



Supply chain management and its impact on profitability in an SME

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Abstract

The main objective es to assess how SCM efficiency can influence the financial performance of a specific SME. A quantitative approaches was used by applying questionnaires to 100 employees of an SME with significant experience in their sector. The questionnaire was divided into two sections: supply chain management and profitability, with a total of eleven questions. The data were analyzed using Pearson correlation techniques to determine the relationship between supply chain management and corporate profitability. The findings indicate a Pearson correlation of 0.892, suggesting a strong positive relationship between efficient supply chain management and firm profitability. Eighty-five percent of respondents expressed satisfaction with supply chain management, highlighting operational efficiency and cost reduction as key factors. Furthermore, 55 % reported an increase in productivity since implementing advanced SCM strategies such as Just in Time. The research confirms that efficient supply chain management has a significance impact on the profitability of SMEs. Companies that adopt advanced technologies and optimization strategies manage not only to improve their operational efficiency but also to increase their profit margins. These results underline the important of investing in advanced SCM practices to ensure the long-term growth and sustainability of SMEs.

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Keywords: operational efficiency, supply chain management, small and medium-sized businesses, cost-effectiveness, profitability, advanced technologies

Introduction

Supply chain management is a determining factor in the profitability of small and medium-sized businesses (SMEs), due to its ability to optimize resources and processes, which is vital for their competitiveness and sustainability (Lambert & Enz, 2017) ^[10]. On the other hand, effective supply chain management (SCM) is essential to ensure that the productivity and profitability of an organization are not compromised by both internal and external factors (Figueroa *et al.*, 2023; Villamil, 2020) ^[3, 16]. Key variables in this study include supply chain management (SCM) efficiency, profitability, and economic impact on SMEs (Christopher, 2016) ^[2]. The relevance of this topic lies in the need for SMEs to adopt efficient SCM practices to improve their financial performance and survive in an increasingly competitive and globalized market (Hugos, 2018) ^[7]. Currently, the literature highlights the importance of SCM in improving the competitiveness and profitability of SMEs, underlining its crucial role in risk mitigation and operations optimization (Tang, 2006) ^[15]. Recent research has shown that the implementation of advanced SCM practices can lead to significant improvements in operational efficiency and profitability (Seuring & Müller, 2008; Gold *et al.*, 2010) ^[13, 5]. This issue is of relevance in the scientific community and for society in general, since SMEs represent a significant part of the global economic fabric, and their success has a direct impact on the economy and employment.

The current state of SCM in SMEs shows a mixed picture, with some companies managing to effectively integrate these practices, while others struggle with implementation due to resource and knowledge limitations (Carter & Rogers, 2008) ^[1]. The adoption of technologies such as blockchain and the Internet of Things (IoT) has been identified as a key factor in improving visibility and efficiency in supply chains, but their implementation in SMEs still faces significant challenges (Kache & Seuring, 2017) ^[9]. The relevance of studying this relationship lies in identifying the best practices and strategies that can be adopted by SMEs to improve their competitiveness and long-term sustainability. Previous studies have addressed various aspects of SCM, but they often focus on large companies or do not specifically analyze the financial impact on SMEs (Li *et al.*, 2021).

The absence of research on supply chain management and its impact on the profitability of SMEs highlights the need for extensive research in this field. This study focuses on investigating how supply chain management impacts the profitability of an SME, highlighting the importance of efficient administration to achieve business success (Jüttner *et al.*, 2003) ^[8]. By better understanding this relationship, more effective strategies can be developed to support SMEs in their growth and sustainable development (Sodhi *et al.*, 2012) ^[14]. This research not only contributes to the academic body, but also offers practical implications for SME managers, helping them better navigate the challenges of SCM and improve their financial results (Gunasekaran *et al.*, 2015) ^[6].

Existing research often focuses on narrow or specific aspects, such as sustainability or operational efficiency, without providing a comprehensive view of profitability (Yadav *et al.*, 2023) ^[17]. Furthermore, most of the available studies do not adequately address the particularities of SMEs compared to large companies. Some studies do not explicitly connect SCM practices to specific financial outcomes, leaving a fragmented understanding of their true impact. This limitation prevents SMEs from applying evidence-based strategies that could improve their profitability. Addressing these gaps is essential to develop a more comprehensive and practical understanding of the role of SCM in SMEs by integrating scattered findings and providing a solid foundation for future research.

The main objective of the research is to investigate how supply chain management (SCM) impacts the profitability of an SME, seeking to answer critical questions such as: How

does supply chain management directly influence profitability? How Is supply chain management in a private company? And what is profitability like in a private company?

To address these questions, questionnaire studies will be analyzed, with a particular focus on identifying effective strategies that can be applied to improve profitability (Yadav *et al.*, 2023) ^[17].

Additionally, the research aims to understand the relationship between supply chain management and profitability from a quantitative perspective. Studies that evaluate how the implementation of SCM practices can influence different aspects of financial performance, such as reducing costs, increasing operational efficiency, and improving customer satisfaction, will be analyzed.

Methodology

In the research design, a quantitative methodology was used that included the correlation analysis between efficient supply chain management and the profitability of an SME. To ensure quality in data collection, a standardized verification guide was applied and, based on the literature review, a tailored questionnaire focused on the key variables of the study was formulated. The questionnaire addressed two sections: the first consisted of six questions regarding the supply chain management variable with variable alternatives of four to five options depending on the case. The second section focused on the profitability variable, with a total of five questions and five alternatives for each of them, making a total of eleven questions. Intentional non-probabilistic sampling was used to ensure the representativeness of the selected SME, justifying its choice by its results. The participants were included because they belonged to an SME and had worked in the company for between three to five years. All SME staff were summoned. These criteria ensured that the sample was representative and relevant to the objectives of the study, with 100 employees surveyed, focusing on SMEs with sufficient experience in their specific sector.

The collected data were classified using descriptive statistical analysis techniques to identify patterns and trends. In addition, a correlation was carried out to analyze the relationship between the variables. This approach provided a detailed and justified framework for conducting quantitative research in the field of business, ensuring the quality and relevance of the data collected and analyzed.

Results

Supply chain management results

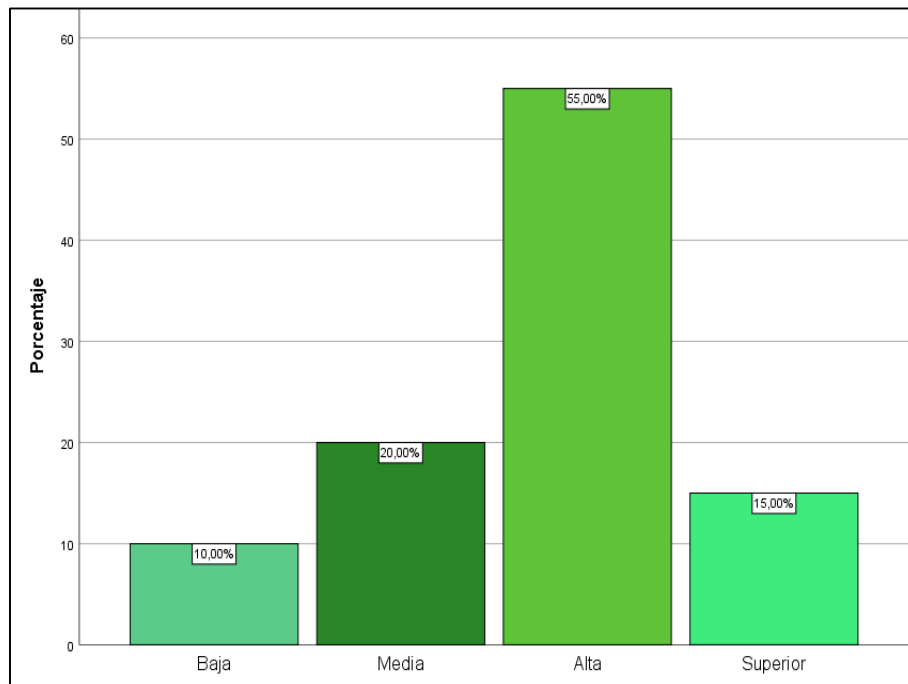


Fig 1: Optimal inventory levels

According to the figure presented, it is observed that 55 % of the respondents from the company investigated maintain a high level of inventory to avoid both overstock and shortages. In contrast, only 10% of respondents report maintaining a low level of inventory. This finding suggests that the company has implemented effective inventory management strategies, achieving a balance that prevents overstock and shortage

problems. These strategies not only ensure product availability to meet demand, but also allow the company to avoid incurring excessive costs associated with inventory management.

In conclusion, the company has reached an optimal level in managing its inventories, which is indicative of efficient supply chain management.

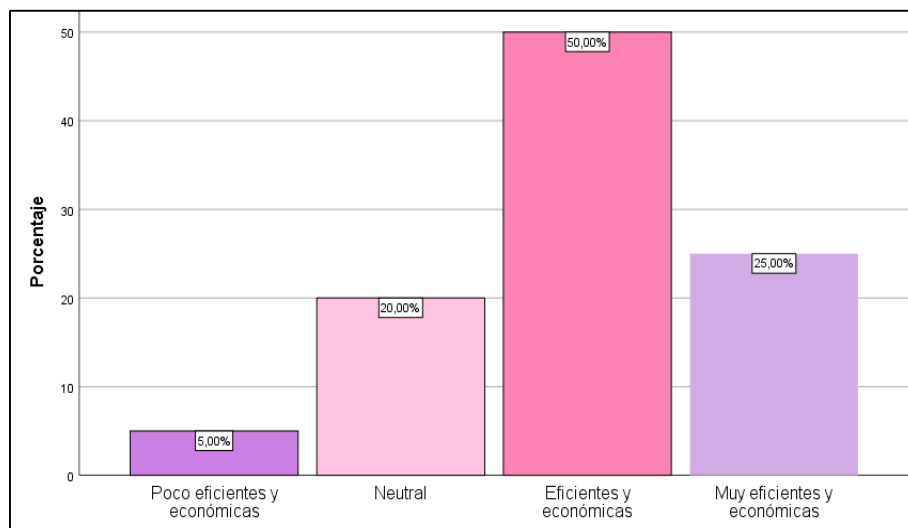


Fig 2: Logistics operations efficiency

The figure shows that 50 % of respondents consider their logistics operations "Efficient and economical", and 5% consider them "Inefficient and economical". It follows that the company has invested in optimizing its logistics

processes, implementing improvements in areas such as transportation, storage and distribution. This indicates that the majority of those surveyed assure that the company has efficient and economical logistics operations.

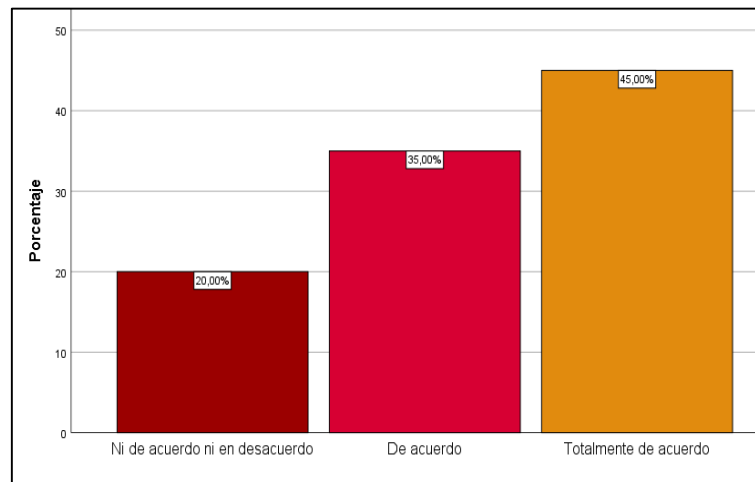


Fig 3: Logistics operations efficiency

80 % of respondents “Agree” or “Strongly Agree” that efficient supply chain management has reduced their overall costs. This could indicate that the company has identified and eliminated aspects of inefficiency in the supply chain, which

has allowed it to reduce costs, implementing strategies and practices to improve the efficiency of its supply chain (cost savings).

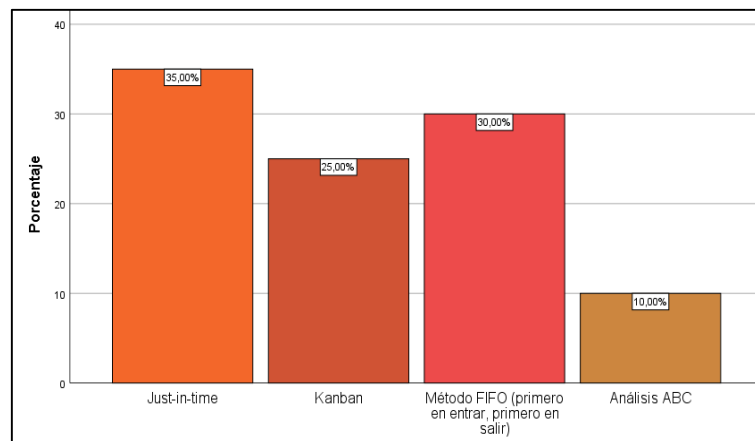


Fig 4: Inventory strategies

According to the data presented, it is observed that 35 % of those surveyed in the company investigated consider that the Just in Time strategy is the predominant one within the organization. In contrast, only 10 % of respondents mention the use of ABC analysis. These findings suggest that the

company widely implements the Just in Time strategy in its various operational processes. The adoption of Just in Time indicates a focus on inventory minimization and precise synchronization of production with demand, which is consistent with efficient resource management.

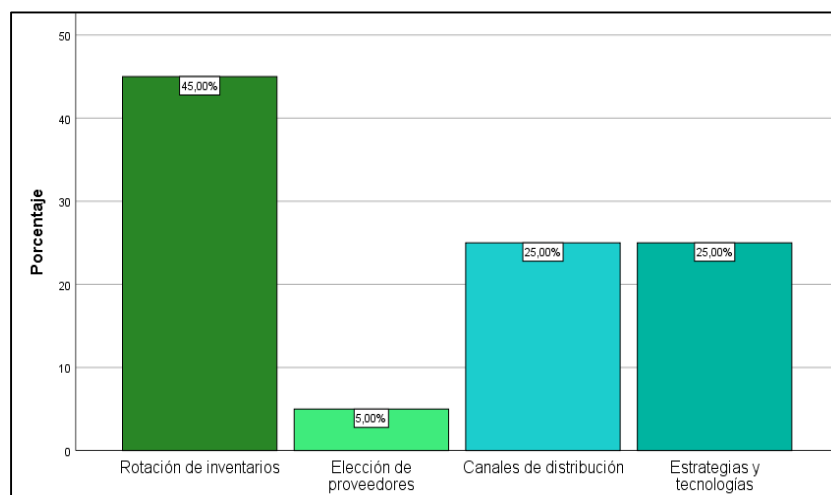


Fig 5: Improvement opportunities

According to the analysis of the data presented in the figure, it is observed that 45 % of the respondents from the company investigated consider that inventory rotation is a priority aspect that requires immediate attention, while only 5% believe that the choice of suppliers need future

improvements. This suggests that the company is focused on optimizing the efficiency of inventory rotation, recognizing its importance in supply chain management, and that it is satisfied with its current suppliers, although it maintains a constant evaluation of their performance.

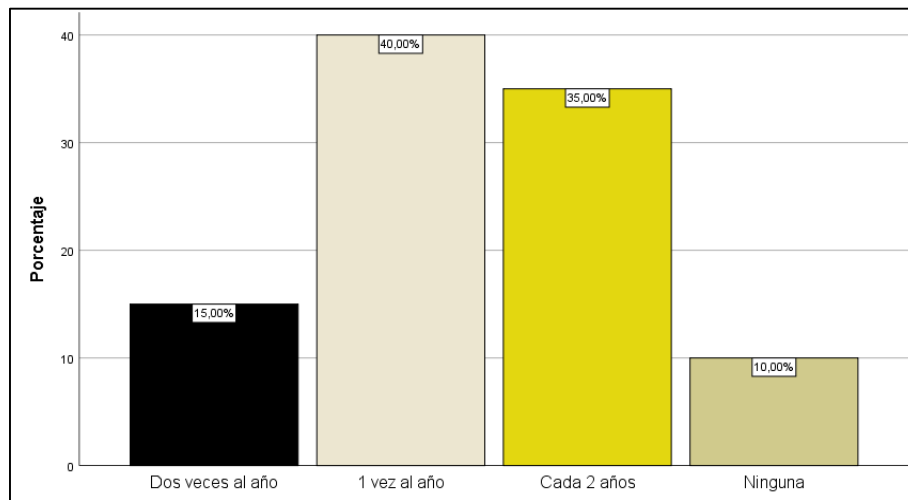


Fig 6: Frequency of review of management strategies

According to the data presented in the figure, it is observed that 40% of the respondents of the company under study indicate that they review and adjust supply chain management strategies once a year. In contrast, only 10 % of respondents do not mention any specific periodicity for said review.

These results suggest that the company carries out annual

monitoring of the implemented strategies, which may reflect confidence in the effectiveness of its current management strategies. However, the practice of annually reviewing and updating these strategies indicates an understanding of the importance of adaptability and continuous improvement to achieve optimal results.

Profitability results

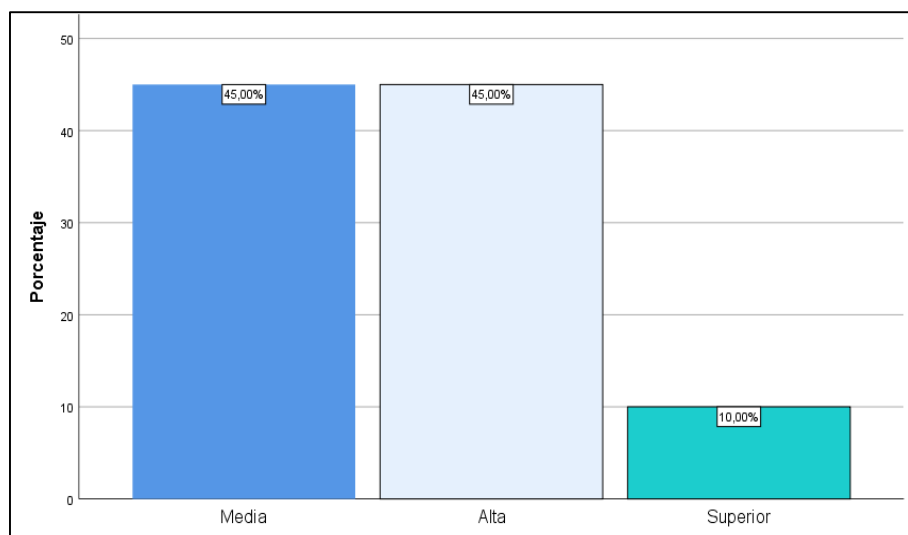


Fig 7: Supply chain efficiency

According to the data presented in the figure, it is observed that 45 % of the respondents of the company investigated assure that there is a high relationship between the efficiency of the supply chain and profits, while another 45% perceive this relationship as medium level. On the other hand, only 10 % consider the relationship to be superior.

In conclusion, the company perceives a medium-high relationship between the efficiency of the supply chain and its profitability. It follows that there are specific aspects of the supply chain, such as distribution, that are managed efficiently. This includes the creation of optimized routes, among other factors, to reduce various costs in that area.

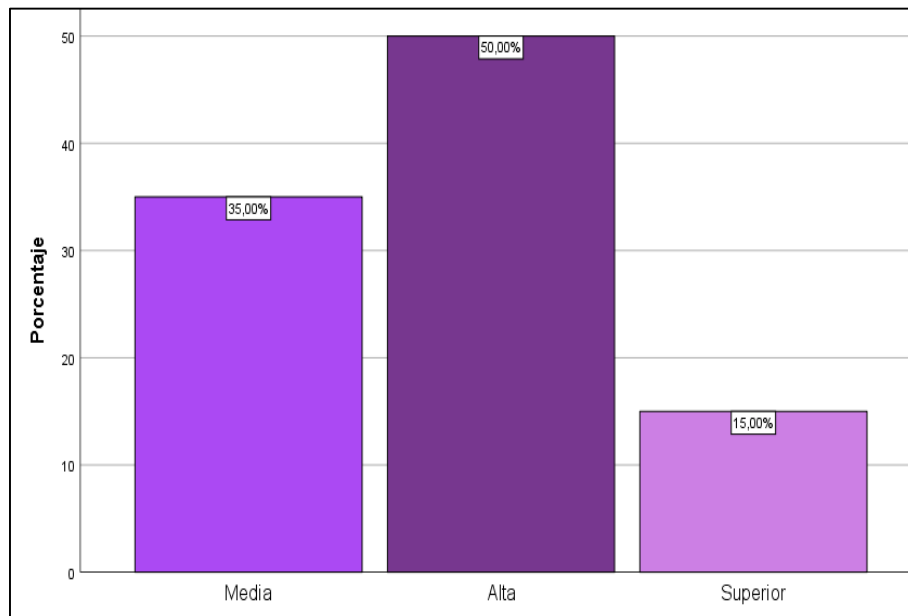


Fig 8: Relationship between supply chain and profits

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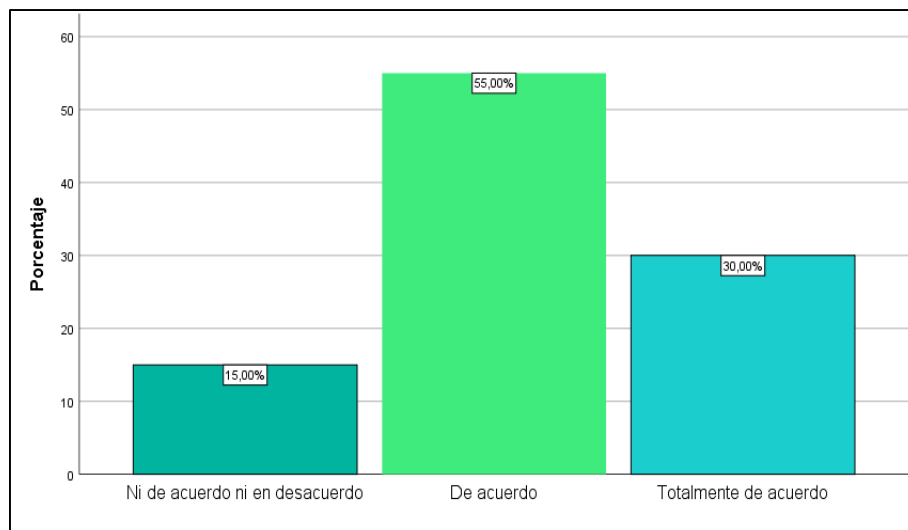


Fig 9: Productivity increase

From the figure shown, it can be seen that 55 % of respondents said they "Agree" that their productivity has increased since the implementation of the supply chain management process, while 15 % expressed a neutral position. These results indicate that more than half of survey participants acknowledge that adopting supply chain management practices has had a positive impact on their

productivity. The company is likely seeing tangible benefits from its efforts to optimize the supply chain. These benefits are reflected in greater operational efficiency, an increase in productivity and an improvement in employee satisfaction. This suggests that effective supply chain management not only improves economic results, but also contributes to a more positive and productive work environment.

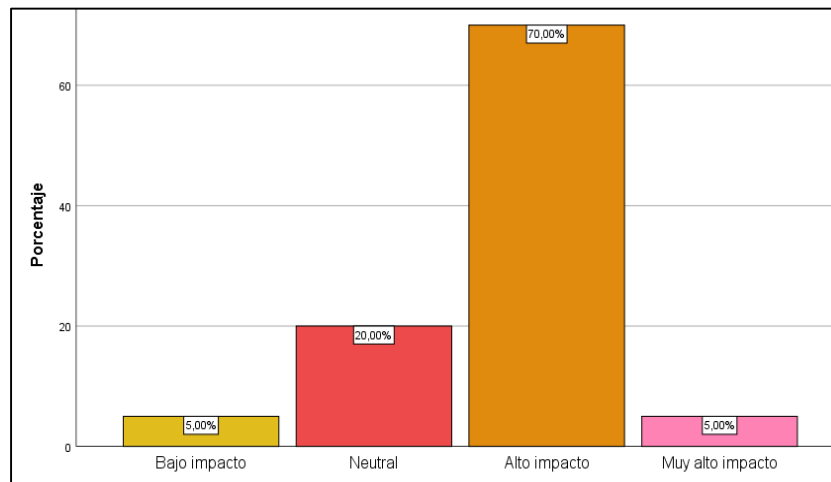


Fig 10: Impact of supply management

According to the graph, 70 % of respondents consider that the implementation of supply chain management has a "High impact" in their area, while 20 % consider it "Neutral" and only 5 % consider it of "Low Impact." These results indicate that the majority of respondents perceive a significant impact

of supply chain management in their work areas. Furthermore, it follows that supply chain management is perceived as a strategic initiative that significantly affects the operations and results of the different areas of the company.

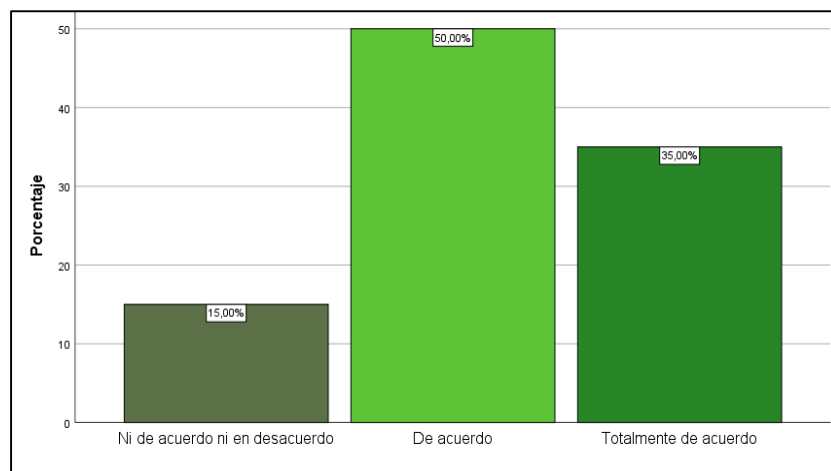


Figure 11: Satisfaction in supply chain management

The graph shows that most respondents (85 %) are satisfied with the supply chain management in their company, with 50% "Agree" and 35 % "Strongly Agree." while 15 % maintain a neutral position. These results suggest that supply chain management in the company is generally well valued by employees, given that 85 % express satisfaction and only

15% do not express a clear positive or negative opinion. The high satisfaction is probably attributed to management efficiency, good communication and coordination within the team, as well as the availability of adequate resources and modern technology. These factors make employees' jobs easier and contribute to an overall positive perception.

Correlation

		cadena de suministro	rentabilidad
cadena de suministro	Correlación de Pearson	1	,892**
	Sig. (bilateral)		,000
	N	100	100
rentabilidad	Correlación de Pearson	,892**	1
	Sig. (bilateral)	,000	
	N	100	100

Fig 12: Supply chain and profitability correlation

The table shows the results of a Pearson correlation analysis between supply chain management and profitability in a sample of 100 employees. The results indicate a strong positive correlation ($r = 0.892$) between supply chain management and profitability, with a very high level of significance ($p < 0.001$).

Pearson correlation is a statistical measure that indicates the strength and direction of a linear relationship between two variables. In this case, the Pearson correlation coefficient of 0.892 suggests that there is a very strong and positive relationship between supply chain management and company profitability. This value close to 1 indicates that as a company improves its supply chain management, it is likely to also see an increase in its profitability.

The level of significance ($p < 0.001$) implies that the results are highly significant and that the probability that this correlation occurred by chance is less than 0.1 %. This reinforces confidence in the existence of a real and robust relationship between these two variables.

Discussion

The results of this study demonstrate that efficient supply chain management (SCM) has a positive and significant impact on the profitability of SMEs. The Pearson correlation of 0.892 between supply chain management and profitability shows a strong relationship, indicating that as supply chain management improves, the company's profitability also increases significantly (see table). These findings are aligned with the main objective of the research, which is to analyze the impact of supply chain management on SMEs. The high correlation suggests that effective SCM strategies, such as data analytics and Just in Time implementation, not only optimize internal processes and reduce operational costs, but also directly contribute to improving profitability margins.

Additionally, research reveals that companies that have adopted advanced technologies and improved their internal coordination report greater satisfaction among employees, which is indicative of a more efficient and collaborative work environment. These factors not only improve operational efficiency, but also strengthen the company's ability to respond quickly to market demands, thereby contributing to greater customer satisfaction. This result is consistent with previous research that highlights the importance of efficient supply chain management for the competitiveness and financial success of SMEs (Flores *et al.*, 2023; Ramírez-Arellano *et al.*, 2022) ^[4, 12]. Evidence suggests that investing in advanced technologies and processes in SCM is not only beneficial for daily operations, but is also a crucial strategic element for long-term growth and sustainability.

Comparing these results with previous studies, it is confirmed that effective supply chain management is a crucial determinant for the profitability of SMEs. Flores *et al.* (2023) ^[4] emphasize that in sectors such as the automotive industry, adequate supply chain management is essential to maintain the continuity of processes and customer satisfaction. Similarly, Meléndez's (2023) ^[11] study establishes that supply chain management has a significant impact on the productivity of SMEs, which is consistent with the findings of our research. The data collected reinforces the idea that operational efficiencies achieved through well-managed SCM can lead to significant reductions in costs and improvements in profitability.

The implications of these results are profound both theoretically and practically. Theoretically, it expands the

understanding of SCM as a vital strategic element that not only affects daily operations, but also long-term financial results. Practically, SMEs are recommended to focus on the adoption of emerging technologies and continuous improvement of their inventory and logistics management processes to remain competitive in a dynamic global market. Implementing technologies such as blockchain can offer additional benefits, improving transparency and reducing transaction costs. Thus, these results validate the relevance of an efficient SCM as a determining factor for the financial and operational success of SMEs.

Conclusions

This research analyzes supply chain management (SCM) and its impact on the profitability of an SME, revealing that efficient SCM management significantly influences the profitability of these companies. The results show a strong positive correlation ($r = 0.892$, $p < 0.001$) between supply chain management and profitability, suggesting that improvements in supply chain management result in considerable increases in profitability. This finding confirms the importance of SCM as an essential strategic element for the financial success of SMEs.

Comparing these results with previous studies, the evidence is reinforced that efficient supply chain management is crucial for the competitiveness and profitability of SMEs. Flores *et al.* (2023) ^[4] and Meléndez (2023) ^[11] emphasize that in sectors such as the automotive and other industries, adequate supply chain management is essential to maintain the continuity of processes and customer satisfaction. These studies, together with the present results, suggest that companies that adopt advanced technologies and improve their internal coordination not only optimize their operational processes, but also significantly improve their profitability margins.

For future research, it is necessary to expand the sample size and include various industries to obtain a more comprehensive understanding of the impact of SCM on SMEs. Furthermore, it is recommended to implement a longitudinal design that allows monitoring changes in profitability over time and identifying the factors that influence these changes within organizations. Utilizing mixed methods, combining qualitative and quantitative data, will provide a deeper understanding of the challenges and successes in implementing SCM strategies. Finally, it is essential that SMEs invest in the training and development of their human resources, as well as in the integration of new technologies and processes related to supply chain management, to maintain competitiveness in a dynamic and constantly changing business environment evolution.

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