

Enhancing supply chain performance through digitalization: insights from a qualitative study in an emerging market

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Abstract: This study aims to explore the key determinants of supply chain performance in the era of digitalization, with a particular focus on the Moroccan context. Despite increasing interest in supply chain optimization, limited empirical research exists on how digital transformation influences supply chain efficiency in emerging economies. This gap highlights the need for a deeper understanding of the relationship between technological advancements and logistics performance in regions such as Morocco. A qualitative approach was adopted to investigate this issue, based on semi-structured interviews with 30 supply chain professionals. The data collected were transcribed and analyzed using IRAMUTEQ software, which allowed for a textometric analysis including cluster identification, factorial correspondence analysis (FCA), and similarity analysis. The results reveal that digitalization, real-time monitoring, data analytics, and artificial intelligence significantly enhance supply chain agility, visibility, and operational efficiency. Other critical determinants identified include logistics optimization, inventory management, and customer satisfaction. The findings also underline the importance of supply chain coordination, risk management, and sustainability strategies in fostering resilience and long-term competitiveness. This study provides both theoretical and practical implications by offering new insights into the interplay between digital technologies and supply chain performance in a developing country context. It emphasizes the need for businesses to invest in digital tools and strengthen collaboration across supply chain partners to remain competitive in a rapidly evolving environment.

1 Introduction

The supply chain has emerged as a critical driver of competitive advantage for businesses [1]. Supply chain management focuses on optimizing the overall value generated by a firm through the efficient utilization and allocation of resources across its operations. A supply chain encompasses a series of value-adding activities that link an organization's suppliers with its customers [2].

Globally, the supply chain sector has undergone significant transformation, driven by advancements in technology, globalization, and evolving consumer demands [3,4]. According to recent statistics, the global supply chain management market is projected to reach unprecedented growth, fueled by increasing investments in automation, digitalization, and sustainability initiatives [5]. Companies worldwide are adopting innovative strategies to enhance efficiency, reduce costs, and meet the growing demand for agility and resilience in supply chain operations [6,7]. These developments underscore the strategic importance of supply chains in the modern business environment and their critical role in driving economic growth and global trade [8].

Traditional determinants of supply chain performance focus on strategies like agility and leanness [9]. An agile supply chain, which adapts quickly to market changes, is a key factor in enhancing performance, particularly in retail. Lean strategies, aimed at reducing waste and optimizing

resources, also play a significant role, while hybrid strategies have a more limited impact [10]. Supply Chain Performance (SCP) reflects the ability to meet customer demands through timely delivery, product availability, and efficient resource management. It involves processes that cross organizational and functional boundaries, including procurement, manufacturing, distribution, and R&D. Despite numerous studies on organizational-level performance, inter-organizational SCP remains underexplored [11].

In the digital era, SCP is enhanced by digital transformation, which integrates digital technologies into business processes to optimize operations and value delivery [12]. Key determinants include digital procurement capabilities and data analytics capabilities, which significantly impact SCP by improving market insights, supplier relationships, and operational flexibility [13]. External analytics capabilities, focusing on market and supplier understanding, are particularly effective in boosting procurement capabilities, while internal analytics contribute more modestly. Digital integration also enhances supply chain agility and flexibility, enabling firms to adapt quickly to disruptions [14,15].

In the Moroccan context, the adoption of digital technologies in supply chain management remains a growing but relatively underexplored area. Morocco, as an emerging economy, has been investing significantly in

digital transformation initiatives across various sectors, including logistics and supply chains. However, challenges such as infrastructure limitations, the digital skills deficit, and varying levels of technology adoption among businesses influence the overall performance of supply chains. Understanding the determinants of supply chain performance in Morocco, particularly in light of its digitalization efforts, is crucial for identifying opportunities and addressing barriers to competitiveness in the global market.

Despite the growing body of literature on SCP and digitalization, there remains a significant lack of in-depth exploratory studies that investigate the specific determinants of SCP within the Moroccan context [16]. While existing research often focuses on global or generalized models [17], very few studies address how digital transformation concretely affects supply chain dynamics in emerging economies like Morocco, where challenges such as infrastructure gaps, technological disparities, and evolving market structures prevail [18]. This underscores a critical research gap, not just in terms of geographical focus, but also in the absence of contextualized analysis that captures the nuances of how Moroccan firms adopt and integrate digital tools in their supply chains. Therefore, this study aims to fill that gap by offering a grounded, qualitative investigation into the interplay between digitalization and SCP determinants, with the objective of generating insights that are both theoretically relevant and practically applicable to the Moroccan business environment undergoing digital transition.

The primary objective of this study is to explore the key determinants of SCP in the Moroccan context. To achieve this, a qualitative approach was adopted, utilizing semi-structured interviews with experts in supply chain management operating in Morocco. A lexicographic analysis was conducted using the IRAMUTEQ software to identify and classify clusters related to SCP determinants. This was followed by in-depth analyses, including Correspondence Factor Analysis (CFA) and similarity analysis, to examine the relationships between these determinants. The findings aim to provide both theoretical and practical implications, offering insights into improving SCP in the context of Morocco's evolving digital landscape. Its innovative contribution lies in combining expert insights with textometric analysis to map key SCP determinants, offering a contextualized understanding and paving the way for future quantitative and policy-oriented research.

The paper begins with a review of the literature on supply chain performance and digitalization, followed by a description of the qualitative methodology used. It then presents and discusses the results, highlighting key implications, and concludes with a summary of insights and recommendations for future research.

2 Methodology

2.1 Approach and method

The qualitative approach is particularly valuable for gaining an in-depth understanding of complex phenomena, providing rich, detailed insights that cannot be captured through quantitative methods alone [19,20]. It allows researchers to explore perspectives, uncover underlying factors, and interpret behaviors and interactions within specific contexts. In exploratory research, the qualitative approach is essential for investigating new or under-researched topics. It enables the identification of key variables, relationships, and patterns, offering a foundation for future theoretical development or hypothesis testing. When exploring determinants, the qualitative method facilitates the identification and understanding of nuanced factors that influence outcomes. Through semi-structured interviews and thematic analysis, this method captures diverse viewpoints and provides a comprehensive understanding of the underlying dynamics.

In the context of supply chain management, a qualitative approach is crucial for examining multifaceted challenges and strategies. It allows for a detailed analysis of processes, interactions, and decision-making within supply chains, providing insights into factors that drive or hinder performance. In Morocco, where supply chain management is evolving and digitalization is gaining traction, the qualitative approach is particularly relevant. It enables researchers to explore determinants of supply chain performance in a localized setting, considering unique cultural, economic, and technological factors. This approach sheds light on the specific challenges and opportunities faced by Moroccan businesses, offering actionable insights for improving supply chain efficiency and competitiveness.

2.2 Data collection and sample

The data for this study were collected through semi-structured interviews conducted with 30 experts in the field of supply chain management. These interviews were guided by a structured framework encompassing four main axes (Table 1).

Table 1 Descriptive statistics of the general corpus

Main axes	Description
Logistics performance	Exploring the key factors and metrics used to evaluate the effectiveness and efficiency of logistics operations.
Supply chain management	Investigating practices and strategies in procurement and supply chain coordination.
Determinants of logistics performance	Identifying and understanding the critical factors influencing logistics performance.
Role of digitalization and new technologies	Examining the impact of digital transformation and emerging technologies on improving supply chain performance.

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This approach ensured that the interviews covered all relevant aspects of the research topic, enabling a exploration of the determinants of supply chain performance in the Moroccan context.

The selection of interviewees was based on two main criteria: their specialization in supply chain and logistics, and their professional experience in the field. These criteria were chosen to ensure that the insights gathered would reflect informed and practical perspectives on supply chain performance in the Moroccan context. All participants have either managerial or operational roles in logistics and hold at least a Master's degree, which supports the relevance and credibility of the qualitative data collected (Table 2). The diversity in age and years of experience also contributes to a broader understanding of how digitalization is perceived and implemented across different levels within the supply chain profession.

Table 2 Characteristics of Interviewees

Characteristics		Frequency (n)	Percentage (%)
Gender	Female	20	83%
	Male	10	17%
Age	25-35 years	8	30%
	36-45 years	15	60%
	46-55 years	7	10%
Educational Qualification	Master's degree	25	83%
	PhD	5	17%
Professional Experience	5-9 years	12	16%
	10-15 years	13	25%
	More than 15 years	5	59%
Current Position	Logistics Director	4	17%
	Logistics Manager	16	33%
	Logistics Assistant/Agent	10	50%

2.3 Data analysis

After the data collection phase, all interviews were transcribed verbatim to preserve the richness and authenticity of expert opinions. The transcriptions were then compiled into a comprehensive textual corpus, forming the basis of the qualitative analysis. The corpus was processed using IRAMUTEQ, a powerful open-source tool widely used for lexicometric and statistical textual analysis [21,22].

The analytical process began with data cleaning and preparation, ensuring consistency in language and structure across the corpus. The corpus was then segmented into smaller units of context (text segments), which IRAMUTEQ processed to extract active forms (frequently used words) and lemmatized terms, allowing for the detection of linguistic patterns [22,23].

Using descending hierarchical classification (DHC), IRAMUTEQ grouped these text segments into thematic clusters based on co-occurrence and lexical proximity.

These clusters represent distinct themes emerging from the data, corresponding to the various determinants of supply chain performance as discussed by the interviewees. Each class was analyzed in detail to interpret the underlying meanings and patterns [23,24].

Additionally, the study applied CFA to visualize the relationships between terms and clusters, as well as a similarity analysis to explore co-occurrences and semantic connections between key concepts [25]. These complementary analyses allowed the identification of central themes, such as digitalization, logistics efficiency, customer satisfaction, agility, and risk management, and the interactions between them.

This multidimensional approach enabled a deep, structured, and theory-grounded interpretation of qualitative data, enhancing the validity of the findings. The use of IRAMUTEQ also ensured methodological rigor, reproducibility, and transparency, making it a suitable tool for exploring complex, context-specific dynamics such as those observed in the Moroccan supply chain sector undergoing digital transformation [18,26].

3 Results and discussion

This section presents the results of the textometric analysis conducted on the collected data, followed by a discussion of the key findings. The analysis, performed using IRAMUTEQ, allowed for the classification of qualitative data into structured themes, providing valuable insights into the determinants of supply chain performance.

3.1 Descriptive textual statistics

The descriptive statistics of the general corpus, presented in Table 3, summarize key metrics such as the number of texts, text segments, active forms, and classified segments, giving an overview of the dataset used in the study.

Table 3 Descriptive textual statistics of the general corpus

Statistic	Value
Number of texts	6
Number of text segments	192
Number of forms	1088
Number of occurrences	6942
Number of lemmas	1067
Number of active forms	1055
Number of additional forms	12
Number of active forms with frequency ≥ 3	491
Average forms per segment	36.16
Number of classes	6
Classified segments (%)	140 out of 192 (72.92%)

These statistics provide an initial overview of the dataset's structure and the effectiveness of the classification process. The classification rate of 72.92% indicates a strong lexical structuring, allowing for a

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detailed interpretation of the key themes emerging from the interviews. The following sections will analyze these themes in depth, examining the relationships between the identified determinants and their impact on supply chain performance in the Moroccan context.

To further analyze the determinants of supply chain performance, a frequency analysis of active words was conducted. Table 4 presents the 30 most frequently occurring terms in the dataset, highlighting key themes related to logistics efficiency, digitalization, inventory management, and performance optimization. These terms provide insights into the primary concerns and focus areas of supply chain experts in the Moroccan context.

Table 4 The most 30 frequent actives words

Active word	Freq.	Active word	Freq.
Logistics	159	Efficiency	37
Supply chain	154	Digitalization	36
Stock	79	Risks	35
Time	71	Disruptions	33
Costs	68	Customer	33
Customer satisfaction	59	System	32
Demand	53	Artificial intelligence	32
Market	49	Planning	32
Inventory	47	Responsiveness	32
Delivery reducing	47	Performance	30
Route	40	Flow management	30
Procurement	39	Optimization	29
Inventory management	38	Cost	29
Management	38	Challenge	29
Logistics performance	37	Logistic strategies	29

The high frequency of terms such as "logistics" (159), "supply chain" (154), "stock" (79), and "time" (71) underscores the central role of inventory and time management in optimizing supply chain efficiency. Additionally, the presence of "digitalization" (36) and "artificial intelligence" (32) indicates a growing interest in the adoption of technology to enhance logistics performance. The frequent occurrence of "costs" (68), "customer satisfaction" (59), and "performance" (30) highlights the emphasis on balancing operational efficiency with financial optimization and service quality. Moreover, words such as "risks" (35) and "disruptions" (33) suggest that supply chain resilience and risk management are critical concerns. Overall, these results confirm that efficiency, digital transformation, risk management, and customer-centric strategies are key determinants of supply chain performance in the Moroccan context. The following sections will delve deeper into these findings, exploring their implications for logistics strategies and decision-making in an increasingly digitalized environment.

3.2 Detailed results

The hierarchical clustering dendrogram presented in Figure 1 illustrates the classification of textual data into six distinct classes, each representing a thematic cluster related to supply chain performance and digitalization. This clustering was generated through lexicographic analysis using IRAMUTEQ, allowing for the identification of key themes and their interconnections.

Disruptions and Resilience (Class 1 - Red, 17.1%). This cluster highlights the impact of global disruptions on supply chains and the importance of resilience strategies. Businesses must remain flexible and adaptive to economic fluctuations, logistical challenges, and external shocks. Ensuring supply chain continuity requires robust systems capable of quickly responding to unforeseen events.

Real-Time Monitoring and Digitalization (Class 2 - Grey, 17.9%). The increasing reliance on real-time tracking, predictive analytics, and IoT-driven automation is a defining feature of modern supply chains. Digitalization enhances visibility, improves decision-making, and reduces inefficiencies, making supply chain processes more efficient and responsive to dynamic market conditions.

Logistics Optimization and Sustainability (Class 3 - Green, 19.3%). This cluster focuses on cost control, delivery efficiency, and sustainability in logistics. Companies seek to optimize their supply chains by reducing waste, enhancing performance metrics, and integrating sustainable practices that balance profitability with environmental responsibility.

Customer Loyalty and Service Quality (Class 4 - Cyan, 13.6%). Supply chain disruptions directly affect customer satisfaction and brand reputation. Issues such as stockouts, delayed deliveries, and poor service quality can damage customer loyalty, emphasizing the need for reliable supply chain management to maintain competitiveness and trust.

Agility and Competitive Advantage (Class 5 - Blue, 15%). The ability to adapt quickly and leverage big data for decision-making is a crucial determinant of supply chain success. Agility allows businesses to remain competitive by responding swiftly to changing market demands and optimizing operational performance through intelligence-driven strategies.

Coordination and Traffic Challenges (Class 6 - Pink, 17.1%). Effective coordination between supply chain partners is essential to minimize delays, congestion, and inefficiencies. Poor communication and outdated planning systems can lead to traffic bottlenecks and operational failures, underscoring the need for streamlined logistics and better utilization of resources.

The CFA (Figure 2) provides a structured visualization of the key determinants influencing supply chain performance in the Moroccan context. The findings reveal four major thematic clusters: disruptions and agility, logistics performance and customer satisfaction, digitalization and real-time monitoring, and operational efficiency.

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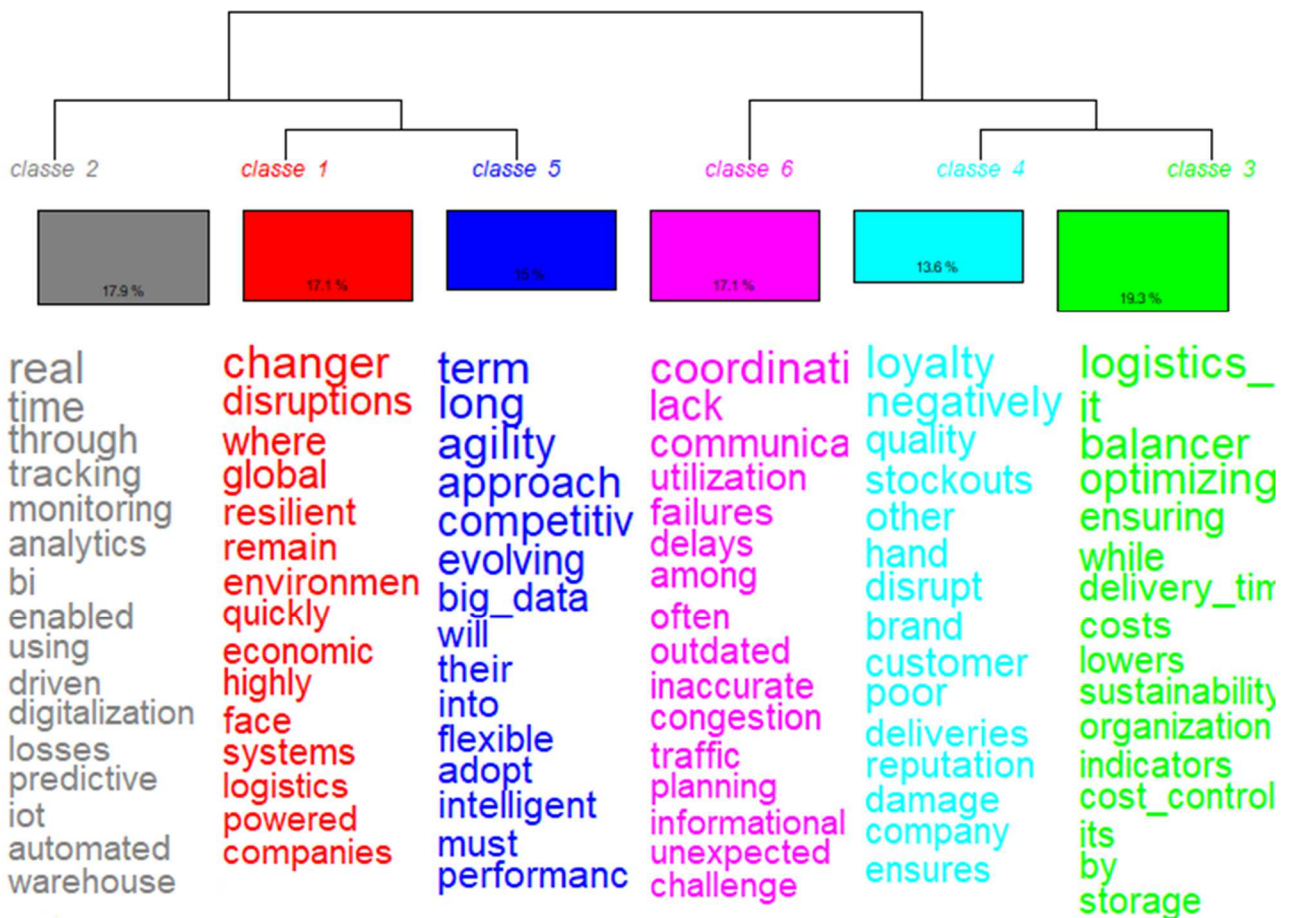


Figure 1 Hierarchical clustering dendrogram

The first cluster, positioned in the top-left quadrant, highlights the impact of global disruptions and economic uncertainties on supply chains. The presence of terms such as "disruptions," "agility," and "competitiveness" suggests that businesses need to adopt flexible and adaptive strategies to remain resilient. However, the frequent occurrence of "lack," "coordination," and "failures" underscores the challenges companies face in managing supply chain integration and communication, which can hinder overall efficiency. The second cluster, in the top-right quadrant, focuses on logistics performance and customer satisfaction. Terms such as "logistics performance," "optimization," and "storage" emphasize the importance of inventory management and cost control in ensuring supply chain efficiency. Additionally, the presence of "customer," "loyalty," and "reputation" confirms that poor logistics management, including stockouts, delays, or delivery failures, can severely impact brand trust and consumer retention. The third cluster, found in the bottom-left quadrant, highlights the role of digitalization, real-time monitoring, and predictive analytics in improving supply chain performance. The use of terms like "real-time," "tracking," "analytics," "IoT,"

and "automation" indicates that companies are increasingly leveraging advanced technologies to enhance visibility, optimize decision-making, and reduce inefficiencies. This reinforces the idea that supply chain digitalization is a crucial factor in modernizing logistics and improving responsiveness. The fourth cluster, in the bottom-right quadrant, emphasizes operational efficiency and cost optimization. Keywords such as "ensuring," "optimal," "reducing," and "precise" suggest that businesses are actively working to streamline supply chain processes, enhance performance, and mitigate financial risks. These findings highlight the growing importance of efficient resource allocation and continuous process improvements to sustain competitive advantage. Overall, the FCA analysis confirms that digitalization, agility, and optimization are key drivers of supply chain performance, while lack of coordination, disruptions, and logistical inefficiencies remain major challenges. To enhance supply chain efficiency, Moroccan firms must invest in digital transformation, improve supply chain resilience, and strengthen coordination mechanisms to ensure competitiveness in an evolving market landscape.

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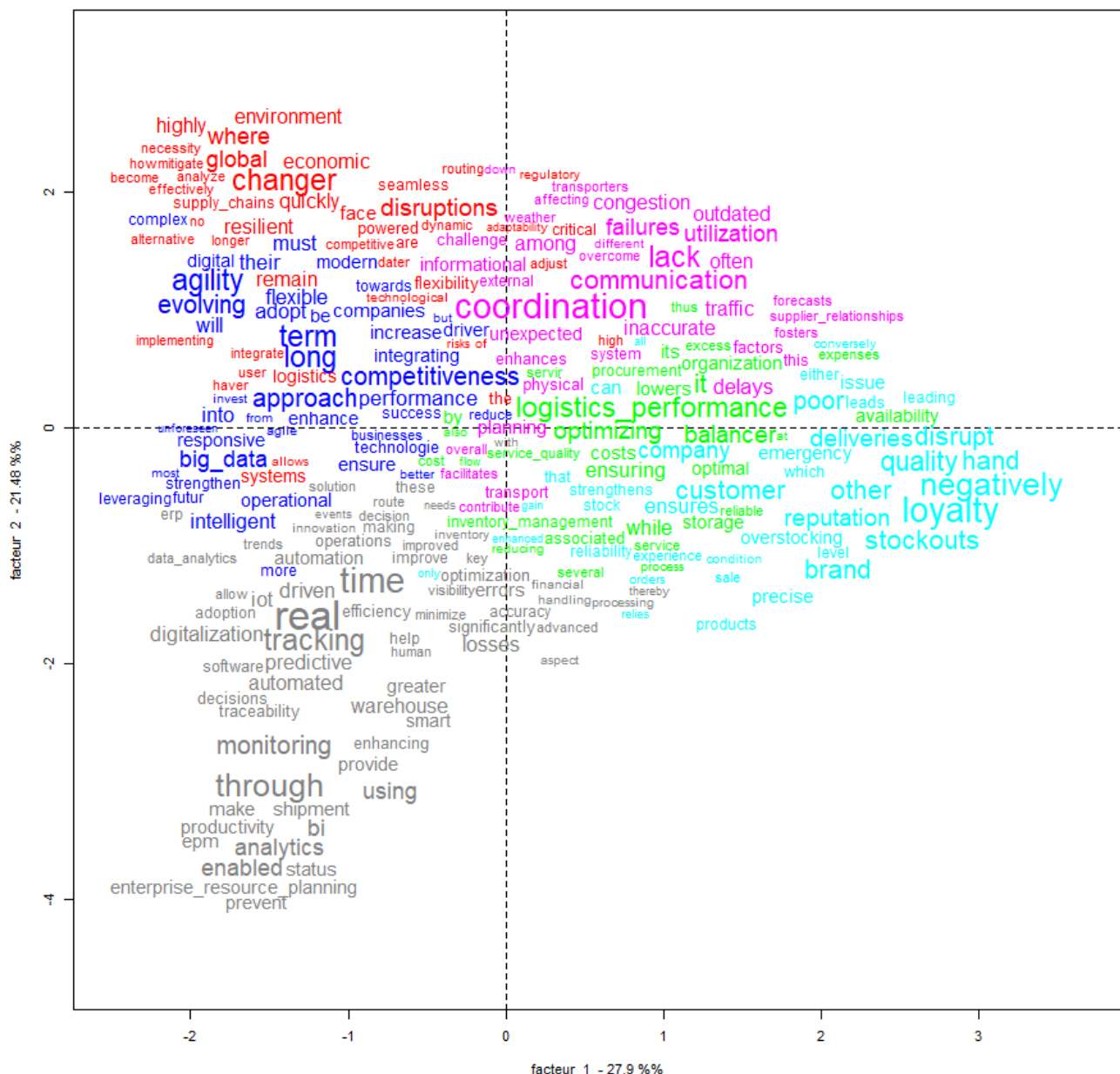


Figure 2 Correspondence Factor Analysis (CFA)

The similarity analysis (Table 5) presented in Figure 3 visually maps the relationships between key concepts related to supply chain performance. This graphical representation highlights how different determinants are interconnected, helping to identify the most influential factors and their interactions.

The similarity analysis reinforces the idea that supply chain performance is multidimensional, requiring a balance between logistics efficiency, digital integration, customer satisfaction, and inventory management. The strong connection between logistics and digitalization suggests that Moroccan firms should prioritize digital tools and AI-driven strategies to enhance performance. Additionally, inventory management and procurement

strategies must be optimized to meet customer expectations, ultimately driving supply chain success in an increasingly competitive market.

To further analyze the factors influencing supply chain performance in the digital era, Table 6 presents a summary of the key determinants within the Moroccan context. These determinants include technological advancements such as digitalization, real-time monitoring, data analytics, and AI integration, as well as strategic approaches like logistics optimization, supply chain coordination, and risk management. The table highlights how these elements contribute to improving supply chain efficiency, responsiveness, and resilience, ultimately enhancing competitiveness in a rapidly evolving market environment.

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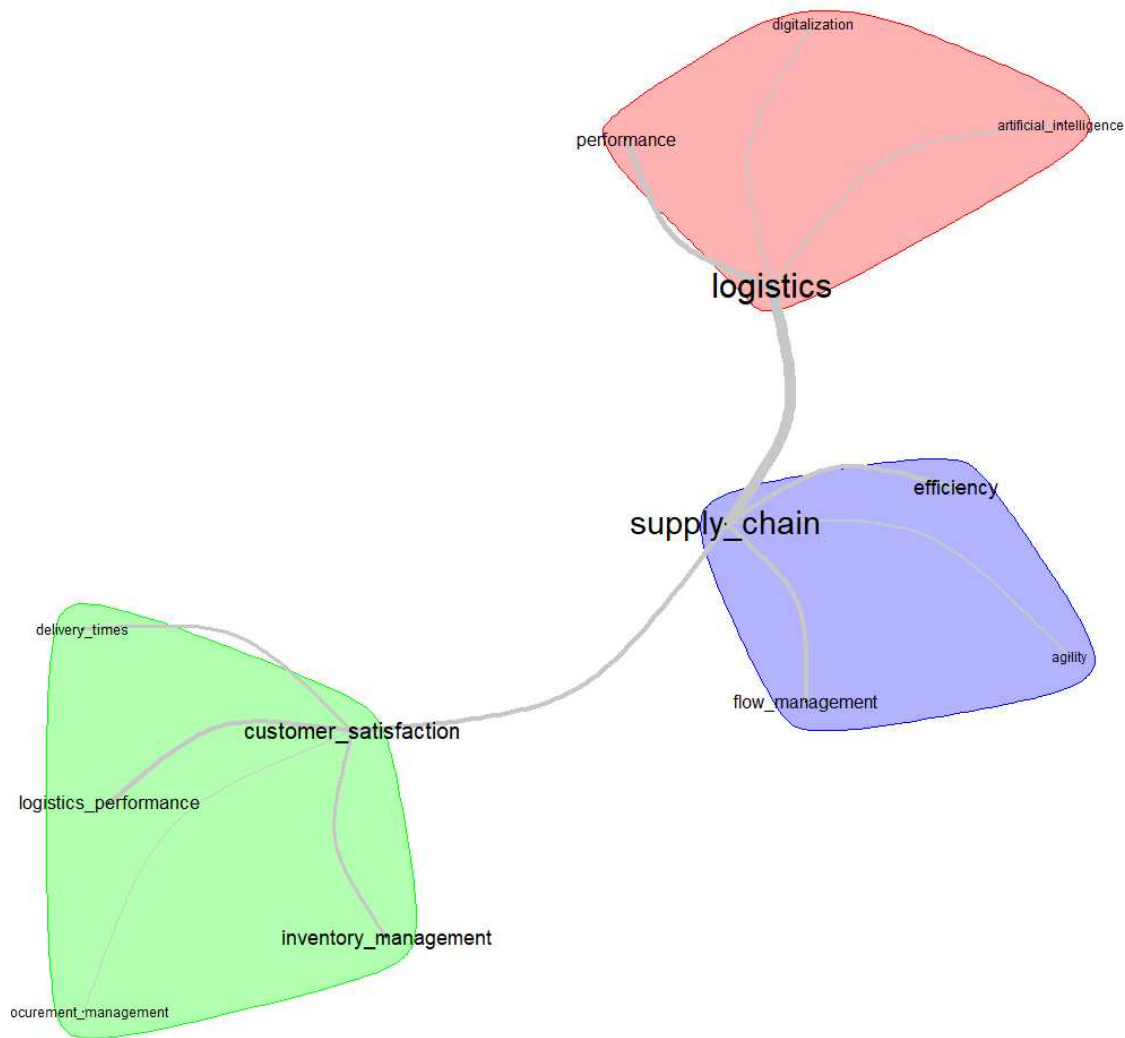


Figure 3 Similarity analysis

Table 5 Clusters of similarity analysis

Cluster	Key Themes
Supply chain (Central Node)	Supply Chain Performance
Logistics and digitalization (Red Cluster)	Digitalization, artificial intelligence, performance
Efficiency and flow management (Blue Cluster)	Efficiency, Agility, Flow Management
Customer satisfaction and inventory management (Green Cluster)	Customer satisfaction, delivery times, logistics performance, procurement & inventory management

The key determinants outlined in Table 6 underscore the transformational role of digitalization and advanced analytics in modern supply chain management. Real-time monitoring and AI-driven decision-making enhance

operational efficiency by providing greater visibility and predictive capabilities, allowing firms to mitigate risks and respond proactively to disruptions. Additionally, logistics optimization, sustainability initiatives, and customer-centric approaches are critical for maintaining high service quality while balancing costs and environmental impact. Furthermore, effective supply chain coordination and risk management strategies are essential for ensuring operational continuity and resilience in the face of economic uncertainties and global disruptions. For Moroccan firms, investing in smart logistics solutions, agile business models, and collaborative supply chain networks will be crucial to maintaining a competitive and sustainable supply chain ecosystem in the digital age.

The findings of this study align with existing literature that emphasizes the multidimensional nature of SCP. Similar to prior research conducted in global and emerging contexts [27,28], this study confirms that digitalization, agility, and logistics efficiency are consistently recognized as key enablers of high-performing supply chains.

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However, this research offers novel insight by contextualizing these determinants within the Moroccan ecosystem, where the digital transition is still emerging and unevenly adopted across sectors.

Table 6 Key determinants of supply chain performance in the era of digitalization in the Moroccan context

Key Determinants	Description	Impact on Supply Chain Performance
Digitalization & real-time monitoring	Integration of IoT, predictive analytics, and automated tracking systems.	Enhances visibility, reduces inefficiencies, and improves responsiveness to demand fluctuations.
Agility & flexibility	Ability to quickly adapt to market changes and disruptions.	Improves resilience, minimizes risks, and maintains business continuity.
Data analytics & integration	Use of big data, AI, and machine learning for decision-making.	Enhances forecasting, optimizes inventory, and supports proactive risk management.
Logistics optimization	Cost reduction strategies, route planning, and delivery efficiency.	Improves operational efficiency, reduces waste, and ensures timely deliveries.
Sustainability & green supply chain	Adoption of eco-friendly practices and sustainable logistics.	Enhances corporate responsibility, meets regulatory standards, and reduces environmental impact.
Customer-centric approach	Focus on service quality, delivery reliability, and brand reputation.	Strengthens customer loyalty, improves satisfaction, and reduces negative brand perceptions.
Supply chain coordination & integration	Collaboration between suppliers, distributors, and retailers.	Reduces bottlenecks, enhances communication, and ensures smoother workflow management.
Risk management & resilience	Strategies to mitigate disruptions and economic uncertainties.	Ensures supply chain continuity, minimizes financial losses, and enhances preparedness for crises.

The identification of digitalization and real-time monitoring as central determinants resonates with studies such as those by [29] and [30], who found that the integration of technologies like IoT and predictive

analytics significantly improves visibility, coordination, and adaptability in supply chains. What distinguishes the current findings is their grounding in qualitative narratives from Moroccan professionals, reflecting real-world challenges such as technological readiness, infrastructure gaps, and cultural resistance to change, factors often underrepresented in international studies.

The frequent mention of customer satisfaction, risk management, and inventory control might appear as general concepts, yet their co-occurrence with terms like "artificial intelligence," "real-time tracking," and "digital tools" in the similarity and FCA analyses indicates a direct and active linkage to digitalization efforts. This confirms that these themes are not discussed in isolation, but rather as components of digitally enabled performance strategies, reinforcing the view that digital transformation is an operational lever rather than a distant vision. Moreover, the emphasis on agility and flexibility as strategic capabilities in managing disruptions supports the work of [31] and more recently [28], who highlight the need for resilient supply chain design in the face of global volatility. In the Moroccan context, these finding gains specificity when linked to issues of traffic congestion, outdated planning systems, and coordination inefficiencies, which are barriers that could be alleviated through digital supply chain platforms and AI-based planning tools.

Finally, the identification of coordination and communication gaps mirrors the conclusions of [32], who noted that emerging economies often struggle with inter-organizational performance measurement. This study adds to that discussion by showing that digitalization is perceived by Moroccan experts not only as a technical upgrade but as a structural solution to systemic inefficiencies. In conclusion, while some of the identified determinants are indeed common in the literature, their interconnection with digitalization efforts, when grounded in the Moroccan context, offers a practical and theoretically informed contribution. This study bridges the gap between general supply chain knowledge and its application in a digitally evolving emerging market, pointing toward the need for hybrid strategies combining human expertise and digital tools to drive sustainable performance improvements.

4 Conclusion

This study aimed to explore the key determinants of supply chain performance in the era of digitalization, focusing on the Moroccan context through a qualitative approach. By conducting semi-structured interviews with industry experts and applying textometric analysis, the research sought to identify the main factors influencing supply chain efficiency, agility, and resilience in a rapidly evolving digital landscape.

The findings highlight several critical determinants that shape supply chain performance. Digitalization, real-time monitoring, and AI-driven decision-making emerged as pivotal enablers of efficiency and responsiveness, allowing

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firms to enhance visibility and optimize logistics operations. Agility and flexibility were identified as essential for adapting to market fluctuations and mitigating disruptions. Additionally, logistics optimization, inventory management, and customer satisfaction were found to be crucial for ensuring service reliability and sustaining competitive advantage. Moreover, the study underscores the importance of supply chain coordination and risk management in fostering resilience, particularly in the face of economic and logistical uncertainties. The results suggest that Moroccan businesses must further integrate advanced technologies and sustainable practices to strengthen their supply chain strategies and improve overall performance.

The findings also provide valuable guidance for practitioners aiming to enhance supply chain performance in the era of digitalization. One of the key managerial takeaways is the importance of integrating digital technologies, such as real-time monitoring, artificial intelligence, and predictive analytics, into supply chain processes. These tools enhance operational visibility, support data-driven decision-making, and help reduce inefficiencies, leading to improved responsiveness and agility in a competitive market.

Managers are also encouraged to strengthen coordination and collaboration across the supply chain—particularly among suppliers, distributors, and logistics partners, to minimize disruptions and enhance workflow continuity. Additionally, investing in risk management strategies is essential to anticipating and mitigating the impact of economic and logistical uncertainties. A customer-centric approach should be prioritized, focusing on delivery reliability and service quality to reinforce brand trust and customer loyalty. For Moroccan companies specifically, embracing sustainable logistics practices and optimizing cost structures is not only crucial for long-term competitiveness, but also for meeting increasing regulatory and environmental expectations.

From a theoretical perspective, this study contributes to the literature by offering an exploratory, context-specific understanding of the determinants of supply chain performance in an emerging economy undergoing digital transformation. It enriches current frameworks by showing how digitalization intersects with traditional performance drivers, such as logistics efficiency, coordination, and customer satisfaction, within the Moroccan context. Moreover, the use of textometric analysis combined with qualitative data presents a novel methodological contribution, supporting theory-building in complex, underexplored environments. The identification of determinant clusters, supported by FCA and similarity analysis, lays the groundwork for future quantitative validation, enabling the development of empirical models that can generalize these findings to similar contexts in other developing economies.

This study is limited to a purely qualitative approach, focusing on expert opinions to explore the key

determinants of supply chain performance in the digital era within the Moroccan context. While this method provides in-depth insights and a rich understanding of industry perspectives, it does not allow for statistical generalization. The findings, therefore, remain exploratory in nature and require further empirical validation.

As a future perspective, a quantitative study will be conducted to test and confirm the research hypotheses derived from this qualitative analysis. This will allow for a more generalizable assessment of the impact of digitalization on supply chain performance by incorporating a larger dataset and statistical modeling. Additionally, further research will investigate the benefits and challenges of AI integration in supply chain management, particularly in areas such as predictive analytics, automation, and decision-making optimization. These studies will contribute to a more comprehensive understanding of how digital transformation reshapes supply chain efficiency, resilience, and competitiveness in Morocco and beyond.

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Review process

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