

O papel do agenciamento de carga e otimização da logística internacional: Desafios e Estratégias para Maximização de Eficiência

*The role of freight forwarding in optimizing international logistics:
Challenges and Strategies for Maximizing Efficiency*
El papel del transporte de carga en la optimización de la logística internacional: Desafíos y Estrategias para Maximizar la Eficiencia

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Resumo: Este trabalho visa explorar o impacto do agenciamento de carga na otimização da logística internacional, com foco nos desafios enfrentados e nas estratégias adotadas para aumentar a eficiência operacional. A pesquisa se justifica pela crescente complexidade das cadeias de suprimento globais, que exige soluções logísticas mais eficazes para empresas multinacionais. O objetivo geral é analisar as práticas de agenciamento de carga que melhoram a eficiência logística, enquanto os objetivos específicos incluem identificar as principais estratégias adotadas e avaliar seu impacto nas cadeias de suprimentos globais. A metodologia utilizada foi qualitativa, baseada em revisão de literatura e análise de estudos de caso. Os resultados indicam que a consolidação de cargas, o uso de tecnologias de rastreamento e a escolha de modais eficientes são fundamentais para otimizar o transporte internacional. Além disso, a negociação de tarifas e contratos também contribui para a redução de custos. O agenciamento de carga desempenha um papel central na melhoria da performance logística, embora desafios como a dependência de terceiros e regulamentações internacionais continuem a limitar a eficiência total das operações.

Palavras-chave: *Agenciamento de Carga; Logística Internacional, Eficiência Operacional; Estratégia Internacional.*

Abstract: This study aims to explore the impact of freight forwarding on optimizing international logistics, focusing on the challenges faced and strategies adopted to improve operational efficiency. The research is justified by the growing complexity of global supply chains, which demand more effective logistical solutions for multinational companies. The general objective is to analyze freight forwarding practices that enhance logistics efficiency, while specific objectives include identifying key strategies and assessing their impact on global supply chains. The methodology was qualitative, based on a literature review and case study analysis. Results indicate that load consolidation, tracking technologies, and efficient modal

selection are essential for optimizing international transport. Furthermore, rate and contract negotiations contribute to cost reduction. Freight forwarding is central to improving logistical performance, although challenges such as third-party dependence and international regulations limit overall operational efficiency.

Keywords: *Freight Forwarding; International Logistics; Operational Efficiency; International Strategy.*

Resumen: Este trabajo tiene como objetivo explorar el impacto de la intermediación de carga en la optimización de la logística internacional, con un enfoque en los desafíos enfrentados y las estrategias adoptadas para aumentar la eficiencia operativa. La investigación se justifica por la creciente complejidad de las cadenas de suministro globales, que requiere soluciones logísticas más efectivas para las empresas multinacionales. El objetivo general es analizar las prácticas de intermediación de carga que mejoran la eficiencia logística, mientras que los objetivos específicos incluyen identificar las principales estrategias adoptadas y evaluar su impacto en las cadenas de suministro globales. La metodología utilizada fue cualitativa, basada en la revisión de literatura y el análisis de estudios de caso. Los resultados indican que la consolidación de cargas, el uso de tecnologías de rastreo y la elección de modos de transporte eficientes son fundamentales para optimizar el transporte internacional. Además, la negociación de tarifas y contratos también contribuye a la reducción de costos. La intermediación de carga desempeña un papel central en la mejora del rendimiento logístico, aunque desafíos como la dependencia de terceros y las regulaciones internacionales continúan limitando la eficiencia total de las operaciones.

Palabras clave: *Transporte de Carga; Logística Internacional, Eficiência Operacional; Estrategia Internacional.*

1. INTRODUCTION

Globalization and the increasing complexity of global supply chains have highlighted freight forwarding's importance as a critical element in optimizing international logistics. Freight forwarders' roles go beyond simply coordinating transportation, including risk management, rate negotiation and ensuring regulatory compliance, making them key players in the operational efficiency of global supply chains.

With the intensification of global trade and the rising expectations regarding agility and accuracy in deliveries, companies are increasingly dependent on effective logistics solutions. In this context, freight forwarding emerges as a critical function to overcome the challenges imposed by international logistics, such as regulatory diversity, exchange rate fluctuations and the need for integrity and traceability of goods. Therefore, analyzing freight forwarders' role is essential to understanding how logistics efficiency can be maximized, reducing costs and improving the performance of supply chains.

International logistics faces challenges that can compromise process efficiency, including barriers to inefficiencies in transportation processes and the complexity of coordination between multiple actors in different countries. In this scenario, the central question of this work arises: What are the main challenges freight forwarders face in international logistics and what strategies can be adopted to maximize efficiency in logistics processes? The underlying hypothesis is that freight forwarding, when well structured, can overcome these challenges and play a crucial role in optimizing international logistics.

This article's general objective is to analyze freight forwarding's role in optimizing international logistics and identify the main challenges faced. To achieve this goal, the following specific objectives will be addressed: Identify the main difficulties freight forwarders face in international logistics and analyze the impact of freight forwarding on the operational efficiency of global supply chains.

This study adopted a qualitative approach, focusing on a comprehensive literature review on freight forwarding and its influence on international logistics. The research was conducted through a critical analysis of relevant academic articles, books and case studies to identify and discuss the main challenges faced by freight forwarders. The interpretative analysis allowed for an in-depth understanding of the practices and strategies that can be implemented to optimize logistics efficiency. This methodology allowed it to explore both the theoretical and practical aspects of freight forwarding, contributing to a more robust understanding of its role in global supply chains.

2. THE MAIN CHALLENGES FACED BY FREIGHT FORWARDERS IN THE CONTEXT OF INTERNATIONAL LOGISTICS.

Freight forwarders are crucial in coordinating and executing logistics operations in a complex international environment. However, this role is not without its challenges, many arising from global trade's dynamic and multifaceted nature. One of the main challenges freight forwarders face is the need to operate in a

highly diverse and complex international regulatory landscape. Customs regulations vary widely across different countries, requiring agents to constantly stay updated on each jurisdiction's specific laws and regulations. According to the article by McLinden et al. (2011), non-compliance with these regulations can result in significant delays, fines and even seizure of goods, negatively impacting logistics efficiency and customer satisfaction. Thus, understanding and adhering to customs regulations emerges as one of the main obstacles freight forwarders faces.

Another significant challenge is coordinating a complex network of global partners, including carriers, freight forwarders, suppliers, and government authorities. According to Chopra and Meindl (2016), international logistics involves a high level of interdependence between different actors, which makes communication and process synchronization a constant challenge. A lack of effective coordination can lead to delays, lost cargo, and increased operating costs.

International transport is risky due to climate variations, political instability and currency fluctuations. For freight forwarders, managing these risks is essential to ensure the continuity of operations and the safety of goods. As Christopher (2016) noted, risk management in the international supply chain is an ongoing challenge that requires robust strategies, such as diversifying routes and suppliers and adopting specific cargo insurance.

Intense competition on the global stage has led freight forwarders to constantly seek to reduce costs and improve efficiency in logistics operations. However, achieving these objectives presents a significant challenge, mainly due to the uncertainty of external factors, such as fuel price variations and exchange rate fluctuations. These unpredictable variables can directly impact the cost structure of operations, complicating strategic planning and logistics activities.

As highlighted by Christopher (2016), the need to balance the containment of operational costs with the maintenance of high service levels is one of the main obstacles freight forwarders face today. This challenge requires the implementation of efficient operational practices and the ability to innovate and adapt to a constantly changing business environment. The balance between efficiency and quality of service thus becomes essential to ensure the competitiveness and sustainability of freight forwarders in the global context.

Adopting information technology is seen as a solution to many logistics' challenges, but its practical implementation still represents an obstacle for many freight forwarders. Wang et al. (2019) highlight that although technologies such as transportation management systems (TMS) and real-time tracking platforms can improve visibility and efficiency, integrating these systems into complex global networks can be difficult and expensive. Furthermore, resistance to change and lack of adequate training are significant barriers.

2.2 Strategies used by freight forwarders to optimize international logistics processes.

Freight forwarders play an important role in international logistics processes, acting as intermediaries between exporters, importers and carriers. Strategies for reducing costs, increasing efficiency and ensuring on-time delivery of goods. One of the main strategies is cargo consolidation, which uses advanced tracking technologies, tariff negotiation, and selection, followed by the most efficient transport modes.

Cargo consolidation is a strategy widely adopted by freight forwarders, often chosen for its ability to reduce transportation costs. This practice involves grouping several smaller shipments into one shipment, allowing optimal use of a container or vehicle's capacity. Consolidation reduces the cost per unit transported and increases logistics efficiency, especially on long-distance international routes. Thus, this approach represents an effective solution for improving the economic viability of transportation operations while maximizing the use of available resources.

According to Ballou (2006), cargo consolidation allows for economies of scale, reducing transport unit costs. This strategy also helps minimize the number of handling operations, reducing the risk of damage to goods.

Real-time tracking technologies, such as GPS and RFID (*Radio Identification Frequency*) systems, have become standard logistics optimization practices. These technologies allow freight forwarders to monitor the exact location of shipments, predicting delays and taking corrective actions proactively. As stated by Coyle et al. (2016), adopting tracking technologies improves control of logistics operations, leading to a more responsive and efficient supply chain. Real-time tracking facilitates coordination between the various links in the chain, in addition to allowing the anticipation of problems, such as port congestion or adverse weather conditions.

Furthermore, negotiating rates with carriers and logistics service providers is a core strategy for freight forwarders. These professionals play a crucial role in reducing overall costs by using their negotiating power to secure better prices from shipping, air and road companies.

According to Mangan et al. (2016), freight forwarders can use their market knowledge and the magnitude of their business to negotiate more advantageous contracts, optimizing transportation costs. These negotiations range from freight prices to payment and insurance conditions, directly impacting the service's competitiveness.

Choosing the most appropriate transport mode (sea, air, rail or road) is crucial for optimizing international logistics. This decision depends on several factors, including the nature of the cargo, delivery times and costs involved. According to La Londe and Masters (1994), choosing the appropriate mode of transport can generate significant savings and increase the reliability of the logistics process. For example, perishable goods usually require air transport, while large-volume cargo is transported more efficiently by sea.

2.3 Impact of freight forwarding on the operational efficiency of global supply chains.

Freight forwarding significantly impacts the operational efficiency of global supply chains, as freight forwarders play a crucial role in coordinating and executing logistics activities. By optimizing the movement of goods between different points around the world, they help reduce costs, increase the visibility of information flow and ensure compliance with deadlines, all of which are essential factors for companies to be competitive in international markets.

One of freight forwarding's main impacts on the operational efficiency of global supply chains is the reduction of operating costs. Freight forwarders have expertise and access to a vast network of logistics service providers, which allows them to negotiate better rates and transportation conditions. This, in turn, generates significant savings for shippers, who can reinvest these resources in other areas of the operation.

According to Ballou (2006), efficiency in transportation management is one of the most effective ways to reduce logistics costs, which can represent up to one-third of a company's total costs. Freight forwarders directly contribute to this reduction by negotiating favorable contracts with carriers and suppliers.

Freight forwarders also play an essential role in improving visibility and control of logistics operations. Advanced transportation management systems and real-time tracking technologies enable companies to track the *status* of their shipments accurately and in real-time, improving planning and decision-making.

According to Christopher (2016), freight forwarding's transparency improves coordination between the various supply chain links, helping prevent interruptions and unwanted delays. This improved control over operations reduces uncertainty and allows immediate corrective actions, improving operational efficiency.

An essential impact of freight forwarding is optimizing the choice of transport modes. Freight forwarders evaluate the nature of the cargo, the routes and the deadlines, choosing the most appropriate mode for each situation. This careful analysis avoids additional costs and delays, optimizing the flow of goods since the proper mode choice and the combination of intermodal transport are considered crucial for the success of international logistics operations (Ballou, 2006).

Furthermore, freight forwarding has a positive impact on reducing risks and increasing the reliability of operations. By managing all the international transport logistics, freight forwarders are responsible for the necessary documentation, compliance with customs regulations, and insurance organization, minimizing errors and delays that could compromise the supply chain. Reliability in logistics operations is a critical variable for success, and the role of freight forwarders is essential to ensure that all operational aspects are conducted efficiently, thus reducing the risks of loss of goods and interruptions in supply (Mentzer *et al.*, 2001).

Therefore, freight forwarding facilitates the integration of global supply chains, connecting different markets and regions through efficient logistics solutions.

These agents act as facilitators of globalization, allowing companies of various sizes to participate in international trade while reducing logistical and administrative barriers (Christopher, 2016).

According to Christopher (2011), freight forwarders' ability to integrate different links in global chains and coordinate the flow of goods internationally contributes to increasing efficiency and reducing cycle times.

The impact of freight forwarding on the efficiency of global supply chains translates into more coordinated operations, lower costs and more excellent reliability in meeting global demands, promoting companies' success in the international environment.

3. METHOD

The methodology adopted in this study is qualitative, focusing on reviewing the existing literature on freight forwarding and its influence on international logistics. The research is based on an analysis of relevant academic articles, books and publications that address the challenges faced by freight forwarders and the strategies that can be implemented to optimize logistics processes. This approach allows an in-depth understanding of freight forwarders' role and the identification of effective practices that contribute to the efficiency of global supply chains.

The literature review was conducted systematically to identify the main themes related to freight forwarding, including customs regulations, coordination among multiple stakeholders, risk management and adoption of information technologies. The selected studies were analyzed, highlighting the theoretical and practical contributions each offers and the existing gaps in knowledge on the subject. The analysis allowed us to identify the difficulties faced by freight forwarders and how their practices impact logistics efficiency.

4. RESULTS AND DISCUSSION

The results revealed that freight forwarders face challenges, including regulatory complexity, coordination among multiple stakeholders, risk management, and pressure to reduce costs. The analysis also highlighted the importance of adopting information technologies as a vital strategy for optimizing logistics operations. The practical implementation of these technologies, combined with negotiation skills and relationship management, proved essential to minimize risks and increase efficiency. The data indicate that by overcoming these barriers, freight forwarders improve their operational performance and contribute significantly to the competitiveness of global supply chains.

4.1 Regulatory and Customs Complexity

The complexity of customs regulations is often identified as one of the main difficulties freight forwarders faces. The diversity of rules and the lack of

standardization between countries usually result in significant delays and additional costs in logistics operations. According to Hummels (2001), the strict requirements and variations in customs procedures can create a challenging operating environment, leading companies to incur unexpected penalties and fees due to non-compliance.

On the other hand, the bureaucracy associated with international trade requires freight forwarders to have a deep understanding of international legislation and country-specific business practices. The ability to effectively manage this complexity is not only a matter of compliance but also of strategy, as proper regulatory management can lead to significant improvements in operational efficiency. Freight forwarders need to invest in ongoing training and stay up to date on changes in legislation to ensure they are equipped to deal with ever-evolving requirements.

Navigating complex customs regulations becomes a vital competitive advantage in a growing international trade scenario. Therefore, freight forwarders who can develop expertise in this area minimize risks and offer a more reliable and efficient service, contributing to customer satisfaction and the long-term success of logistics operations.

4.2 Coordination between Multiple Actors

The need for coordination between agents and countries represents a significant obstacle in logistics operations. Studies such as those by Chopra and Meindl (2016) emphasize that communication failures between transportation and supply partners can result in significant disruptions in supply chains, impacting the efficiency and reliability of operations. When the links in the chain are not aligned, problems such as delays, delivery errors, and lack of visibility into operations become more common, compromising customer satisfaction and increasing operational costs.

Freight forwarders are crucial in minimizing these risks by acting as intermediaries facilitating communication and collaboration between all parties involved. However, cultural diversity and different time zones often make this efficient collaboration difficult. Each country may have its own business practices, communication styles, and cultural norms, leading to misunderstandings and conflicts. Furthermore, differences in operating hours can result in delays in the exchange of crucial information, making it difficult to make quick and effective decisions.

To overcome these challenges, freight forwarders must adopt proactive relationship management practices and invest in technologies that improve supply chain visibility and promote real-time communication. Tools such as online collaboration platforms and information management systems can help create a more integrated environment where all partners can access the same information and act in a coordinated manner.

Ultimately, managing coordination across multiple actors is critical to ensuring the resilience and efficiency of global supply chains. Freight forwarders who

navigate these complexities strengthen their operations and significantly add value to their customers by promoting more fluid and efficient international trade.

4.3 Risk Management

Risk management in international transport is one of the main critical points for freight forwarders, as revealed in the review of studies on the subject. Factors such as exchange rate fluctuations, political instability, and the impact of weather conditions, which are high-risk sources, increase the complexity of logistics operations. These variables can not only compromise the timely delivery of goods but also increase operating costs and reduce companies' competitiveness.

Christopher (2016) suggests that route diversification and specific insurance effectively mitigate these risks. Route diversification allows freight forwarders to avoid geographic areas prone to conflict or natural disasters, thus ensuring greater resilience in operations. Similarly, taking out adequate insurance can provide financial protection against losses resulting from damage, theft or significant delays.

However, many freight forwarders struggle to adopt these preventative measures due to financial and operational constraints. Implementing an effective risk management strategy requires investment in technology, training and skills development, and ongoing risk assessment. In many cases, smaller freight forwarders may not have access to the resources needed to implement robust risk management practices, making them more vulnerable to uncertainty.

In addition, a lack of an organizational culture focused on risk management can limit freight forwarders' ability to identify and respond appropriately to new challenges. To overcome planning, companies must develop a systematic approach that includes risk analysis, contingency planning, and forming strategic partnerships that can provide additional support.

In short, risk management in international transportation is not just about protecting against losses but is an integral part of freight forwarders' operational strategy. Those who can effectively integrate risk management into their operations preserve their assets and strengthen their market position, providing greater customer confidence and contributing to global supply chain sustainability.

4.4 Cost Reduction

Freight forwarders are constantly under pressure to balance reducing operating costs with maintaining service quality. This challenge is compounded by the need to compete in a highly dynamic global market where efficiency has become a crucial competitive differentiator. Despite continually seeking improvements in their processes, many forwarders cannot mitigate fluctuations in fuel prices and exchange rate variations, which significantly impact profit margins. This situation exacerbates the financial and operational difficulties faced in international trade.

According to Christopher (2016), logistics companies need to develop robust cost management strategies that aim to reduce expenses and ensure the delivery of quality services. This includes adopting advanced technologies to optimize routes, improve supply chain visibility, and increase operational efficiency. In addition, forming strategic partnerships and negotiating effectively with suppliers can help mitigate the impacts of price fluctuations and ensure a more stable service offering.

The duality between cost reduction and service quality is essential for the sustainability of operations in the global market. Companies that find this balance increase their competitiveness improve customer satisfaction and strengthen their market position. In this context, flexibility and the ability to adapt to changes in the economic environment are indispensable characteristics for the long-term success of freight forwarders.

4.5 Adoption of Information Technologies

Adopting information technologies is essential for optimizing logistics operations, but the results indicate that many freight forwarders still face difficulties implementing complex systems. Although emerging technologies, such as transportation management systems (TMS) and real-time tracking platforms, offer promising solutions to increase efficiency and transparency, resistance to change remains a significant obstacle. As pointed out by Wang *et al.* (2019), the lack of technical skills among employees and aversion to innovation are barriers that hinder the digitalization of logistics processes.

In addition, many freight forwarders operate in an environment where existing technological infrastructures are inadequate, limiting their ability to integrate new solutions. Implementing information technologies is not just about acquiring advanced *software*; it also involves restructuring internal processes and adapting the organizational culture to accept and maximize the use of these tools. This requires investment in technology, training, and skills development.

Another aspect to consider is change management, which must be strategically planned to ensure a smooth transition to new technologies. This includes communicating the benefits of digitalization, involving stakeholders in the change process, and providing ongoing support to employees during implementation. By addressing these issues, freight forwarders can overcome barriers to IT adoption, resulting in more efficient and competitive operations.

5. CONCLUSION

Freight forwarding plays an essential role in optimizing international logistics, facing several challenges that impact the efficiency of global supply chains. The analysis carried out in this study reveals that regulatory complexity, coordination among multiple stakeholders, risk management, pressure for cost reduction and the adoption of information technologies are critical areas that require continuous attention and innovation.

Future work should include conducting in-depth case studies on freight forwarders successfully implementing technological solutions and risk management strategies. Furthermore, research on the impact of new technologies, such as artificial intelligence and *blockchain*, on operational efficiency can provide valuable *insights* for the sector. A comparative analysis of customs regulations in different regions is also recommended to identify best practices that can be adopted globally.

These research directions will not only contribute to a better understanding of freight forwarding dynamics. They will also assist in formulating effective strategies to face the challenges of international logistics, promoting more efficient and sustainable trade.

Furthermore, the research focuses on the intersection between theory and practice, providing a comprehensive view that can be useful for academics and professionals in the field. The methodology allows the results obtained to serve as a basis for future investigations and for the development of practical solutions that can be implemented in the daily operations of freight forwarders, aiming at the continuous improvement of international logistics.

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