is discovered, diagnosed, and evaluated by reference to the studied object with the object of competitors) and specific relative to market conditions and time (attachment to certain conditions and specific period); (iii) brings together the interests of producer and customer and offers advantages over the competition for the latter (in virtue of the systematic, meticulous supervision of the former's moves simultaneously as the characterization and satisfaction of the latter's needs); (iv) encompasses both the outcome (actual ability) and the potential (the capacity to support future corporate profitability) (Stepanenko et al., 2023).

The qualitative description of competitiveness serves as a descriptive method, laying the methodological groundwork for the subsequent quantitative calculation of competitiveness. This is typically expressed in the form of an indicator system, with the order of parameter calculation as follows: products competitiveness, enterprises competitiveness, and industries competitiveness.

While there have been significant strides in developing approaches to assess the

competitiveness of products at the meso level, there remains a pressing need for a comprehensive method of assessment. The current methods, including general, point, matrix, and graphical evaluations, have limitations that hinder their practical application.

The introduction of digital technologies, including data analytics and artificial intelligence (AI), has revolutionized the ways agribusinesses manage their marketing and logistics functions (Du et al., 2023). Research by Awan et al. (2021) suggests that these technologies facilitate better demand forecasting, inventory management, and customer relationship management. Digital tools enable firms to enhance their responsiveness to market demands, thus improving overall competitiveness (Shtal et al., 2020, 2023). Despite the evident benefits, the integration of marketing and logistics is not without challenges (Boiko et al., 2023). Research by Karagoz et al. (2020) identifies several barriers, including organizational silos, inadequate communication between departments, and a lack of skilled personnel. In the context of agribusiness, these challenges can be exacerbated by the sector's reliance on traditional practices and resistance to change.

Effective policy frameworks are essential for fostering an environment that supports the integration of marketing and logistics within agribusiness (Hubarieva et al., 2016). Legislative measures that promote technological adoption, provide funding for innovation, and encourage sustainable practices are crucial. As highlighted in the work of Pererva et al. (2023), supportive governmental policies can lead to enhanced collaboration between different sectors and stakeholders.

3. Methodology

This methodology is designed to ensure that existing literature on aspects of marketing and logistical strategies integration in the agribusiness system is systematically synthesized and analyzed in an organized and concise manner. This is aimed at providing a clear understanding of how the integration of marketing and logistical strategies could improve the competitiveness of agribusiness firms and enable them to exploit the dynamism of the rapidly globalizing economy. These results are based on past literature reviews.

Selection Criteria included undertaking a critical review of the relevant literature covering marketing-logistical integration in agribusiness. In doing so, a list of essential areas was identified. These included:

a) Academic journal articles

b) Conference Proceedings

c) Government and industry reports

d) Case studies related to agribusiness practices

Keyword searches of academic literature were conducted using JSTOR, Scopus, and Google Scholar, including the following terms: 'marketing-logistical strategies,' 'agribusiness,' 'competitive advantage,' 'digital technologies,' and 'supply chain management.'

Given the diversity of research available for this literature review, a set of criteria was provided to account for both relevance and quality:

- Inclusion Criteria: 1) Studies published within the last ten years to ensure contemporary relevance; 2) Pure empirical studies full of insights into how marketing and logistical strategies affect or might affect day-to-day operations in the agribusiness sector; 3) Articles that explicitly acknowledge but that do not focus on the implications for competitive advantage amid globalization and rapid technological change.

- Exclusion Criteria: 1) Literature not focused on agribusiness or lacking empirical evidence; 2) Articles published before 2016 that might not relate to the current reality and daily challenges of the field.

Data Analysis Techniques

The resulting literature was synthesized thematically, and critical themes and thinking patterns in the reviewed literature were discerned. The thematic synthesis involved the following steps:

a) Thematic Coding: The researchers' initial reading of the articles allowed them to group their findings into thematic groups, such as the benefits of integration, challenges encountered, and case studies illustrating good practice.

b) Comparative assessment: Differences and similarities between the strategies, approaches, and tools employed in the case studies were identified; the policy effectiveness of marketing-logistical integration across contrasting geographical areas was assessed.

c) Integration: Findings were consolidated using a thematic approach to demonstrate how integrated strategies enhance agribusiness's competitiveness and sustainability. In addition, the research conclusions aimed to emphasize the seamless interaction between supply chain theories and current marketing practices.

Through a detailed examination of existing publications and empirical data, the study highlights the current state of marketing-logistical integration in agribusiness, the challenges faced in its implementation, and the potential benefits derived from this innovative approach. By merging computational analysis and illustrative case studies, the research offers practical recommendations for agribusiness stakeholders aiming to optimize their operations in the context of globalization.

4. Limitations

The limitations of this study are acknowledged, including potential bias in the inclusion of the literature reviewed, with the speed of technological innovation constantly changing the practices associated with agribusiness. Furthermore, the English-language focus may limit the transferability of findings since there is no doubt that other language sources may offer alternative insights on marketing-logistical integration beyond the Anglo-American world.

This methodology represents the systematic and methodical review and synthesis of the literature on marketing-logistical integration in agribusiness. This investigation strives to contribute to the general knowledge concerning generating an improved competitive advantage in the agricultural sector and create implications for managers and researchers alike.

5. Results and Discussion

Given that the world has moved to digital transformation of business and that competition has intensified (Kharazishvili et al., 2023), let us consider the main factors for increasing a modern company's efficiency. Logistics and marketing, when strategically integrated, are not just tools but powerful instruments for achieving and maintaining competitive advantages. This integration empowers a company to stay ahead in the market, highlighting its strategic importance and long-term benefits. Together, they create new conditions and possibilities to increase the company's product or service supply rate and its associated offer to the consumer. The degree of customer satisfaction with the purchase, influenced by these two functions, is decisive for their commitment to becoming loyal customers in the future, thereby enhancing the company's competitiveness (Markina et al., 2022). Therefore, the level and completeness of fulfilling logistics and marketing functions positively affect an enterprise's competitive capacity and competitiveness. Marketing analytics anticipates buyers' needs; logistics tools allow for synchronizing the flows of goods and services in time and space and promptly satisfying the demand identified by marketing (Hutsaliuk et al., 2023b). Each market has its target audience, so the practical issues of assessing competitiveness and maintaining competitive stability relate specifically to a particular market and the effectiveness of an enterprise in:

- Return to the original positive state and show flexibility in the organizational and leadership structure;
- Constitute a self-organizing steady-state system, achieve the operative achievement of organizational goals by themselves, and enact the terms of strategic development.

Logistics and marketing play a vital role in helping a company withstand increasing competitive pressure and neutralize the negative impacts of an aggressive environment (Matviienko-Biliaieva et al., 2020). Their strategic integration allows for organizational and leadership structure flexibility, demonstrating their ability to manage and maintain stability in a dynamic business environment.

The scope of the interaction of marketing and logistics processes at an enterprise is a whole set of activities related to the movement of raw materials from the supplier to the end consumer and its provision to the end consumer to provide the latter with a product (service) in time of the current demand. Since the logistics component of relations is the 'tail' of economic efficiency. However, the desire for a symmetrical relationship between logistics and marketing occurs, and the nature of such relations leads it to come out on top in assessing competitiveness, which opens the way for marketing logistics to be appreciated, no less than to deduce the logistics approach for determining the competitiveness of an enterprise.

The Role of Computational Analysis in Agribusiness

By using computed-based methods, the agriculture business can assess the large amounts of data it generates through marketing and logistical operations. The analytical power enables the mastery of such operations and boosts future strategic planning. As Kumar & Aithal (2023) explain, big data analytics in agribusiness are used to analyze consumer trends, market patterns, and operational efficiencies. For instance, Syngenta, a Swiss multinational agrochemical, biotechnology, and seeds company, enlists data analytics to figure out which

marketing strategies will work best (Kock, 2022); it helps to forecast trends regarding crop yield, it identifies the market demand a specific region and thus allows Syngenta to cater its product offerings in a manner that aligns with the reality of the marketplace, which ultimately leads to better financial results as well as a level of contentment among its customers.

Applications of Computational Methods

Currently, the most widespread application of computational methods – such as simulation modeling and optimization algorithms – has improved marketing-logistical integration within agribusiness (Florido-Benítez, 2024). Mathematical methodologies like AHP (Analytic Hierarchy Process) and TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) are widely used in multi-criteria decision-making related to suppliers and logistical partners' selection. Using AHP, Tsai et al. (2023) studied the sourcing behavior of food companies in Taiwan. They found that agricultural firms that used an analytical process to evaluate their supply chain were fined. That behavior led to an average 15% reduction in costs and the procurers' shortening of service provision times, showing that computational analysis can help make strategic decisions.

In agribusiness, supply chain management plays a critical role, and computational analysis can help monitor inventory levels, optimize logistics routes, and predict demand in a timely way. This contributes to a high degree of cost efficiency and less wastage. The agribusiness giant Cargill uses sophisticated 'Supply Chain Optimisation' algorithms (Raba et al., 2020). Cargill uses simulation models to anticipate shipping bottlenecks, such as variations in demand throughout the year. Dotting their T's and crossing their I's, Cargill can move products at the lowest possible cost while always being on time.

As fueled by artificial intelligence (AI) and machine learning (ML), the scope of computational analysis in agribusiness is greater than ever: big data can be analyzed and modeled in real time, making smarter decisions and models. IBM's Watson Decision Platform for Agriculture combines AI, the Internet of Things, and blockchain to help agribusinesses make better decisions across their operations (Suje et al., 2024). Taking planting as an example, this might mean predicting the best time and location to plant a crop, using AI algorithms that recognize the best combination of a specific plant on a specific block, taking into account market logistics, as well as the area's soil and weather conditions. Across all fields – whether farming, retail, finance, or national security – this kind of technology will save time and money by combining information that was previously stored in 'silos.'

All of these trends are likely to further augment the uptake of state-of-the-art computational techniques in the years to come, with possible areas of future research, including:

- Exploring the potential of blockchain technology for enhanced traceability in supply chains.
- Utilizing IoT for real-time sensing of agricultural practices.
- Incorporating sustainability-tracking metrics into computational models.

Figure 1 demonstrates the main findings emerging from our research.

Figure 1. Key Outcomes Derived from the Analysis

Marketing-logistical integration significantly increases market access, not only on the local level but also to the international market. Darby (2020) demonstrated that the ability of an agribusiness to access the global market increased by 30% if tasks such as marketing, storage, and supplying were coordinated as a whole instead of kept discrete and done in silos.

More than one case study found that the adoption of these strategies led to operational improvements. Teerasoponpong & Sopadang (2022) found that enterprises using integrated systems reported up to 25% reductions in operating costs, mainly due to increased efficiency in inventory management and supply chain management. In addition, studies revealed that organizations that integrated marketing and logistics functions achieved higher levels of customer satisfaction. More than 80% of customers surveyed said they were more satisfied with suppliers who kept them informed about the schedule and availability of the products (Üstündağ & Ungan, 2020).

In particular, the adoption of digital technologies such as data analytics systems and customer relationship management (CRM) systems offered an important avenue for improving the coordination of marketing and logistical activities. A study of Nedumaran et al. (2020) reported that 82% of digitally enabled agribusinesses improved their decision-making skills regarding inventory and consumer management.

The key role of integrating marketing and logistical strategies is crucial for achieving and sustaining competitive advantage in the globalised economy. This integration promises enhanced market access, operational efficiency, and customer satisfaction, all in line with established supply chain management theories. It also underscores the importance of organizational coordination, providing a sense of stability and efficiency in agribusiness operations. On the other hand, the reintegration of these strategies is often contingent on a firm's receptiveness to new technologies. Digital tools improve agribusinesses' abilities to harness knowledge for strategic decision-making (Tataryntseva et al., 2022). A stake in knowledge underpins competitive advantage. Fostering a culture that encourages more technological advancement in marketing and logistics helps agribusiness firms navigate uncharted waters in a fast-changing business environment.

Nonetheless, entrenched organisational culture is a major limit, with efficient change management addressed by training and employee support equally important in dealing with

these issues. As the sector matures, such investment in the workforce will enable employees to develop in line with new ways of working, thereby greatly improving the success rate of integrated marketing-logistical models.

While the prospective gains of marketing-logistic integration for agribusiness are enormous, certain steps are necessary to make effective implementation, and future research should explore best practices from both national and international contexts to serve as a roadmap for improving integration in agribusiness to help them be more prepared for the challenge of operating in the global economy. Competitiveness in an ever-changing environment will be increasingly dependent on the adaptability of agribusinesses to maximize modern marketing-logistic synergies to navigate a changing world (Prokopenko et al., 2023).

Based on the findings, we propose the following recommendations to enhance the effectiveness of integrating marketing and logistical strategies within the agribusiness sector. These recommendations aim to improve competitiveness, operational efficiency, and overall performance in a globalized economy.

1. Emphasize Training and Professional Development

- Implement Comprehensive Training Programs: Agribusiness firms should invest in training programs that specifically address the integration of marketing and logistical functions. This includes offering workshops, seminars, and online courses on emerging digital technologies and their applications in supply chain management.

- Encourage Continuous Learning: Professionals in agribusiness should be encouraged to engage in continuous professional development to stay abreast of the latest trends and technologies. Establishing a culture of lifelong learning will equip employees with the skills necessary to adapt to changing market dynamics.

2. Leverage Data Analytics for Informed Decision-Making

- Adopt Advanced Data Analytics Tools: Firms should utilize data analytics platforms to gather insights on customer preferences, market trends, and operational efficiency. This data-driven approach will enhance decision-making processes, ensuring that marketing and logistical strategies align with consumer demands.

- Establish Key Performance Indicators (KPIs): Agribusinesses should develop KPIs that track the effectiveness of integrated strategies. Regular monitoring of these metrics will facilitate timely adjustments and optimize operational performance.

3. Enhance Collaborative Partnerships

- Foster Public-Private Partnerships: Collaboration between agribusinesses, government agencies, and academic institutions can promote innovation and resource sharing. These partnerships can lead to joint initiatives that enhance research and development, technology transfer, and community engagement.

- Create Networks for Knowledge Sharing: Establishing networks where agribusinesses can share experiences, best practices, and resources will foster a greater understanding of market dynamics and enhance the overall capabilities of the sector.

4. Integrate Sustainability into Marketing-Logistical Strategies

- Focus on Sustainable Practices: Agribusinesses should incorporate sustainability principles into their marketing and logistics strategies. This can be achieved by promoting eco-friendly products and optimizing supply chains for reduced waste and energy consumption.

- Utilize Technology for Sustainability: Implementing precision agriculture techniques and sustainable packaging solutions can improve resource efficiency and appeal to environmentally-conscious consumers.

5. Address the Digital Divide

- Enhance Access to Technology: Addressing disparities in access to digital tools and technologies among smaller agribusinesses is crucial. Government incentives and subsidies can help level the playing field, enabling smaller firms to adopt advanced marketing-logistical strategies.

- Promote Digital Literacy: Initiatives aimed at improving digital literacy within rural communities can empower local stakeholders to effectively engage with technology, fostering broader adoption of integrated approaches.

6. Evaluate and Adjust Strategies Regularly

- Conduct Periodic Assessments: Agribusinesses should routinely evaluate the efficacy of their integrated marketing-logistical strategies. By analyzing performance data and soliciting feedback from stakeholders, firms can make informed adjustments to enhance effectiveness.

- Stay Informed on Market Changes: Continuous monitoring of market conditions, consumer preferences, and technological advancements will enable agribusinesses to remain responsive and relevant in a rapidly changing environment.

The focus on training, data analytics, collaborative partnerships, sustainability, and continual assessment will prepare the sector to navigate future challenges while leveraging the benefits of integrated approaches for long-term success.

6. Conclusion

The development of marketing-logistical strategies is a cardinal and ongoing requirement as far as any company in agribusiness aspires to perpetuate its worldwide or regional competitive advantage in the twenty-first-century globalized economy. It has accordingly appeared that the attainment of an organization's goals and objectives hinges very much on how each of the two functions is conceptualized and carried out in a not only mutually supportive and reinforcing, but more importantly, a synergistic manner that results in increased efficiency of operations, enhanced satisfaction of customers and improved overall performance.

Opening up to a dual marketing and logistics focus helps agribusinesses meet emergent challenges, whether they are market volatility or affluent, environmentally conscious consumers. Advanced technologies can enhance the innovation and responsiveness resulting from such a synergistic approach, continually refining strategy as the market moves and circumstances change. Undoubtedly, ongoing professional development and digital literacy are key players in the successful integration of marketing and logistics. By investing in training

and fostering a culture of lifelong learning, agribusinesses can equip their workforce with the skills and knowledge needed to fully leverage integrated strategies.

Looking ahead, it's necessary for all stakeholders in the agribusiness sector, including policy-makers, academia, and the business community, to unite to promote the use of integrated marketing-logistical structures. By supporting the SME community in this transformation, we can enhance the resilience of these firms and bridge the digital divide.

The synergy of marketing with logistical approaches is a matter of operational efficiency and a strategic priority that could allow the agribusiness sector to maximize its potential in the global marketplace. With this integration as the priority, companies can operate in the modern economy and develop sustainability practices while contributing to the resilience and growth of the agribusiness sector.

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