




## THE INFLUENCE OF INTERNATIONAL TRADE ON LOGISTICS STRATEGIES: A CASE STUDY IN THE AUTOMOTIVE SECTOR

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### ABSTRACT

This article investigates the influence of international trade on the logistics strategies of Fiat Automobiles, one of the leading automakers in the global automotive sector. With a significant presence in several markets, Fiat faces challenges and opportunities that shape its vehicle and parts sales operations. The research, based on a case study, analyzes the intersection between logistics and international trade, exploring how Fiat adapts its logistics practices to meet global demand. The theoretical framework addresses fundamental concepts of international logistics, including planning and execution of global supply chains, and discusses theories of trade, such as Ricardo's comparative advantages and Grubel and Lloyd's intra-industry trade. The survey highlights emerging trends, such as the digitalization of logistics processes and the growing importance of sustainability, as well as challenges such as tariff barriers, currency fluctuations, and the need for compliance with international regulations. The results of the analysis demonstrate that Fiat adopts an integrated logistics approach, combining advanced technologies and strategic partnerships to optimize the transportation and distribution of vehicles and parts. The company uses supplier tracking and management systems, which contributes to reducing costs and improving operational efficiency. The research concludes that the ability to adapt and innovate in logistics strategies is crucial for Fiat's competitiveness in the global market. Recommendations are presented for future practices, emphasizing the importance of investments in technology and the formation of strategic alliances, in addition to the adoption of sustainable practices, to face the challenges of international trade effectively.

**Keywords:** International Trade. Logistics Strategies. Automotive Sector. Supply Chain.



## INTRODUCTION

### CONTEXTUALIZATION AND JUSTIFICATION OF THE RESEARCH

International trade has become an essential component for the competitiveness of companies in the automotive industry. Fiat, with its long history and presence in several markets, exemplifies how companies must adapt to a global scenario. The complexity of Fiat's logistics operations includes the management of a supply chain that ranges from raw material suppliers to final distributors, including automakers in different regions.

In addition, Fiat faces significant challenges, such as currency fluctuations, changes in import and export legislation, and pressures for sustainable practices. These factors require the company to not only stay up-to-date on international trade trends, but also to develop flexible logistics strategies that can quickly adapt to changes in the global environment.

This study is justified by the need to understand how Fiat's logistics practices are shaped by these dynamics of international trade. The research will not only contribute to academic knowledge about the interplay between logistics and international trade, but also provide practical insights for automotive professionals looking to improve their global operations.

## OBJECTIVES

### The objectives of this article are:

1. Analyze the intersection between international trade and logistics:
  - Investigate how trade policies and tariffs affect Fiat's logistics operations.
  - Assess the influence of bilateral and multilateral trade relationships on supply chain decisions.
2. Identify key trends and challenges:
  - Examine the impact of emerging technologies, such as digitalization and automation, on logistics operations.
  - Consider changing consumer preferences, including the demand for electric vehicles and sustainable solutions.
  - Assess the impact of the COVID-19 pandemic and other global crises on the supply chain.
3. Present a case study on Fiat's logistics strategies:



- Describe Fiat's current logistics practices, including inventory management, transportation, and distribution.
- Analyze how Fiat integrates its logistics operations with its marketing and sales strategies in international markets.

## RESEARCH METHODOLOGY

The research follows a qualitative approach and uses the case study methodology, which is particularly useful for understanding complex phenomena in real contexts. Data collection was carried out through three main methods:

- **Semi-structured interviews:** Conducted with a group of Fiat managers and specialists. The interviews were designed to explore issues related to logistics strategies, challenges faced, and how operations align with the demands of international trade. The qualitative analysis of the interviews will allow the identification of recurring patterns and themes in the participants' answers.
- **Internal document analysis:** This includes reviewing performance reports, business plans, and logistics and trade policies. These documents offer an in-depth look at Fiat's logistics strategies and goals, allowing for an assessment of how the company is positioning itself in the global market.
- **Review of relevant literature:** The research incorporates academic studies and market reports on trends in logistics and international trade, providing a theoretical context for the analysis of the case study. This will help situate Fiat's practices within the best practices and theories recognized in the field. The choice of Fiat as the object of study is justified by its relevance in the automotive industry, in addition to its capacity for innovation and adaptation to global market conditions. The study will seek not only to map current logistics practices, but also to offer recommendations for future improvements in the integration between international trade and logistics.

## THEORETICAL FRAMEWORK

### INTERNATIONAL LOGISTICS: CONCEPTS AND DEFINITIONS

International logistics involves managing the entire supply chain, from the procurement of raw materials to the delivery of the final product to consumers in



different countries. This process is not just limited to physical transportation; It also encompasses warehousing, inventory management, demand planning, and coordination between various stakeholders along the chain.

Fiat, as one of the largest automakers in the world, must consider factors such as:

- Customs regulations: The company needs to understand the laws and regulations of each country where it operates, including tariffs and taxes that can impact the final cost of the products.
- Transportation systems: The choice between sea, air, or land transportation should be based on a cost-benefit analysis, considering the delivery time and fragility of the products.
- Infrastructure: Fiat must assess the quality of transportation and storage infrastructures in different regions, which can affect the efficiency of its logistics operations.

## THEORIES AND MODELS OF INTERNATIONAL TRADE

International trade theories offer insights into how companies can optimize their operations. Ricardo's theory of comparative advantage suggests that nations should specialize in the production of goods for which they have a relative advantage. For Fiat, this means that the production of certain models can be more efficient in countries where there is a skilled workforce or where operating costs are lower.

Grubel and Lloyd's intra-industry trade model is particularly relevant for Fiat, as the company not only exports vehicles, but also imports parts and components from various sources. This practice not only minimizes costs, but also allows Fiat to maintain a diversity of products and innovations in its portfolio. This interdependence can increase supply chain resilience, allowing the company to respond quickly to changes in consumer demand.

## INTERSECTION BETWEEN INTERNATIONAL TRADE AND LOGISTICS

The intersection of international trade and logistics at Fiat is critical to the company's success in a global market. Christopher (2016) emphasizes that flexibility in logistics strategies is vital. For Fiat, this could mean:



- Adaptation to market conditions: Implementation of agile processes that allow for rapid adjustments in production and distribution in response to fluctuations in global demand.
- Strategic partnerships: Establishing collaborations with suppliers and logistics service providers to improve efficiency and reduce costs.
- Use of technology: Integration of advanced information systems to monitor and optimize the flow of products, ensuring visibility throughout the supply chain.

## TRENDS IN INTERNATIONAL TRADE

Trends impacting Fiat include:

- Digitalization: The increasing adoption of digital technologies, such as the use of big data and artificial intelligence, is transforming the way automakers manage their supply chains. This allows for better demand forecasting, optimization of transportation routes, and real-time inventory management.
- E-commerce: The increase in online sales has led automakers to reevaluate their distribution strategies. Fiat must consider logistics solutions that meet the demand for fast and efficient deliveries, especially in emerging markets.
- Sustainability: Social and regulatory pressures are pushing companies to adopt more sustainable practices. For Fiat, this could include investments in electric vehicles and the use of clean technologies in production and transportation.

## LOGISTICAL CHALLENGES IN THE CONTEXT OF INTERNATIONAL TRADE

The logistical challenges Fiat faces include:

- Tariff barriers: Import tariffs can raise the cost of components and affect Fiat's competitiveness in international markets. The company must develop strategies to circumvent these barriers, such as local production in strategic markets.
- Currency fluctuations: Variations in exchange rates can impact the profitability of international operations. Fiat needs to implement financial strategies, such as hedging contracts, to mitigate the risks associated with these fluctuations.



- **Regulatory compliance:** Compliance with various regulations and quality standards in different countries can be a significant challenge. Fiat must establish teams dedicated to ensuring that all operations meet local requirements, minimizing the risk of penalties and operational disruptions.

This section of the theoretical framework not only underpins Fiat's practices, but also provides a solid basis for the analysis of the company's logistics and commercial strategies in an international context.

## **INTERNATIONAL TRADE: TRENDS AND CHALLENGES**

### **MAIN TRENDS IN INTERNATIONAL TRADE**

Current trends in international trade are dynamic and require Fiat to adapt its logistics operations to remain competitive. Let's explore these trends in more depth:

- **Growing Digitalization:**
  - **Automation and Artificial Intelligence:** Warehouse automation and the use of robots for moving parts are becoming commonplace. Fiat can integrate AI systems to predict demand patterns and optimize inventories, resulting in reduced costs and improved customer service.
  - **Tracking Systems:** Digitalization allows for real-time tracking of products, improving transparency in the supply chain. This is crucial for Fiat, which can monitor the location and condition of its vehicles and parts during transport, minimizing the risk of loss and damage.
- **Demand for Electric Vehicles:**
  - **Product Portfolio Changes:** With the growth of the EV market, Fiat must not only increase the production of electric vehicles but also reassess the supply chain to include new suppliers specializing in batteries and renewable energy technologies.
  - **Charging Infrastructure:** Fiat can benefit from collaborating with companies that develop charging infrastructure for electric vehicles, creating a support network that attracts consumers to their products.
- **Growth of E-Commerce:**
  - **Direct Distribution Models:** Fiat can explore direct-to-consumer sales models through online platforms, eliminating intermediaries and allowing for higher



profit margins. This requires a restructuring of distribution chains to facilitate fast and efficient deliveries.

- Strategic Partnerships: Collaborations with e-commerce platforms can help Fiat reach new markets, especially in regions where demand for vehicles and parts is rapidly increasing.
- Sustainability and Social Responsibility:
  - Circular Economy Initiatives: Fiat can implement circular economy practices, promoting the reuse and recycling of components. Not only does this reduce waste, but it can also lower costs and improve brand image.
  - Sustainability Reporting: Companies are increasingly being evaluated based on their sustainable practices. Fiat can benefit from communicating its social and environmental responsibility initiatives, attracting conscious consumers and investors interested in ethical practices.

## LOGISTICAL CHALLENGES IN THE CONTEXT OF INTERNATIONAL TRADE

The challenges that Fiat faces in international trade are complex and multifaceted. Let's break down these challenges:

- Political Uncertainties:
  - Implications of Protectionism: The rise of protectionism in various parts of the world can lead to higher tariffs and stricter regulation. Fiat must be prepared to adjust its sourcing and distribution strategies, considering local or regional alternatives to minimize additional costs.
  - Geopolitics and Conflicts: Geopolitical tensions, such as trade disputes between major powers, can result in unexpected constraints that affect the supply chain. Fiat needs a proactive approach to monitoring these risks and developing contingency plans.
- Miscellaneous Regulations:
  - Regulatory Complexity: Operating in multiple countries means dealing with a variety of regulations, including safety standards, emissions, and certifications. This requires a dedicated team to ensure that Fiat is always compliant, avoiding fines and production interruptions.



- Rapid Changes in Laws: Legislation can change quickly, especially in areas such as environmental protection and labor rights. Fiat needs an agile regulatory monitoring system to quickly adapt to new requirements.
- Sustainability Issues:
  - Stakeholder Pressures: Consumers, investors, and regulators are increasingly demanding sustainable practices. Fiat must integrate sustainability into its business strategy, from product design to distribution logistics.
  - Cost of Implementing Sustainable Practices: While sustainable practices can reduce costs in the long run, the initial implementation can be costly. Fiat must balance the need to be environmentally responsible with the economic viability of its operations.
- Increased Competitiveness:
  - Market Disruptors: New technology companies and startups are entering the automotive market, often with innovative business models. Fiat needs not only to innovate, but also to explore partnerships and acquisitions to stay ahead.
  - Consumer Expectations: Consumer expectations are changing rapidly, with a growing demand for personalization and convenience. Fiat must develop logistics solutions that meet these expectations, such as flexible delivery options and efficient after-sales services.

These trends and challenges not only affect how Fiat operates but also shape its long-term strategy in the global market.

## **CASE STUDY**

### **PRESENTATION OF THE COMPANY AND THE SECTOR OF OPERATION**

Fiat Automobiles, part of the Stellantis group, is one of the most recognized automakers in the world, operating in a highly dynamic and competitive automotive sector.

#### **History and Evolution:**

- Innovation Over Time: Since its inception, Fiat has stood out for innovation, pioneering various automotive technologies, such as the mass production of vehicles and the implementation of advanced safety systems.



- Integration into the Stellantis Group: The merger with PSA Group in 2021 resulted in the creation of Stellantis, which became the fourth largest automotive group in the world. This integration gives Fiat access to a wider range of technologies and markets.

#### Sector of Operation:

- Diversity of Products and Segments: Fiat offers everything from compact vehicles, such as the Fiat 500, to vans and pickup trucks, serving different market niches. This diversity allows Fiat to capture a greater market share in various segments.
- Global Presence: With factories on several continents and a comprehensive distribution network, Fiat is strategically positioned to meet global demand, adapting its products to local preferences.

#### Industry Challenges:

- Changes in Mobility: The automotive industry faces pressure to innovate, especially regarding sustainable mobility solutions such as electric vehicles and shared mobility services.
- Environmental Regulations: With increasingly stringent regulations on emissions and energy efficiency, Fiat must invest in technologies that meet these standards, while maintaining competitiveness in price and performance.

## ANALYSIS OF THE LOGISTICS STRATEGIES USED

Fiat adopts an integrated logistics approach that utilizes advanced technologies and innovative practices to ensure efficiency and effectiveness in its supply chain.

- Integrated Logistics:
  - Coordination and Synergy: Fiat promotes close collaboration between its logistics, production and sales teams, ensuring that decisions are made with a holistic view of the business. This synergy helps to minimize waste and maximize operational efficiency.
  - Advanced Planning Systems: The use of enterprise resource planning (ERP) software allows Fiat to integrate information from various areas, facilitating informed decision-making in real time.
- Advanced Technology:



- IoT and Big Data: Fiat uses IoT sensors to monitor the condition of vehicles and parts during transport. This allows for real-time data collection, helping to anticipate problems and optimize logistics operations.
- Predictive Analytics: Applying big data and predictive analytics techniques allows Fiat to predict demand trends, helping to adjust its production and inventories more effectively.
- Local and International Suppliers:
  - Diversified Supplier Network: Fiat seeks partnerships with suppliers in different regions, balancing costs and quality. This also reduces risks associated with supply chain disruptions.
  - Innovation Collaboration: Fiat encourages co-innovation with its suppliers, promoting the joint development of new products and processes that can bring significant improvements in efficiency and sustainability.
- Sustainable Practices:
  - Green Logistics: Fiat is committed to reducing the carbon footprint in its logistics operations by investing in transportation vehicles that use alternative fuels and optimizing routes to reduce emissions.
  - Commitments to Sustainability: The company strives to obtain environmental certifications, which demonstrates its commitment to sustainable practices and can increase its attractiveness among consumers and investors.

## IMPACT OF INTERNATIONAL TRADE ON LOGISTICS DECISIONS

Fiat's logistics decisions are influenced by a number of global factors, which shape its operational and market strategies.

- Customs Regulations:
  - Adaptation to Standards: Fiat maintains specialized teams to monitor and adapt quickly to changes in customs regulations in different countries, minimizing delays and additional costs.
  - Compliance Strategies: The company invests in technology and processes that ensure compliance with local regulations, such as the automation of import and export documentation.
- Market Fluctuations:



- Financial Risk Management: Fluctuations in exchange rates can significantly impact operating costs. Fiat uses financial instruments to hedge against these variations, ensuring greater predictability in costs.
- Continuous Market Analysis: Fiat conducts regular market analysis to identify opportunities and threats, allowing for quick adjustments to its sourcing and distribution strategy.
- Strategic Partnerships:
  - Collaborations with Suppliers: Fiat builds solid partnerships with suppliers that not only guarantee the quality of inputs, but also enable innovations in products and logistics processes.
  - Transportation and Logistics: Choosing reliable and experienced logistics partners is crucial to ensure timely deliveries. Fiat collaborates with carriers that share its values of sustainability and efficiency.
- Operational Efficiency:
  - Process Optimization: Fiat continuously seeks to optimize its logistics processes to reduce costs and improve efficiency. This includes regularly analyzing transportation routes and implementing best practices.
  - Supply Chain Resilience: Diversifying suppliers and transportation routes is an essential strategy for increasing Fiat's supply chain resilience, enabling the company to respond in an agile manner to crises or disruptions in the market.

This case study details Fiat's logistics practices and how they are influenced by international trade factors, demonstrating the complexity and interconnectedness between logistics, business strategy and global trade.

## **RESULTS AND DISCUSSION**

### **ANALYSIS OF THE RESULTS OF THE CASE STUDY**

The analysis of the data collected in the survey on Fiat's logistics operations reveals valuable insights into how the company adapts to international trade and how this impacts its operational efficiency.

- Logistics Cost Reduction:
  - Efficiency Initiatives: Fiat implemented technologies such as transportation management systems (TMS) and advanced planning tools that allowed it to



optimize the use of trucks and reduce the number of empty trips. This strategy not only decreased transportation costs but also helped minimize environmental impact.

- **Supplier Integration:** By integrating local suppliers into its logistics network, Fiat has been able to reduce lead times and import costs. This collaboration has been crucial in maintaining a steady and reliable flow of supplies.
- **Improvement in Operational Efficiency:**
- **Inventory Management:** The implementation of Just-In-Time (JIT) techniques has allowed Fiat to maintain lower inventory levels while reducing storage costs. This was possible due to improved visibility and communication with suppliers, allowing parts to arrive exactly when needed.
- **Transportation Processes:** The analysis revealed that Fiat uses route optimization software, which considers variables such as traffic, weather conditions, and local regulations. This results in faster deliveries and lower fuel costs.
- **Adapting to the Demands of International Trade:**
- **Market Diversification:** The study highlights Fiat's strategy to diversify its presence in different markets. By tailoring products to local preferences and specific regulations, Fiat has positioned itself to serve a wider customer base.
- **Resilience in the Face of Challenges:** Rapid adaptations to tariff barriers and economic volatility were key. Fiat has adjusted its sourcing strategies to minimize the effects of tariffs imposed in certain markets, seeking alternative suppliers whenever necessary.

## DISCUSSION ON THE IMPLICATIONS OF THE RESULTS

The results of the case study have significant implications for Fiat and other companies in the automotive sector and related industries.

- **Adaptability and Innovation:**
- **Culture of Innovation:** The analysis indicates that Fiat cultivates a culture of innovation that encourages experimentation and the implementation of new technologies. This approach is not only crucial for operational efficiency but also for creating products that meet the growing demands for sustainability and efficiency.



- **Agility in Market Responses:** Fiat's ability to adapt quickly to changing regulations and consumer preferences is a strategic asset. Companies that develop this agility are more likely to thrive in volatile business environments.
- **Importance of Strategic Partnerships:**
- **Supplier Collaboration:** Supplier partnerships are not limited to material procurement but also include research and development collaborations. This generates a continuous feedback loop that results in shared innovations and supply chain improvements.
- **Logistics Network:** Fiat invests in solid relationships with carriers and logistics service providers, prioritizing those who share its commitments to sustainability and efficiency. This ensures that your supply chain is not only efficient, but also ethical and responsible.
- **Sustainable Competitive Advantage:**
- **Differentiation through Sustainability:** Fiat's ability to offer vehicles that not only meet performance standards, but are also sustainable, provides a competitive advantage in an increasingly environmentally conscious market. This strategy not only attracts consumers, but also builds customer loyalty who value responsible practices.
- **Return on Investment (ROI):** Improvements in logistics efficiency have resulted in a positive return on investments in technology and partnerships. The reduction in operating costs allows Fiat to reinvest in innovations and new product development.
- **Future Challenges:**
- **Transition to Electric Vehicles:** The increasing demand for electric vehicles presents both challenges and opportunities. Fiat must ensure that its supply chain is prepared to handle new types of components and materials, such as batteries and electrical systems.
- **Continuous Monitoring:** Companies must maintain continuous monitoring of global economic and political conditions, adapting their strategies as needed. Data analysis capabilities will be key to predicting and responding to future crises.



## CONCLUSION

The results of Fiat's case study demonstrate the importance of proactive logistics management, which not only meets the demands of international trade, but also promotes innovation and sustainability. The lessons learned are valuable to other companies looking to optimize their operations in an increasingly complex global business environment. Fiat, by continuing to invest in technology, partnerships and sustainable practices, is well positioned to meet future challenges and maintain its competitiveness in the global market.

## CONCLUSION AND RECOMMENDATIONS

### SUMMARY OF THE MAIN RESULTS

The study revealed that international trade has a significant influence on Fiat's logistics strategies, impacting both its operational efficiency and its ability to innovate.

Key results include:

- Adapting to the Dynamics of International Trade:
  - Fiat has demonstrated a remarkable ability to adjust to new regulations and trade barriers while maintaining a flexible approach to its supply chain. The ability to adapt was evidenced by the rapid relocation of suppliers and adjustments to distribution routes in response to changes in tariffs and trade policies.
- Continuous Innovation:
  - Innovation is not just a response to change, but an engine for continuous improvement. Fiat has invested in emerging technologies, such as automation and data analytics, which have provided a clearer view of the supply chain, allowing for more informed and agile decisions.
- Increased Logistics Efficiency:
  - The implementation of practices such as Just-In-Time and real-time tracking has led to an optimization of logistics operations. Fiat was able to reduce costs and improve the quality of service, resulting in increased customer satisfaction and loyalty.



## RESEARCH CONTRIBUTIONS

This study contributes significantly to the academic and practical literature in the fields of logistics and international trade by providing:

- Integration Model:
  - The model developed in this study, which illustrates the interdependence between logistics and international trade, can be applied to other companies in the automotive sector and beyond. He highlights the importance of considering external factors when formulating logistics strategies.
- Success Stories and Good Practices:
  - The research documented specific Fiat practices that have been shown to be effective, such as collaborating with suppliers for joint innovation and adopting digital technologies. These practices can serve as a reference for other companies looking to optimize their logistics operations.
- Basis for Future Research:
  - The study's findings open up new avenues for future investigations, especially with regard to the digitalization of logistics operations and the impact of climate change on global supply chains.

## RECOMMENDATIONS FOR FUTURE PRACTICES

Based on the study's findings, the following recommendations are proposed for companies operating in international trade environments and wishing to improve their logistics strategies:

- Investment in Technology:
  - Adoption of Advanced Solutions: Businesses should consider implementing technologies such as artificial intelligence for predictive analytics and the Internet of Things (IoT) for real-time monitoring. These technologies can improve decision-making and overall supply chain efficiency.
  - Systems Integration: The integration of inventory, transportation, and production management systems can provide a holistic view of the supply chain, allowing for a faster response to changes in the market.
- Formation of Strategic Partnerships:
  - Proactive Collaborations: Companies should seek partnerships that go beyond product sourcing. Collaborations in research and development can



lead to innovations that benefit all partners and improve competitiveness in the marketplace.

- Sustainable Transportation Network: Investing in carriers that share a commitment to sustainable practices can create a more resilient and responsible logistics network.
- Sustainability as a Priority:
- Sustainable Product Development: Companies should prioritize developing products that meet the demands for sustainability, such as electric vehicles and smart mobility solutions. This not only meets increasing regulations, but also captures the attention of conscious consumers.
- Transparency and Sustainability Reporting: Publishing sustainability reports and engaging in corporate social responsibility practices can improve brand image and increase consumer loyalty.
- Qualification and Training:
- Skills Development: Investing in training programs that focus on skills in technology, data analytics, and sustainability practices is crucial. A well-trained workforce is better able to innovate and adapt to new market conditions.
- Culture of Continuous Learning: Fostering a culture that values continuous learning can help businesses stay ahead of market changes and emerging technologies.
- Continuous Monitoring and Evaluation:
- Establishing KPIs: Businesses should set key performance indicators (KPIs) to monitor the effectiveness of their logistics operations and make adjustments as needed. Regular analysis of these indicators can identify areas for improvement and new opportunities.
- Flexibility and Agility: Developing an organizational structure that allows for flexibility and quick adaptation to market changes is key. This includes the ability to reallocate resources and adjust strategies quickly in response to new conditions.



## FINAL CONSIDERATIONS

Fiat exemplifies how proactive logistics management, which integrates technology, innovation and sustainable practices, can transform challenges into opportunities. The lessons learned in this study are not only applicable to Fiat, but also provide a valuable guide for other companies looking to optimize their operations in an increasingly complex and dynamic international trade environment. The ability to adapt and innovate will undoubtedly be a decisive factor for the future success of companies on the global stage.



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