

SUPPLY CHAIN STRATEGIES FOR FOOD PRODUCTS: A CASE STUDY OF ADANI WILMAR IN INDIA

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Summary

The article investigates supply chain strategies for food products, focusing on Adani Wilmar in India, a leading FMCG food company. It highlights the transformative impact of advanced technologies and e-commerce on supply chains, emphasizing the crucial role of meeting consumer demands for swift and secure deliveries. The research, employing both secondary and primary data, identifies challenges faced by Adani Wilmar, including infrastructure limitations, regulatory complexities, seasonal fluctuations, and technological barriers. The study, based on input from 11 employees, recommends practical strategies such as IoT integration, advanced technological tools, eco-friendly transportation, sustainability practices, and collaboration with local farmers and logistics providers. It underscores the significance of addressing obstacles to optimize Adani Wilmar's food supply chain, enhance efficiency, and ensure resilience in the dynamic market. The proposed solutions aim to capitalize on technology, sustainability, and collaboration, providing a comprehensive roadmap for Adani Wilmar to navigate challenges and evolve its supply chain strategies, ultimately fostering efficiency and sustainability in the food industry.

Keywords: supply chain, challenges, strategies, Adani Wilmar

Introduction

The evolution and integration of advanced technologies, incorporated with practical scenarios including the rise of e-commerce, have significantly propelled the growth and importance of supply chains (Richey et al., 2023). With the surge in online shopping and the demand for fast, reliable deliveries, supply chains have adapted to meet these expectations, leading to an increased emphasis on streamlined logistics and fulfilment processes (Attaran, 2020). This intersection of technological advancements and real-world demands has played a pivotal role in the escalating significance of supply chains in modern business environments.

The integration of advanced technologies and the rise of e-commerce have transformed the supply chain of food products, ensuring precision from farm to table (Kittipanya-Ngam and Tan, 2020). Technologies like blockchain and IoT enhance traceability and real-time monitoring, addressing concerns about food safety and transparency. In the modern business landscape, the adaptability and optimisation of food supply chains play a crucial role in meeting consumers' dynamic demands and expectations for swift and secure deliveries (Jagtap et al., 2020). Consequently, the importance of supply chain strategies for food products has increased.

Research aim: to identify the supply chain strategies for food products, focusing on the case study of Adani Wilmar in India.

The following **objectives** have been set to achieve the aim:

1. To understand the obstacles in optimizing the supply chain for food products within the context of Adani Wilmar in India.
2. To recommend practical strategies for enhancing the supply chain efficiency of food products, specifically examining the case study of Adani Wilmar in India.

Research object and methods

The object of the research: supply chain strategies for food products.

The research article employs both secondary and primary data for analysis. Secondary data is sourced from articles, books, and papers. Primary data is gathered through a 10-question Google Form distributed to Adani Wilmar employees in India. Ten employees, comprising middle managers from the supply chain, warehouse, and transportation departments, alongside additional staff members, actively participated in collecting the data. Their involvement spanned across these crucial operational areas, ensuring comprehensive data coverage. Content analysis is applied to scrutinize the acquired data. Content analysis is a research method that involves systematically analysing and categorizing the content of textual, visual, or audio information to extract meaningful insights and patterns.

Research results and discussion

Adani Wilmar in India

Established in January 1999, Adani Wilmar stands out as one of India's leading FMCG food companies, offering a comprehensive array of essential kitchen commodities to Indian consumers (Adani Wilmar, 2023). The company's diverse product lineup encompasses edible oil, wheat flour, rice, pulses, and sugar, available under various brands spanning a wide price range to cater to diverse customer segments. Recognized as one of the rapidly growing

packaged food enterprises in India, Adani Wilmar underscores its dedication to providing top-notch products to consumers. Additionally, the company holds the distinction of being India's foremost importer of crude edible oil, and its Mundra facility ranks among the country's largest single-location refineries, boasting a designed capacity of around 5,000 tonnes per day (Adani Wilmar, 2023). Positioning itself as an industry leader, Adani Wilmar excels in various segments, serving as the largest lauric fat manufacturer, the foremost producer of castor oil, and one of India's major basic oleochemical manufacturers (2023). The company's commitment to excellence is evident through its impressive list of achievements, highlighted by the Warehouse and Supply Chain Leadership Award 2022 for Best Use of Technology in Logistics and the Brand of the Year Award for Fortune (Adani Wilmar, 2023). The company's manufacturing skill is evident with 23 plants dispersed across 10 states in India, complemented by 28 tolling units as of March 31, 2021, strategically positioned to meet growing demand and ensure a widespread presence in various locations (2023).

Research result

11 employees, encompassing roles such as supply chain manager, warehouse manager, warehouse employee, and supply chain analytics, participated in the Google Form survey. Their collective experience ranged from one to four years. The respondents provided their perspectives on relevant questions regarding supply chain strategies for food products. The findings of the research are outlined below:

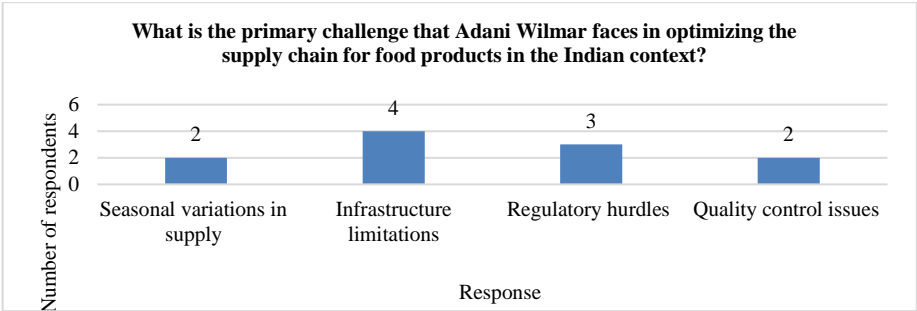


Fig. 1. Primary challenge faced in enhancing the food products supply chain

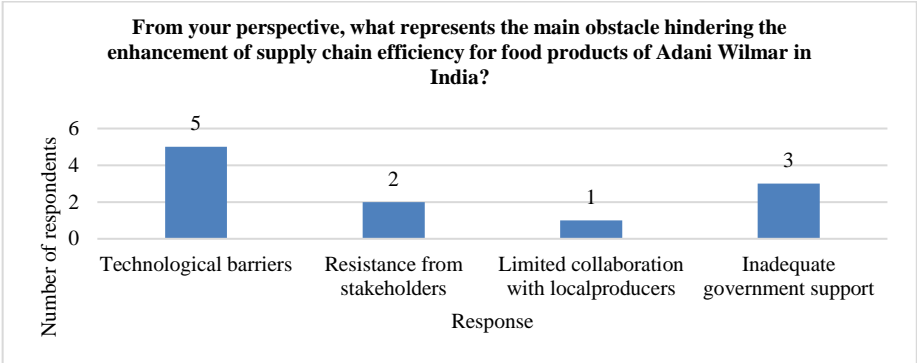


Fig. 2. Main obstacles affecting the food products supply chain

The predominant issue identified by most employees is the limitation in infrastructure, posing a primary challenge for Adani Wilmar in optimizing its supply chain for food products (Fig. 1). Additionally, regulatory hurdles, seasonal fluctuations in the supply chain, and concerns related to quality control have been highlighted as other significant considerations. Conversely, the primary hindrance to enhancing supply chain efficiency for Adani Wilmar's food products in India is identified as technological barriers (Fig. 2). Furthermore, inadequate government support, resistance from stakeholders, and limited collaboration with local producers are marked as additional obstacles.

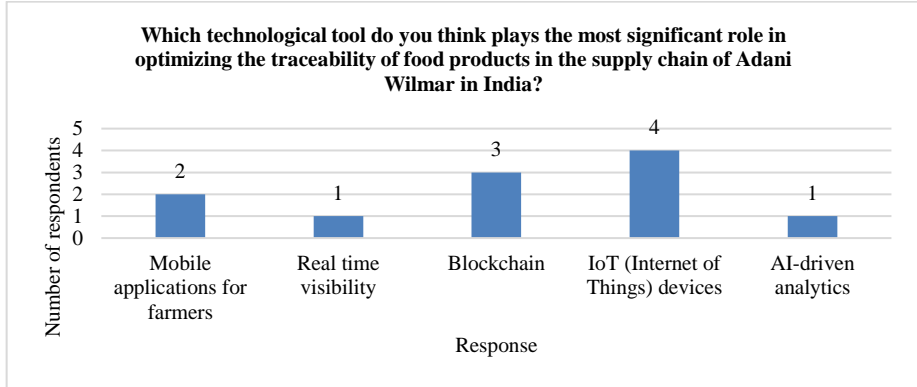


Fig. 3. Technological tools for food products supply chain

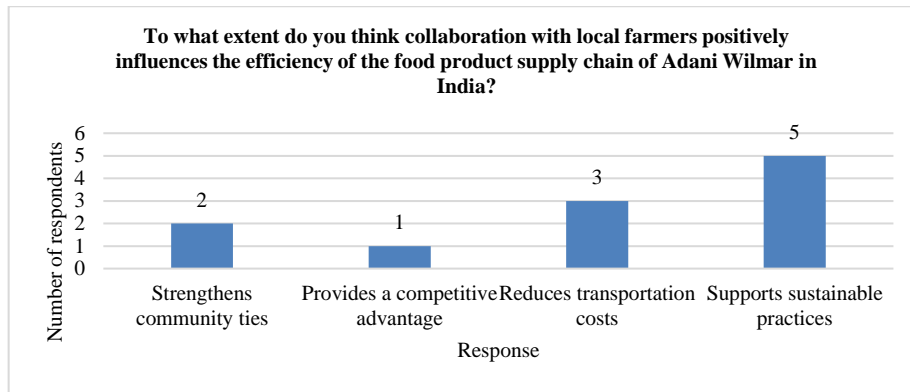


Fig. 4. Purpose of collaboration with farmers

The participants predominantly identified IoT (Internet of Things) as the primary technological tool that plays a crucial role in optimizing the traceability of food products within the supply chain of Adani Wilmar in India (Fig. 3). Additionally, they emphasized the significance of real-time visibility, mobile applications for farmers, blockchain, and AI-driven analytics. The majority of respondents expressed the opinion that collaboration with local farmers has a positive impact on the efficiency of Adani Wilmar's food supply chain in India (Fig. 4). Furthermore, some respondents believe that such collaboration provides a competitive advantage, strengthens community ties, and reduces transportation costs.

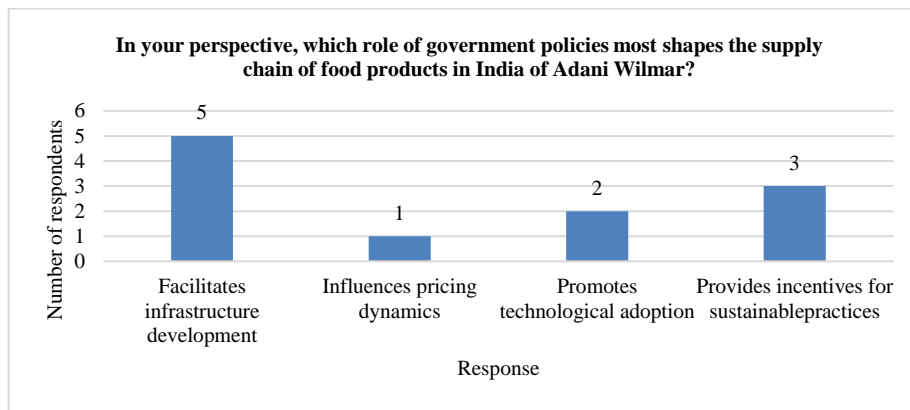


Fig. 5. Role of government

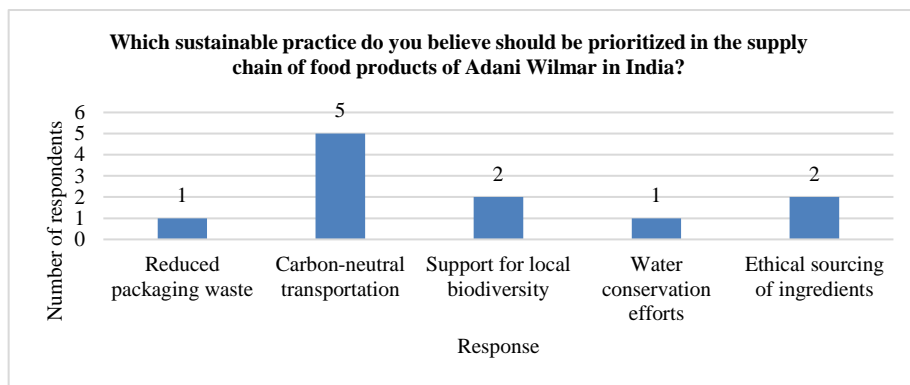


Fig. 6. Sustainable practice for food products supply chain

Regarding the question about the government's role in the advancement of the supply chain for food products at Adani Wilmar in India, respondents primarily emphasized that such involvement can facilitate infrastructure development, which is beneficial for the organization (Fig. 5). Additionally, it plays a role in influencing price dynamics, promoting the adoption of technology, and providing incentives for sustainable development. Respondents expressed the opinion that achieving carbon-neutral transportation is the primary sustainable practice that should be prioritized in Adani Wilmar's food product supply chain in India (Fig. 6). They also indicated that supporting local biodiversity, ethically sourcing ingredients, reducing packaging waste, and implementing water conservation efforts are other sustainable practices that should be given priority.

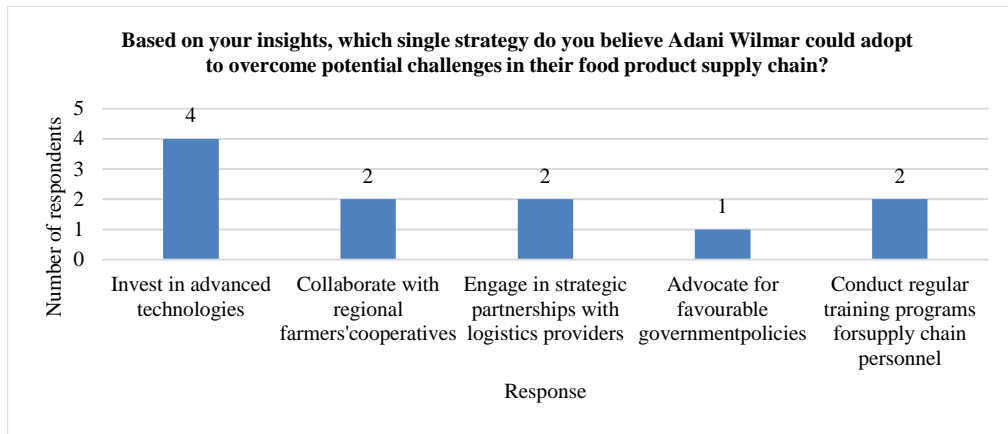


Fig. 7. Strategies for enhancing the food products supply chain

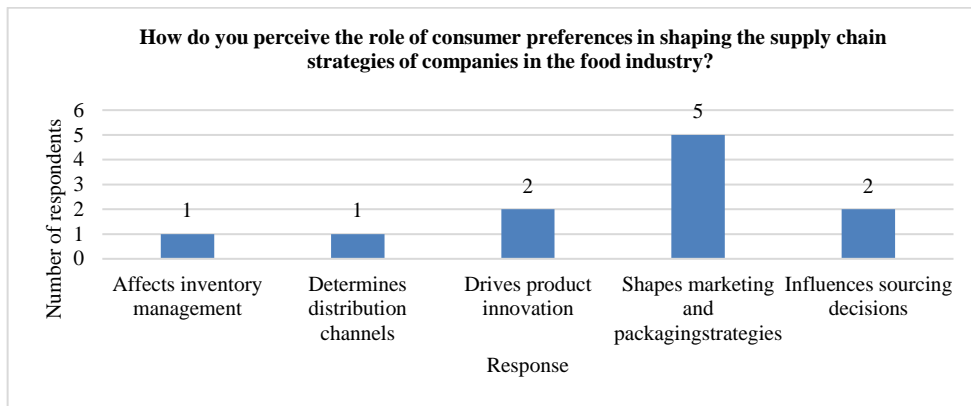


Fig. 8. Role of consumer preferences

The majority of participants expressed the view that investing in advanced technologies stands out as the most effective and singular strategy for Adani Wilmar to overcome potential challenges in their food product supply chain (Fig. 7). Additionally, they suggested other strategies such as collaborating with regional farmers' cooperatives, forming strategic partnerships with logistics providers, implementing regular training programs for supply chain providers, and advocating for favourable government policies to enhance the supply chain of food products at Adani Wilmar. Furthermore, a significant number of respondents indicated that consumer preferences play a crucial role in shaping the supply chain strategies of companies in the food industry (Fig. 8). This influence is direct, impacting marketing and packaging strategies. Moreover, it has several implications, including driving product innovation, influencing sourcing decisions, affecting inventory management, and determining distribution channels.

Discussion

Obstacles in optimising the supply chain for food products of Adani Wilmar in India

Adani Wilmar, a key player in the Indian food industry, faces several challenges in optimizing its supply chain for food products. These obstacles span various domains, impeding the seamless flow of goods from production to consumption. One of the primary hurdles is the inadequate infrastructure in India. Insufficient transportation networks and storage facilities hinder the smooth movement of goods, leading to delays and increased operational costs for Adani Wilmar. Inadequate infrastructure hampers the seamless flow of food products through the supply chain, leading to disruptions, delays, and increased vulnerabilities in ensuring timely and efficient distribution, ultimately compromising food accessibility and quality (Mishra, Singh and Subramanian, 2022). The lack of modern warehouses and cold storage facilities exacerbates these challenges, affecting the overall efficiency of the supply chain. Adherence to diverse and often complex regulatory frameworks poses a significant challenge. Stringent regulations related to food safety and labelling, combined with varying state-level policies, create bottlenecks in the supply chain (Daskalova, 2020). Navigating through this intricate regulatory landscape demands considerable resources and careful planning, adding another layer of complexity. The agricultural nature of Adani Wilmar's products makes the supply chain susceptible to seasonal fluctuations. Variability in crop yields, weather conditions, and harvesting periods can disrupt the production schedule, leading to challenges in maintaining a consistent supply of food products throughout the year. Ensuring consistent quality across the supply chain is a perpetual challenge. Adani Wilmar must contend with the risk of contamination, spoilage, or subpar quality during transit and storage. Implementing robust quality control measures becomes imperative to meet consumer expectations and regulatory standards (Okpala and Korzeniowska, 2023).

Outdated technology in various stages of the supply chain hampers efficiency. Lack of real-time tracking and monitoring systems, as well as outdated inventory management tools, results in information asymmetry and inefficiencies (Mishra, Singh and Subramanian, 2022). Adani Wilmar needs to invest in cutting-edge technologies to streamline its operations and enhance visibility across the supply chain. Despite the growing significance of the food industry, the lack of consistent government support poses a challenge. Adani Wilmar encounters barriers related to policy uncertainties, limited financial incentives, and bureaucratic hurdles that hinder the implementation of innovative supply chain strategies. Introducing changes in the supply chain often faces resistance from internal and external stakeholders. From employees to suppliers, resistance can stem from a lack of understanding, fear of job displacement, or concerns about the feasibility of new processes (Li et al., 2023). Establishing robust collaboration with local farmers and producers is crucial for a streamlined supply chain. However, inadequate partnerships and communication channels with local stakeholders hinder the seamless integration of local produce into Adani Wilmar's supply chain.

Practical strategies for enhancing the supply chain efficiency of food products of Adani Wilmar in India

To overcome the challenges of enhancing supply chain strategies, Adani Wilmar can implement a series of practical strategies that capitalize on technological advancements, collaboration, and sustainability. Integrating Internet of Things (IoT) technology can revolutionize supply chain management. Real-time monitoring of temperature, humidity, and other critical parameters ensures the integrity of food products throughout the supply chain, minimizing losses and enhancing overall efficiency (da Costa et al., 2022). Leveraging advanced technological tools, such as data analytics and artificial intelligence, can provide valuable insights for demand forecasting, inventory optimization, and route planning (Attaran, 2020). These tools empower Adani Wilmar to make informed decisions, reducing operational costs and enhancing supply chain agility. Adopting eco-friendly and carbon-neutral transportation methods aligns with global sustainability goals (2020). Adani Wilmar can explore options such as electric vehicles, green logistics, and optimized transportation routes to reduce its carbon footprint and enhance environmental stewardship. Incorporating sustainable practices in the supply chain, from sourcing raw materials to packaging and distribution, contributes to long-term resilience (Negri et al., 2021). Adani Wilmar can implement eco-friendly packaging, promote responsible sourcing, and adopt energy-efficient practices to align with consumer expectations and environmental concerns.

Continual investment in advanced technologies, such as blockchain for supply chain transparency and automation for warehouse management, can drive efficiency and reduce the impact of manual errors in the supply chain (da Costa et al., 2022). Collaborating with experienced logistics providers can enhance Adani Wilmar's supply chain capabilities. Strategic partnerships enable access to specialized expertise, optimized transportation networks, and shared resources, leading to improved operational efficiency. Investing in training programs for employees and supply chain partners ensures that they are well-versed in the latest technologies and best practices (Jagtap et al., 2020). This not only enhances overall efficiency but also addresses resistance to change by fostering a culture of continuous improvement. Adani Wilmar can differentiate itself by adopting a consumer-centric approach. Understanding and responding to consumer preferences, trends, and demands can guide product development, inventory management, and distribution strategies, ensuring a more responsive and demand-driven supply chain (Richey et al., 2023). In conclusion, by addressing obstacles head-on and implementing practical strategies, Adani Wilmar can optimize its supply chain for food products in India, fostering efficiency, sustainability, and resilience in an ever-evolving market landscape.

Conclusions

1. The article seeks to examine supply chain strategies for food products, with a focus on Adani Wilmar, a prominent supply chain organization in India. Through primary analysis, the challenges in improving supply chain efficiency for food products in Adani Wilmar in India have been identified, including infrastructure limitations, regulatory hurdles, seasonal fluctuations, quality control concerns, technological barriers, inadequate government support, resistance from stakeholders, and limited collaboration with local producers.

2. The proposed solutions encompass investing in IoT technology, prioritizing technological tools, fostering collaboration with local farmers, engaging with the government, implementing carbon-neutral transportation, supporting sustainable practices, adopting advanced technologies, forming strategic partnerships with logistics providers, conducting training programs for supply chain providers, and adopting a consumer-centric approach.

3. Implementing supply chain strategies for food products within the logistics organization in India, like Adani Wilmar, contributes to enhancing food quality, organizational development, and overall economic progress in the country. This initiative benefits not only customers, suppliers, and management but also the government, enhancing positive outcomes across various sectors.

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