Pisco Med Publishing

Human Resources Management and Services 2026, 8(3), 5964
https://doi.org/10.18282/hrms5964

Article

Human and Organizational Drivers in Marketing-Logistics Collaboration and Supply Chain Performance: Evidence from Moroccan Mass Retailing

Fatima Ezzahra Mnajli[1, *], Hind Benkirane[2], Meriem Azari [3], Mohammed Benelmallam[4], Abdellatif Messoudi[5], Nabil Nadia[6]

[1]Research Laboratory in Managerial Transformation and Innovation, National School of Business and Management, Hassan 1st University, Settat 26000, Morocco.
[2]Laboratory for Interdisciplinary Research in Law, Economics, and Business Management, Faculty of Economics and Management, Hassan II University, Ain Chock, Casablanca 21100, Morocco
[3]Laboratory of Technologies and Industrial Services, Higher School of Technology of Fez Sidi Mohamed Ben Abdellah University Fez, Morocco
[4]Laboratoire Interdisciplinaire de Recherche en Économie, Finance et Management des Organisations (LIREFIMO), Sidi Mohamed Ben Abdellah University, Fez, Morocco
[5]Research Laboratory in Entrepreneurship, Management, Finance and Organizational Strategies, Faculty of Law, Economics and Social Sciences of Mohammedia, Hassan II University, Casablanca, Morocco.
[6]Research Laboratory in Economics, Management, and Business Administration, Faculty of Economics and Management, Hassan 1st University, Settat, 26000, Morocco.

*__Corresponding author:__ Fatima Ezzahra Mnajli, F.mnajli@uhp.ac.ma

CITATION

Mnajli, FE., Benkirane, H., Azari, M., et al. (2026). Human and organizational drivers in marketing-logistics collaboration and supply chain performance: Evidence from Moroccan mass retailing. Human Resources Management and Services. 8(3): 5964. https://doi.org/10.18282/hrms5964

COPYRIGHT

Copyright © 2026 by author(s).
Human Resources Management and Services is published by Piscomed Publishing Pte. Ltd. This work is licensed under the Creative Commons Attribution (CC BY) license.
https://creativecommons.org/licenses/by/4.0/

Abstract: Effective collaboration between manufacturers and retailers depends not only on operational integration but also on the human and organizational conditions that facilitate cross-functional coordination, communication, and joint decision-making. This study examines the relationship between marketing-logistics collaboration and supply chain performance in Moroccan mass retailing, with particular attention to information sharing quality and retail format. Drawing on survey data from 142 organizational observations, the study employs structural equation modeling (SEM) to examine the relationships among marketing-logistics collaboration, information sharing quality, and supply chain performance. CPFR and VMI are examined as specific collaborative practices through supplementary regression analyses rather than as separate constructs in the principal structural model. The findings indicate that marketing-logistics collaboration is positively associated with supply chain performance ($\beta = 0.312$, $p < 0.001$). Information sharing quality significantly mediates this relationship, with a significant indirect effect ($\beta = 0.301$, 95% CI [0.182, 0.443]). A multi-group comparison further indicates that the collaboration-performance relationship is stronger among hypermarkets than among supermarkets. These findings support a socio-organizational interpretation of marketing-logistics collaboration, in which human and organizational conditions provide an important theoretical foundation for coordinating people, information, responsibilities, and processes. The study contributes to research on interfunctional collaboration by providing empirical evidence from an emerging-market retail context and offers managerial implications for strengthening organizational coordination and information-sharing quality.

Keywords: Human and Organizational Drivers; Marketing-Logistics Collaboration; Cross-Functional Coordination; Information Sharing; CPFR; Supply Chain Performance; Moroccan Retailing

1. Introduction

Effective collaboration between manufacturers and retailers has become increasingly important in contemporary retail environments characterized by

demanding consumers, shortened product life cycles, intensified competition, and increasingly complex supply relationships. Within this context, marketing and logistics functions can no longer operate as isolated organizational units. Marketing decisions concerning demand generation, promotions, product assortment, and pricing directly affect logistics activities related to inventory management, transportation, warehousing, and product availability. Consequently, effective coordination between these functions requires not only the integration of operational processes but also the ability of employees, teams, and managers to communicate, exchange information, coordinate responsibilities, and make joint decisions.

The integration of marketing and logistics has long been recognized as an important source of organizational and competitive performance [1], [2]. When these functions operate in isolation, organizational misalignment may result in stockouts during promotional periods, excessive inventories of slow-moving products, inefficient resource allocation, and declining service quality [3]. Conversely, cross-functional coordination can facilitate the alignment of demand-related decisions with operational capabilities, enabling organizations to respond more effectively to changing market requirements. From this perspective, marketing-logistics collaboration should be understood as a socio-organizational process in which people, teams, information, and organizational structures jointly shape the effectiveness of interfunctional integration.

This human and organizational dimension is particularly relevant to collaborative supply chain practices such as Collaborative Planning, Forecasting, and Replenishment (CPFR) and Vendor Managed Inventory (VMI). These practices require organizations to establish shared responsibilities, coordinate activities across functional boundaries, exchange timely and accurate information, and develop common performance objectives. CPFR, for example, involves collaborative demand planning, forecasting, promotional coordination, and replenishment activities, thereby requiring sustained interaction between employees from different organizational and functional areas [4]. Similarly, VMI depends on information exchange and coordinated decision-making between suppliers and retailers. The effectiveness of such practices therefore depends not only on technological systems and formal processes but also on the organizational capacity to support collaboration among the individuals and teams involved.

The literature emphasizes several organizational conditions that facilitate effective collaboration [4]. Previous research has highlighted the importance of top management support, clearly defined roles and responsibilities, compatible information systems, joint performance metrics, trust, and commitment in successful collaborative initiatives [5]. These factors indicate that collaboration cannot be reduced to the adoption of operational techniques. Rather, it requires organizational structures and human capabilities that enable employees to work across functional and organizational boundaries. In this sense, cross-functional collaboration represents an important interface between human resource practices, organizational behavior, and operational performance.

The Moroccan retail sector provides a relevant context for examining these dynamics. Morocco has experienced substantial transformation in its modern retail sector, driven by urbanization, changing consumer preferences, and the development of increasingly sophisticated retail formats. Although traditional small retailers continue to represent a substantial share of food retailing, hypermarkets, supermarkets, and discount stores have expanded rapidly. Marjane Holding and Label'Vie Group constitute the two dominant players in the modern retail sector and have invested substantially in supply chain capabilities and collaborative relationships with manufacturers [6].

The Moroccan context is particularly relevant because collaboration takes

place within a retail environment characterized by both market concentration and organizational complexity. Modern retail involves close relationships between manufacturers and retailers, while the coexistence of traditional and modern distribution channels creates different requirements for coordination and information exchange. Furthermore, the growing sophistication of retail operations increases the importance of employees and managers who can coordinate marketing and logistics activities effectively. Understanding these human and organizational mechanisms can therefore provide a more comprehensive explanation of why collaborative practices produce different performance outcomes across retail contexts.

Despite the growing literature on supply chain collaboration, empirical research has predominantly examined collaboration from an operational and supply chain perspective, while comparatively less attention has been given to the human and organizational mechanisms through which collaboration is enabled [5]. This gap is particularly relevant in emerging-market contexts, where institutional, cultural, organizational, and relational characteristics may influence the implementation and effectiveness of collaborative practices. Previous research has shown that trust, commitment, organizational readiness, and information-sharing capabilities can influence collaboration outcomes [7], [8], but further empirical evidence is needed to understand how collaboration functions within the manufacturer-retailer relationship in emerging retail markets.

Against this background, this study examines marketing-logistics collaboration between manufacturers and retailers in Moroccan mass retailing, with particular attention to the human and organizational dimensions that support interfunctional coordination. The study focuses on collaborative practices including CPFR, VMI, and information sharing and examines their relationship with supply chain performance.

Using survey data from 142 organizational observations and structural equation modeling (SEM), the study investigates whether marketing-logistics collaboration contributes to supply chain performance and whether information sharing quality constitutes an important mechanism through which collaborative relationships generate performance benefits.

The study addresses three research questions:

What is the nature and extent of marketing-logistics collaboration between manufacturers and retailers in Moroccan mass retailing?

How do collaborative practices, including CPFR, VMI, and information sharing, influence supply chain performance?

How do organizational and relational mechanisms, particularly information sharing and cross-functional coordination, help explain the relationship between collaboration intensity and performance?

By addressing these questions, the study contributes to the literature in three ways. First, it extends research on marketing-logistics integration by conceptualizing collaboration as a socio-organizational process rather than solely as an operational integration mechanism. Second, it highlights the role of information sharing and cross-functional coordination in translating collaborative practices into performance outcomes. Third, it provides empirical evidence from an emerging-market retail context, thereby extending existing knowledge beyond the predominantly developed-market settings examined in previous research.

The remainder of the paper is organized as follows. Section 2 reviews the literature on marketing-logistics integration, human and organizational mechanisms of collaboration, CPFR, VMI, and supply chain collaboration in emerging markets. Section 3 describes the research methodology, including data collection, measurement instruments, and analytical procedures. Section

4 presents the empirical results. Section 5 discusses the findings and their theoretical and managerial implications, while Section 6 concludes the study by presenting its limitations and directions for future research.

2. Literature Review

2.1. Marketing-Logistics Integration

The integration of marketing and logistics has increasingly been recognized as an important organizational capability for improving customer service and firm performance. Marketing activities generate and shape market demand through decisions related to products, pricing, promotion, and assortment, whereas logistics activities ensure the availability of products at the right place, at the right time, and in the appropriate condition. When these functions operate independently, differences in objectives, information, and decision-making processes may generate operational inefficiencies, including stockouts, excessive inventories, poor promotional execution, and reduced service quality [1]–[3].

Marketing-logistics integration encompasses several dimensions, including interfunctional coordination, information sharing, and joint planning [2]. Interfunctional coordination refers to the mechanisms through which marketing and logistics employees align their activities and decisions, while information sharing enables the exchange of relevant and timely information across functional boundaries. Joint planning further strengthens integration by allowing employees and managers from different functions to jointly anticipate demand, coordinate operational requirements, and respond to market changes.

The importance of integration extends beyond the formal coordination of organizational processes. Cross-functional integration requires individuals from different professional backgrounds to develop shared understandings, communicate effectively, and reconcile potentially divergent functional priorities. Previous research on marketing-logistics integration has therefore emphasized the behavioral dimension of collaboration, demonstrating that the effectiveness of integration is influenced by interpersonal relationships, communication patterns, and the ability of employees to work collaboratively across functional boundaries [3].

This perspective is particularly relevant to contemporary retailing, where marketing decisions can have immediate consequences for logistics operations. Promotional campaigns, assortment changes, and demand-generation activities may generate substantial variations in inventory requirements and transportation needs. Consequently, the effectiveness of marketing-logistics integration depends on the capacity of employees and managers to coordinate decisions rather than simply on the existence of formal operational procedures.

2.2. Human and Organizational Mechanisms of Cross-Functional Collaboration

Cross-functional collaboration can be understood as a process through which employees belonging to different organizational functions coordinate their knowledge, activities, and responsibilities to achieve shared objectives. In the context of marketing and logistics, such collaboration requires employees to overcome functional boundaries and develop working relationships that facilitate communication, mutual understanding, and joint problem-solving.

Research specifically examining marketing-logistics collaboration demonstrates that internal organizational behaviors play an important role in determining the effectiveness of functional integration. Ellinger et al. found that cross-functional collaboration is associated with marketing-logistics integration and that organizational evaluation and reward systems can contribute to the development of collaborative behavior [23]. Their findings are particularly relevant to a human resource perspective because they indicate that collaboration is influenced by the way organizations recognize teamwork, cooperation, and

interdepartmental contributions.

Similarly, research on the behavioral dimension of marketing-logistics integration shows that the interactions between marketers and logisticians cannot be understood solely through formal organizational structures. Interfunctional collaboration is shaped by employees' perceptions of one another, interpersonal relationships, communication practices, and behavioral factors that facilitate or constrain cooperation [10]. More recent research likewise emphasizes that individuals and their relationships constitute the foundation of cross-functional integration, particularly where frontline employees must coordinate decisions and solve problems across organizational boundaries [11].

From an organizational perspective, collaboration therefore requires more than the physical or technological integration of activities. It depends on organizational structures that facilitate communication and clarify responsibilities, as well as managerial practices that encourage employees to prioritize collective objectives. Clear role definitions are particularly important because functional specialization can otherwise create conflicting priorities between marketing and logistics. Shared objectives and performance indicators can help reduce these conflicts by shifting attention from isolated functional outcomes toward common organizational results.

Training and skill development can also support cross-functional collaboration by improving employees' understanding of other functions. Marketing employees who understand logistics constraints can develop more operationally feasible promotional plans, while logistics employees who understand marketing objectives can respond more effectively to changes in demand. Cross-functional training can therefore contribute to a shared organizational language and facilitate coordination between specialized teams.

The role of incentives and performance management is equally important. When employees are evaluated exclusively according to function-specific targets, collaboration may be discouraged because employees have limited incentives to consider the objectives of other departments. In contrast, evaluation and reward systems that recognize teamwork, cooperation, and joint performance can encourage employees to engage in collaborative behaviors [9]. Consequently, organizational performance management can act as an enabling mechanism for cross-functional integration.

These considerations suggest that marketing-logistics collaboration should be conceptualized as a socio-organizational process. Employees constitute the actors through which formal collaborative mechanisms are implemented, while organizational structures, managerial practices, training, role clarity, and performance systems create the conditions under which collaboration can emerge and be sustained.

2.3. Information Sharing and Collaborative Coordination

Information sharing represents a central mechanism through which collaboration becomes operational. Effective coordination between manufacturers and retailers requires the exchange of timely, accurate, and relevant information concerning sales, inventory, demand forecasts, promotional activities, and replenishment requirements. Without adequate information exchange, employees and managers may make decisions based on incomplete or inconsistent representations of market conditions.

Previous research identifies information sharing as one of the most frequently discussed factors influencing supply chain collaboration [12]. In dyadic manufacturer-retailer relationships, information exchange facilitates coordination by reducing uncertainty and allowing partners to synchronize their activities. The literature further indicates that collaboration and information sharing are closely

interconnected, as effective collaboration requires mechanisms through which relevant information can circulate between organizational actors [13].

Information sharing also has an important human dimension. The availability of technological systems does not automatically guarantee effective information exchange. Employees must be willing and able to provide relevant information, interpret it correctly, and use it in joint decision-making processes. Trust, communication quality, organizational commitment, and clarity concerning information responsibilities can therefore influence the effectiveness of information-sharing practices.

In manufacturer-retailer relationships, these mechanisms are particularly important because the two organizations may possess different objectives, information systems, organizational cultures, and levels of bargaining power. Effective information sharing requires not only technological compatibility but also relational and organizational mechanisms that encourage transparency and reduce concerns about information leakage or opportunistic behavior.

The importance of information sharing is consistent with the conceptual framework developed in this study, in which information sharing quality represents an important mechanism connecting marketing-logistics collaboration with supply chain performance. The empirical model therefore reflects the broader theoretical argument that collaboration generates performance benefits partly by improving the quality of information exchanged between organizational actors.

2.4. Collaborative Planning, Forecasting, and Replenishment

Collaborative Planning, Forecasting, and Replenishment (CPFR) represents one of the most comprehensive forms of collaboration between manufacturers and retailers. CPFR involves coordinated activities related to strategy and planning, demand management, execution, and performance analysis [4]. Rather than independently developing forecasts and replenishment decisions, trading partners jointly coordinate demand and supply activities.

The effectiveness of CPFR depends on both technological and organizational conditions. Collaborative forecasting requires the exchange of information, the alignment of expectations, and the coordination of decisions among employees representing different organizations and functions. Consequently, CPFR requires clearly defined responsibilities and sustained interaction between the individuals involved in marketing, sales, supply chain management, inventory management, and logistics.

Previous research identifies several conditions supporting successful CPFR implementation, including top management support, clearly defined roles and responsibilities, compatible information systems, equitable sharing of costs and benefits, and joint performance measures [4]. These conditions demonstrate the importance of organizational and human mechanisms in the implementation of collaborative practices.

CPFR can therefore be viewed not simply as a technological or operational tool but as an organizational coordination mechanism. Its effectiveness depends on the capacity of employees and managers to establish shared objectives, exchange information, resolve discrepancies, and jointly manage demand and supply uncertainty. In this respect, CPFR provides a particularly relevant illustration of how human and organizational capabilities can support marketing-logistics integration.

2.5. Vendor-Managed Inventory

Vendor-Managed Inventory (VMI) constitutes another important mechanism of manufacturer-retailer collaboration. Under VMI arrangements, suppliers assume responsibility for monitoring and replenishing retailer inventories based on information concerning sales, inventory levels, and agreed service parameters

[14]. By transferring certain inventory management responsibilities to suppliers, VMI seeks to improve coordination and reduce inefficiencies associated with independent inventory decisions.

The potential benefits of VMI include inventory reduction, improved product availability, reduced administrative burden, and mitigation of the bullwhip effect [14], [15]. However, the effectiveness of VMI depends on the quality of the relationship between the participating organizations, the extent of information sharing, organizational readiness, and technological capabilities [16].

The implementation of VMI also involves a redistribution of responsibilities between manufacturers and retailers. Such redistribution requires employees to accept new roles, develop confidence in collaborative decision-making, and establish mechanisms for resolving disagreements concerning inventory targets and service levels. Organizational readiness is therefore an important component of successful VMI implementation.

From a human and organizational perspective, VMI demonstrates that collaboration involves changes in responsibilities and decision rights rather than merely the adoption of a new inventory technique. Employees must adapt their routines, coordinate with external partners, and rely on information generated by another organization. Trust, communication, role clarity, and organizational commitment can consequently influence the effectiveness of VMI relationships.

2.6. Supply Chain Collaboration in Emerging Markets

Supply chain collaboration has received substantial attention in developed economies, whereas empirical evidence from emerging markets remains comparatively limited. Existing studies indicate that institutional conditions, organizational practices, cultural characteristics, and relationship dynamics can influence the implementation and outcomes of collaborative arrangements in emerging-market environments [7], [8].

Research in the Greek food sector, for example, demonstrated the importance of trust and commitment in manufacturer-retailer collaboration [7]. Similarly, research on fast-moving consumer goods manufacturers and retailers in South Africa found that supply chain collaboration can improve responsiveness to customer requirements [8]. These findings suggest that collaboration is shaped not only by operational practices but also by relational and organizational characteristics.

The Moroccan retail sector provides a particularly relevant setting for extending this literature. The coexistence of traditional and modern retail channels, the concentration of modern retail, and the increasing sophistication of manufacturer-retailer relationships create a distinctive environment for studying collaborative practices. The dominant position of major retail groups also creates potential power asymmetries between retailers and suppliers, which may influence communication, information sharing, and perceptions of collaborative relationships.

Within this context, human and organizational mechanisms become particularly important. Employees and managers must operate across organizational boundaries while managing potentially different objectives and levels of bargaining power. The development of trust, communication routines, shared responsibilities, and organizational capabilities can therefore influence the extent to which collaborative practices translate into performance improvements.

2.7. Distinction Between Marketing-Logistics Collaboration and Information Sharing Quality

Although information sharing is included as one dimension of marketing-logistics collaboration, the two constructs serve different conceptual roles in the present study. Marketing-logistics collaboration represents the broader

extent to which manufacturers and retailers coordinate planning, information exchange, and processes. Information sharing quality focuses specifically on the characteristics of the information exchanged within that collaborative relationship.

Accordingly, information sharing as a component of collaboration refers to the existence and extent of information exchange as part of the collaborative process, whereas information sharing quality refers to whether the exchanged information is timely, accurate, complete, relevant, and useful for decision-making.

This distinction is important for the mediation model. Marketing-logistics collaboration captures the broader collaborative relationship, while information sharing quality captures a specific mechanism through which that relationship may generate performance benefits. The mediation hypothesis therefore does not assume that information sharing is conceptually independent from collaboration; rather, it examines whether the quality dimension of information exchange helps explain the association between the broader collaborative process and supply chain performance.

The empirical distinction between the constructs is further assessed through the measurement model using confirmatory factor analysis, convergent validity, and discriminant-validity criteria, including the HTMT ratio.

2.8. Theoretical Synthesis and Research Gap

The literature reviewed above indicates that marketing-logistics collaboration is a multidimensional phenomenon involving operational, informational, relational, human, and organizational mechanisms. Traditional approaches have emphasized the efficiency benefits of integrating marketing and logistics activities, particularly through information sharing, joint planning, CPFR, and VMI [1], [2], [4], [14]. However, the implementation of these mechanisms ultimately depends on the individuals and organizational structures responsible for coordinating them.

The literature on cross-functional collaboration further demonstrates that employee interactions, communication, teamwork, organizational evaluation systems, and reward mechanisms can influence the effectiveness of marketing-logistics integration [9]–[11]. These findings provide an important bridge between supply chain collaboration and the human and organizational perspective emphasized in the present study.

Nevertheless, an important research gap remains. Existing research has often examined operational collaboration and human or organizational mechanisms separately. Comparatively less attention has been devoted to understanding how marketing-logistics collaboration operates as a socio-organizational process within manufacturer-retailer relationships in emerging retail markets. This gap is particularly relevant in Morocco, where modern retail is developing rapidly and collaborative relationships between manufacturers and major retailers are becoming increasingly important.

The present study addresses this gap by examining marketing-logistics collaboration and its relationship with supply chain performance while explicitly recognizing the human and organizational conditions underlying effective coordination. The empirical model focuses on marketing-logistics collaboration, information sharing quality, CPFR, VMI, and supply chain performance. Human and organizational mechanisms are incorporated into the theoretical interpretation of collaboration rather than introduced as additional statistically tested constructs, because they were not directly measured as independent variables in the original survey.

Accordingly, the study adopts a socio-organizational perspective in which effective collaboration is understood as the outcome of coordinated human action supported by organizational structures, information-sharing mechanisms,

shared responsibilities, and collaborative practices. This perspective provides the theoretical foundation for examining the proposed relationships among marketing-logistics collaboration, information sharing, and supply chain performance in Moroccan mass retailing.

2.9. Conceptual Framework and Hypotheses

Building on the preceding literature, this study conceptualizes marketing-logistics collaboration as a socio-organizational process through which employees, managers, and organizational units coordinate activities, exchange information, and jointly manage interdependent decisions. From this perspective, human and organizational drivers refer to the underlying conditions that enable and shape effective collaboration, including communication, role clarity, shared objectives, organizational support, managerial involvement, and cross-functional coordination. These drivers are considered theoretically important because collaborative practices are ultimately implemented through interactions among organizational actors.

The framework is grounded primarily in the resource-based view of the firm and transaction cost economics. From a resource-based perspective, collaborative capabilities can constitute valuable organizational resources when they enable firms to coordinate activities and create relationship-specific value. From a transaction cost perspective, effective collaboration can reduce coordination costs and uncertainty by improving information exchange and aligning decisions between manufacturers and retailers [17]. These theoretical perspectives are complemented by the cross-functional collaboration literature, which emphasizes the importance of communication, role clarity, shared objectives, and organizational support in enabling employees to coordinate across functional boundaries [9]–[11].

Within this framework, human and organizational drivers provide the contextual foundation for marketing-logistics collaboration. Employees and managers must communicate, coordinate responsibilities, establish shared objectives, and reconcile potentially different priorities across marketing, logistics, sales, and supply chain functions. These organizational conditions may facilitate the development and effectiveness of collaborative relationships between manufacturers and retailers.

Marketing-logistics collaboration represents the central empirically examined construct in the proposed framework. It encompasses joint planning, information sharing, and process integration between manufacturers and retailers. The construct therefore provides the principal mechanism through which the human and organizational conditions described above are translated into observable collaborative practices.

The framework further identifies information sharing quality as a key mechanism through which collaboration affects performance. While technological infrastructure facilitates the transmission of information, the value of information sharing also depends on the ability and willingness of organizational actors to exchange timely, accurate, complete, and useful information and to incorporate it into joint decisions. Accordingly, information sharing quality represents an important organizational mechanism through which collaborative relationships may generate performance benefits.

The organizational context in which collaboration takes place may also influence its effectiveness. In particular, retail format may shape organizational scale, technological infrastructure, operational complexity, and coordination requirements. The study therefore examines whether the relationship between marketing-logistics collaboration and supply chain performance differs between hypermarket and supermarket formats.

Based on these theoretical arguments, the conceptual framework proposes that human and organizational drivers provide the underlying conditions for effective marketing-logistics collaboration, while marketing-logistics collaboration is directly associated with supply chain performance and indirectly associated with performance through information sharing quality. Retail format is further expected to moderate the relationship between collaboration and performance.

Importantly, human and organizational drivers are used in this study as a theoretical lens for explaining how collaboration is enabled and implemented rather than as a set of separately estimated latent constructs. The empirical model therefore directly tests marketing-logistics collaboration, information sharing quality, and supply chain performance, while retail format is examined as a contextual moderator.

Accordingly, the first hypothesis is formulated as follows:

H1: Marketing-logistics collaboration intensity is positively associated with supply chain performance.

2.9.1. The Mediating Role of Information Sharing Quality

Information sharing is a fundamental mechanism through which collaborative relationships are translated into coordinated action. Collaboration between manufacturers and retailers requires access to accurate, timely, and relevant information concerning sales, inventory, forecasts, promotions, and replenishment requirements. High-quality information enables organizational actors to develop a common understanding of market conditions and coordinate their decisions more effectively.

The relationship between collaboration and information sharing is particularly important because collaborative arrangements create organizational mechanisms through which information can be exchanged across functional and organizational boundaries. Previous research has identified information sharing as a critical component of supply chain collaboration and has emphasized its role in improving operational coordination [5], [13].

From a human and organizational perspective, information sharing is not merely a technological process. Employees must be willing to exchange information, understand its relevance, interpret it appropriately, and incorporate it into joint decisions. Trust, communication, role clarity, and organizational commitment can therefore influence the quality of information exchanged between collaborating partners.

When collaboration improves the quality of information available to manufacturers and retailers, this information can subsequently facilitate better inventory management, demand forecasting, order fulfillment, and service performance. Information sharing can therefore operate as an intermediate mechanism linking collaborative practices to performance outcomes.

Accordingly, the second hypothesis is formulated as follows:

H2: Information sharing quality mediates the positive relationship between marketing-logistics collaboration intensity and supply chain performance.

2.9.2. The Moderating Role of Retail Format

The organizational context in which collaboration takes place can influence the extent to which collaborative practices generate performance benefits. Retail formats differ in terms of scale, operational complexity, technological infrastructure, product assortment, transaction volumes, and organizational resources. These differences can affect the requirements and opportunities for collaboration between manufacturers and retailers.

Hypermarkets generally operate at larger scales and manage broader

product assortments and higher transaction volumes than supermarkets. Such characteristics may increase the potential benefits of coordinated planning, information sharing, and replenishment activities. At the same time, larger organizations may possess more sophisticated technological and organizational infrastructures that facilitate cross-functional and interorganizational coordination.

From a human and organizational perspective, differences in retail format can also affect the structure and complexity of coordination. Larger retail organizations may have more specialized employees and formalized coordination mechanisms, whereas smaller formats may rely more heavily on direct interpersonal coordination. Consequently, the organizational context may condition the extent to which marketing-logistics collaboration translates into performance improvements.

The present study therefore examines whether the strength of the collaboration-performance relationship differs between hypermarkets and supermarkets.

Accordingly, the third hypothesis is formulated as follows:

Hypothesis 3: Moderating Role of Retail Format

H3: The positive relationship between marketing-logistics collaboration and supply chain performance differs across retail formats, particularly between hypermarkets and supermarkets.

2.9.3. Integrated Conceptual Model

The resulting conceptual framework positions marketing-logistics collaboration as the central mechanism through which manufacturers and retailers coordinate their activities. The framework incorporates three complementary dimensions.

First, **human and organizational coordination** provides the underlying conditions for collaboration. Employees and managers must communicate, coordinate responsibilities, develop shared objectives, and work across functional boundaries. Organizational mechanisms such as role clarity, cross-functional training, managerial support, and shared performance systems may facilitate these processes, although these mechanisms are treated theoretically rather than as separately measured constructs in the present empirical model.

Second, **marketing-logistics collaboration** represents the central collaborative construct, encompassing joint planning, information sharing, and process integration.

Third, **information sharing quality** constitutes an important mechanism through which collaboration is translated into supply chain performance. The framework therefore proposes both a direct relationship between collaboration and performance and an indirect relationship operating through information sharing quality.

Finally, **retail format** represents an organizational contextual factor that may influence the strength of the collaboration-performance relationship.

Figure 1 presents the conceptual framework, distinguishing the theoretical human and organizational background from the relationships examined in the empirical model.

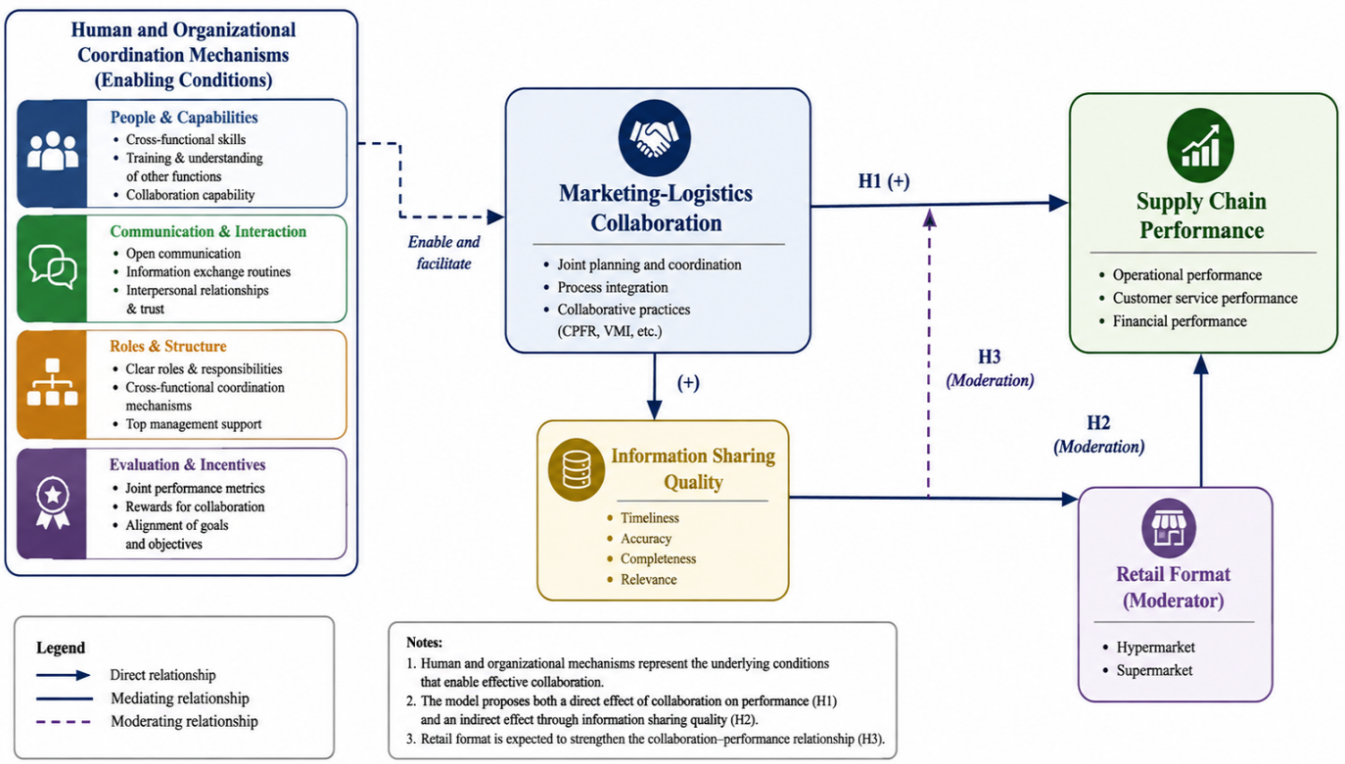


Figure 1. Conceptual Framework Linking Human and Organizational Drivers, Marketing-Logistics Collaboration, Information Sharing Quality, and Supply Chain Performance

This framework allows the study to retain its original empirical model while providing a broader human and organizational interpretation of how collaborative relationships between manufacturers and retailers generate performance outcomes.

3. Materials and methods

3.1. Research Design and Data Collection

This study adopted a quantitative research design to examine the relationship between marketing-logistics collaboration and supply chain performance in the Moroccan mass retailing sector. The empirical analysis focuses on marketing-logistics collaboration, information sharing quality, and supply chain performance, while retail format is examined as an organizational contextual factor. CPFR and VMI are examined separately as specific collaborative practices through supplementary regression analyses.

Data were collected between March and June 2025. The sampling frame included firms affiliated with the Moroccan Retail Association (AGRAD) and manufacturers supplying major retail chains. The study specifically targeted organizations involved in manufacturer-retailer relationships associated with Marjane Holding and Label'Vie Group. A total of 280 questionnaires were distributed to managers with knowledge of supply chain, marketing, logistics, and interorganizational coordination. Of these, 142 usable questionnaires were returned, corresponding to a response rate of 50.7%.

Each usable questionnaire represented a separate organization, and no more than one questionnaire was retained from the same organization for the final analytical dataset. Accordingly, the 142 questionnaires correspond to 142 distinct organizational observations, and the observations were treated as independent at the organizational level. The study did not obtain two matched questionnaires for the same manufacturer-retailer relationship, and responses were not averaged or aggregated across multiple respondents within organizations.

The term "dyadic responses" used in the previous version of the manuscript was inaccurate and has been corrected. The unit of analysis in the empirical

analysis is therefore the organization represented by a completed questionnaire from a knowledgeable respondent.

Respondents were selected based on their familiarity with manufacturer-retailer coordination, collaborative planning, information sharing, inventory and replenishment activities, and supply chain performance. **Table 1** summarizes the characteristics of the final sample. A comparison between early and late respondents was conducted to assess potential non-response bias, and no significant differences were identified across the demographic characteristics examined.

Table 1. Sample Characteristics

Characteristic	Frequency	Percentage
Retail Partner		
Marjane Holding	78	54.9%
Label'Vie Group	64	45.1%
Retail Format		
Hypermarket	54	38.0%
Supermarket	62	43.7%
Discount Store	26	18.3%
Product Category		
Food and Beverage	68	47.9%
Household Products	42	29.6%
Personal Care	32	22.5%
Relationship Duration		
Less than 2 years	18	12.7%
2–5 years	52	36.6%
More than 5 years	72	50.7%

The organizational perspective adopted in this study recognizes that collaboration is implemented through managers and functional actors responsible for coordinating marketing, logistics, demand, inventory, and replenishment activities. However, the study does not introduce employee collaboration capability, training, incentive systems, role clarity, or performance-management practices as independent quantitative constructs because these dimensions were not directly measured in the original survey instrument. They are therefore treated as theoretically relevant organizational conditions that help explain how marketing-logistics collaboration may be implemented and sustained.

Missing-Data Treatment

Of the 280 questionnaires distributed, 142 were retained as usable observations for the empirical analysis. Questionnaires that were substantially incomplete or did not provide sufficient information for the measurement of the main constructs were excluded from the final dataset. Thus, the analyses were conducted using the 142 complete and usable observations.

This procedure was adopted to ensure that the measurement and structural analyses were based on observations providing sufficient information across the constructs included in the model. No statistical imputation of missing responses was applied. The final analytical sample therefore consisted of 142 observations.

Sample Size Adequacy

The final dataset consisted of 142 usable observations. Given the relatively modest sample size, particular attention was paid to model parsimony and estimation stability. The empirical model was therefore specified around a limited

number of theoretically justified constructs and structural paths, rather than incorporating a large number of additional explanatory variables.

The use of item parcels for the marketing-logistics collaboration construct further reduced measurement-model complexity and the number of parameters requiring estimation. The measurement and structural models were subsequently assessed using the fit indices and validity criteria reported in the results section.

Although the sample size represents a limitation of the study, it is considered appropriate for the parsimonious model estimated in this research. The findings should nevertheless be interpreted with caution, and future studies should replicate the model using larger samples to improve statistical power and generalizability.

Ethics Statement

No institutional ethics committee approval was required for this study because the research consisted of an anonymous, non-interventional questionnaire survey conducted in accordance with the applicable requirements governing the data-collection procedure. The study did not involve clinical intervention, sensitive personal data, or experimental manipulation. Participation was voluntary, and respondents were informed of the purpose of the study and their right to participate or decline participation. Consent was obtained through voluntary participation in the questionnaire, and no personally identifying information was collected or retained. Accordingly, no retrospective ethical approval is implied.

3.2. Measurement Instruments

All study constructs were measured using multi-item scales adapted from established research and subsequently refined through pilot testing with industry experts. Responses were recorded using seven-point Likert scales ranging from 1 = "strongly disagree" to 7 = "strongly agree."

3.2.1. Marketing-Logistics Collaboration

Marketing-logistics collaboration was measured using an eight-item scale adapted from Stank et al. [22]. The scale captures three complementary dimensions of collaboration: collaborative planning, information sharing, and process integration. Collaborative planning reflects the extent to which manufacturers and retailers jointly develop and coordinate plans. Information sharing captures the regular exchange of relevant information between partners, while process integration reflects the degree to which logistics activities are coordinated with marketing activities across organizational boundaries.

Collaborative planning reflects the extent to which manufacturers and retailers jointly develop and coordinate plans. Information sharing captures the regular exchange of relevant information between partners, while process integration reflects the degree to which logistics activities are coordinated with marketing activities across organizational boundaries. Example items include joint development of promotional plans, regular sharing of point-of-sale information, and integration between logistics operations and partners' marketing activities.

These dimensions are particularly consistent with the human and organizational interpretation developed in the present study because they require employees and managers to coordinate activities, communicate across organizational boundaries, and align functional responsibilities [20], [21].

To ensure conceptual distinction between marketing-logistics collaboration and information sharing quality, the two constructs are differentiated according to their respective theoretical roles. Marketing-logistics collaboration represents the broader process of coordination and joint action between organizational partners and encompasses collaborative planning, interorganizational information exchange, and process integration. Information sharing quality, in contrast, focuses specifically on the characteristics of the information exchanged,

including its timeliness, accuracy, completeness, relevance, and usefulness for decision-making.

Thus, information sharing within the marketing-logistics collaboration construct refers to the existence and extent of information exchange as part of collaborative coordination, whereas information sharing quality refers to the quality and usefulness of the information exchanged. This distinction allows information sharing quality to be examined as a mechanism through which broader collaboration may contribute to supply chain performance.

3.2.2. Collaborative Planning, Forecasting, and Replenishment

CPFR implementation was measured using a six-item scale based on Hollmann et al. [8]. The scale assesses the extent to which organizations engage in collaborative demand planning, sales forecasting, and replenishment activities.

In the present study, CPFR is conceptualized as a specific collaborative practice that illustrates how marketing-logistics collaboration can be operationalized. It is not specified as a separate latent antecedent or mediator in the principal SEM. Instead, its relationship with supply chain performance is examined through supplementary regression analysis.

3.2.3. Vendor-Managed Inventory

VMI adoption was measured using a four-item scale adapted from Waller et al. and Claassen et al. [2], [13]. The scale captures the extent to which suppliers assume responsibility for inventory-related decisions and the information-sharing processes required for VMI implementation.

VMI is similarly treated as a specific collaborative practice rather than as a separate construct in the principal structural model. Its association with supply chain performance is examined through supplementary regression analysis to provide additional evidence concerning the performance relevance of collaborative practices.

3.2.4. Information Sharing Quality

Information sharing quality represents an important mechanism in the conceptual framework. It captures the quality of information exchanged between manufacturers and retailers and is particularly relevant to the extent that collaborative relationships depend on timely, accurate, complete, and useful information.

In the empirical model, information sharing quality is treated as a mediating mechanism linking marketing-logistics collaboration to supply chain performance. This specification reflects the argument that collaboration can generate performance benefits by improving the quality of information available to organizational actors and enabling better coordinated decisions.

3.2.5. Supply Chain Performance

Supply chain performance was measured using a seven-item scale covering both operational and financial outcomes. The operational indicators included inventory turnover, stockout rates, and order fulfillment accuracy, while the financial indicators included sales growth, profit margins, and return on assets. Subjective performance measures were used, with respondents evaluating their performance relative to key competitors.

This approach allows the study to capture supply chain performance as a multidimensional outcome rather than limiting performance assessment to a single operational indicator.

3.2.6. Control and Contextual Variables

The questionnaire collected information on firm size, relationship duration, and retail format. Firm size was operationalized according to

the number of employees, while relationship duration captured the length of the manufacturer-retailer relationship. Retail format distinguished among hypermarkets, supermarkets, and discount stores.

Firm size and relationship duration were used as control variables in the supplementary regression analyses examining CPFR and VMI. They were not included as control variables in the principal SEM. This distinction is important because the principal structural model was designed to test the theoretically specified relationships among marketing-logistics collaboration, information sharing quality, and supply chain performance.

Firm size was included because organizational scale may influence the resources available for implementing collaborative practices. Relationship duration was included because longer relationships may provide greater opportunities for developing coordination routines, familiarity, and relational mechanisms. Retail format was treated separately as a contextual moderator because H3 specifically examines differences in the collaboration-performance relationship across retail formats.

3.3. Analytical Approach

The data analysis followed a sequential procedure consisting of measurement-model assessment, structural-model estimation, mediation analysis, and multi-group analysis. This approach was adopted to establish the reliability and validity of the measurement instruments before testing the hypothesized structural relationships.

3.3.1. Measurement Model Assessment

First, Confirmatory Factor Analysis (CFA) was conducted to assess the measurement model. The analysis evaluated internal consistency reliability, convergent validity, and discriminant validity.

Internal consistency was assessed using Cronbach's alpha and composite reliability (CR). Convergent validity was assessed using Average Variance Extracted (AVE). Discriminant validity was evaluated by comparing the square root of AVE with the correlations between constructs. The study additionally reports the heterotrait-monotrait (HTMT) ratio as a further assessment of discriminant validity.

Model fit was evaluated using the chi-square statistic, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). These indicators provide complementary evidence regarding the adequacy of the proposed measurement and structural models.

3.3.2. Structural Equation Modeling

Second, Structural Equation Modeling (SEM) was employed using maximum likelihood estimation to test the hypothesized relationships between marketing-logistics collaboration, information sharing quality, and supply chain performance.

The structural model was specified to estimate:

- the direct effect of marketing-logistics collaboration on supply chain performance;
- the relationship between marketing-logistics collaboration and information sharing quality;
- the relationship between information sharing quality and supply chain performance; and
- the indirect effect of marketing-logistics collaboration on performance through information sharing quality.

The model therefore corresponds directly to the conceptual framework

presented in **Figure 1**.

3.3.3. Mediation Analysis

The mediating role of information sharing quality was assessed using a bootstrapping procedure with 5,000 resamples. Bias-corrected confidence intervals were used to determine whether the indirect effect was statistically significant.

This procedure is appropriate for assessing indirect effects because it does not require the sampling distribution of the indirect effect to be normally distributed. In the present study, mediation analysis enables the researchers to determine whether marketing-logistics collaboration contributes to supply chain performance partly through improvements in information sharing quality.

3.3.4. Multi-Group Analysis

Third, multi-group SEM was conducted to examine whether retail format moderates the relationship between marketing-logistics collaboration and supply chain performance. The analysis compared the structural relationships across hypermarket and supermarket groups.

The analysis revealed a stronger collaboration-performance relationship among hypermarkets than among supermarkets. The direct path from collaboration to performance was $\beta = 0.67$ for hypermarkets and $\beta = 0.42$ for supermarkets, with a significant chi-square difference of $\Delta\chi^2(1) = 8.42$, $p < 0.01$.

Discount stores were included in the descriptive sample but were not part of the reported hypermarket-versus-supermarket moderation comparison.

3.3.5. Additional Analysis

Additional regression analyses were conducted to examine the individual relationships between CPFR implementation, VMI adoption, and supply chain performance. CPFR and VMI both showed significant positive relationships with performance when entered separately. When both practices were entered simultaneously, CPFR remained significant ($\beta = 0.28$, $p < 0.001$), while VMI remained marginally significant ($\beta = 0.14$, $p < 0.05$).

These supplementary analyses provide additional evidence concerning the relative contribution of specific collaborative practices within the broader marketing-logistics collaboration framework.

3.3.6. Statistical Software and Item Parceling

All analyses were conducted using AMOS 28.0 and SPSS 29.0. Because the sample consisted of 142 observations and the marketing-logistics collaboration construct was measured with eight items representing several related dimensions, item parceling was used to reduce model complexity and improve parameter-estimation stability in the CFA and SEM.

The parceling procedure was applied only to the marketing-logistics collaboration construct and was conducted in accordance with its multidimensional structure. The resulting parcels were constructed to represent the underlying dimensions of collaborative planning, information sharing, and process integration rather than to eliminate theoretically meaningful content. The use of parcels therefore reduced the number of estimated parameters while preserving the substantive content of the construct.

Given the relatively limited sample size, the use of parcels was intended to provide a more parsimonious measurement model and facilitate stable estimation. Nevertheless, the interpretation of the results remains based on the theoretically defined construct and its underlying dimensions.

3.3.7. Common Method Bias

Because the main constructs were measured through a self-administered questionnaire, the possibility of common method bias was considered. Several procedural measures were adopted to reduce the potential influence of common method variance. First, the questionnaire items were presented in a clear and neutral manner to reduce ambiguity and respondents' tendency to provide socially desirable answers. Second, respondents were informed that the survey was conducted for academic purposes and that their individual responses would be treated confidentially. Third, the measurement items for the independent, mediating, and dependent constructs were conceptually differentiated to reduce respondents' tendency to provide mechanically consistent responses across constructs.

In addition to these procedural remedies, the measurement model was assessed before testing the structural relationships. The results indicated satisfactory reliability and validity of the measurement constructs, while the discriminant-validity assessment supported their empirical distinction. Nevertheless, because the principal variables were collected from the same survey instrument, common method bias cannot be completely excluded. This limitation is therefore acknowledged when interpreting the structural relationships.

As an additional statistical diagnostic, Harman's single-factor test was conducted using the measurement items included in the principal model. The first unrotated factor accounted for 38.6% of the total variance, which is below the commonly used 50% threshold. This result does not suggest that a single factor accounts for the majority of the variance across the measured constructs.

However, Harman's single-factor test provides only a limited diagnostic of common method bias and cannot definitively exclude common method variance. Therefore, the result is interpreted together with the procedural safeguards and the evidence of construct distinctiveness provided by the measurement model.

3.3.8. Ethics and Informed Consent

The study involved voluntary participation in an anonymous academic survey. Respondents were informed of the academic purpose of the study, and no personally identifying information was collected. Participation was voluntary, and respondents could choose whether to complete and submit the questionnaire.

No formal written informed consent document was collected as part of the survey procedure. Instead, informed consent was indicated through the voluntary completion and submission of the questionnaire after respondents had been informed about the academic purpose of the study and the voluntary nature of participation.

No institutional ethics committee approval was obtained for this study because, under the applicable institutional and national requirements governing the data collection procedure, formal institutional ethical approval was not required for this anonymous, non-interventional survey. No retrospective ethical approval is implied.

3.4. Methodological Alignment With the Human and Organizational Perspective

The revised theoretical positioning does not alter the empirical variables originally measured in the study. Instead, it provides a broader interpretation of the mechanisms underlying marketing-logistics collaboration.

Specifically, the study does not claim to statistically estimate the effects of employee collaboration capability, cross-functional training, incentive systems, or performance-management practices because these variables were not included as independent constructs in the original questionnaire. The human and

organizational perspective is therefore incorporated through the interpretation of marketing-logistics collaboration as a process implemented by employees and managers within organizational structures.

This distinction is methodologically important. The empirical model directly tests marketing-logistics collaboration, information sharing quality, and supply chain performance, while CPFR and VMI represent specific collaborative practices. Human and organizational factors including communication, role clarity, cross-functional coordination, managerial support, shared objectives, and collaborative capabilities—provide the theoretical conditions through which these practices can be implemented effectively.

4. Results

4.1. Measurement Model Assessment

The measurement model was first assessed using Confirmatory Factor Analysis (CFA) to establish the reliability, convergent validity, and discriminant validity of the study constructs.

Table 2. Measurement Items and Standardized Factor Loadings

Construct	Item	Measurement item	Standardized loading
Marketing-Logistics Collaboration	MLC1	Marketing and logistics jointly develop plans for promotional activities.	0.74
	MLC2	Marketing and logistics coordinate their activities when planning promotions.	0.77
	MLC3	Marketing and logistics jointly plan inventory requirements related to market demand.	0.80
	MLC4	Relevant sales and point-of-sale information is regularly shared between marketing and logistics.	0.76
	MLC5	Marketing and logistics exchange information to coordinate supply and demand decisions.	0.79
	MLC6	Logistics activities are integrated with marketing activities and decisions.	0.75
	MLC7	Marketing and logistics work together to resolve operational problems.	0.78
	MLC8	Marketing and logistics coordinate their processes across functional boundaries.	0.73
CPFR Implementation	CPFR1	Our organization jointly develops demand forecasts with its retail/manufacturing partners.	0.77
	CPFR2	Sales forecasts are developed collaboratively with supply chain partners.	0.80
	CPFR3	Promotional plans are incorporated into collaborative forecasting activities.	0.79
	CPFR4	Forecast information is jointly reviewed and adjusted with supply chain partners.	0.78
	CPFR5	Replenishment decisions are coordinated with collaborative forecasts.	0.81
	CPFR6	Our organization regularly evaluates collaborative forecasting and replenishment activities.	0.76
VMI Adoption	VMI1	Suppliers monitor inventory levels for the products they supply.	0.76
	VMI2	Suppliers participate actively in replenishment decisions.	0.80
	VMI3	Inventory information is shared with suppliers to support replenishment.	0.79
	VMI4	Suppliers have responsibility for maintaining agreed inventory levels.	0.78

Continued table:

Construct	Item	Measurement item	Standardized loading
Information Sharing Quality	ISQ1	Information received from supply chain partners is timely.	0.79
	ISQ2	Information exchanged with supply chain partners is accurate.	0.82
	ISQ3	Information exchanged between partners is complete.	0.81
	ISQ4	Information shared by partners is relevant to operational decision-making.	0.80
	ISQ5	Information received from partners is useful for coordinating supply chain activities.	0.84
Supply Chain Performance	SCP1	Our organization achieves high inventory management performance relative to key competitors.	0.74
	SCP2	Our organization experiences low levels of stockouts relative to key competitors.	0.78
	SCP3	Our organization achieves high order fulfillment performance relative to key competitors.	0.77
	SCP4	Our organization achieves high forecast accuracy relative to key competitors.	0.76
	SCP5	Our organization achieves strong sales growth relative to key competitors.	0.80
	SCP6	Our organization achieves satisfactory profitability relative to key competitors.	0.78
	SCP7	Our organization achieves strong return on assets relative to key competitors.	0.75

The results indicated a satisfactory fit between the measurement model and the observed data, with $\chi^2(284) = 412.36$ ($p < 0.001$), CFI $= 0.94$, TLI $= 0.93$, and RMSEA $= 0.057$ (90% CI: 0.045–0.068). As shown in **Table 2**, all standardized factor loadings were statistically significant ($p < 0.001$) and exceeded the recommended threshold of 0.50, providing evidence that the observed indicators adequately represented their respective latent constructs.

Table 3. Reliability and Validity Statistics

Construct	Items	Cronbach's α	CR	AVE
Marketing-Logistics Collaboration	8	0.91	0.92	0.58
CPFR Implementation	6	0.89	0.89	0.62
VMI Adoption	4	0.85	0.86	0.61
Information Sharing Quality	5	0.88	0.88	0.65
Supply Chain Performance	7	0.90	0.90	0.58

Table 3 presents the reliability and convergent validity statistics. Cronbach's alpha values ranged from 0.85 to 0.91, while composite reliability values ranged from 0.86 to 0.92. These values exceed the commonly accepted threshold of 0.70 and indicate satisfactory internal consistency. AVE values ranged from 0.58 to 0.65, exceeding the 0.50 threshold and supporting convergent validity.

Table 4. HTMT Ratios for Discriminant Validity

Construct	MLC	CPFR	VMI	ISQ	SCP
Marketing-Logistics Collaboration (MLC)	—	0.74	0.63	0.79	0.65

Continued table:

Construct	MLC	CPFR	VMI	ISQ	SCP
CPFR Implementation	0.74	—	0.67	0.70	0.61
VMI Adoption	0.63	0.67	—	0.56	0.53
Information Sharing Quality (ISQ)	0.79	0.70	0.56	—	0.68
Supply Chain Performance (SCP)	0.65	0.61	0.53	0.68	—

Note: HTMT values below 0.85 indicate satisfactory discriminant validity. MLC = Marketing-Logistics Collaboration; CPFR = Collaborative Planning, Forecasting, and Replenishment; VMI = Vendor-Managed Inventory; ISQ = Information Sharing Quality; SCP = Supply Chain Performance.

Discriminant validity was assessed by comparing the square root of AVE with the correlations between constructs. The square root of AVE exceeded the corresponding interconstruct correlations. As reported in **Table 4**, all HTMT ratios were below 0.85, supporting discriminant validity among the constructs

.

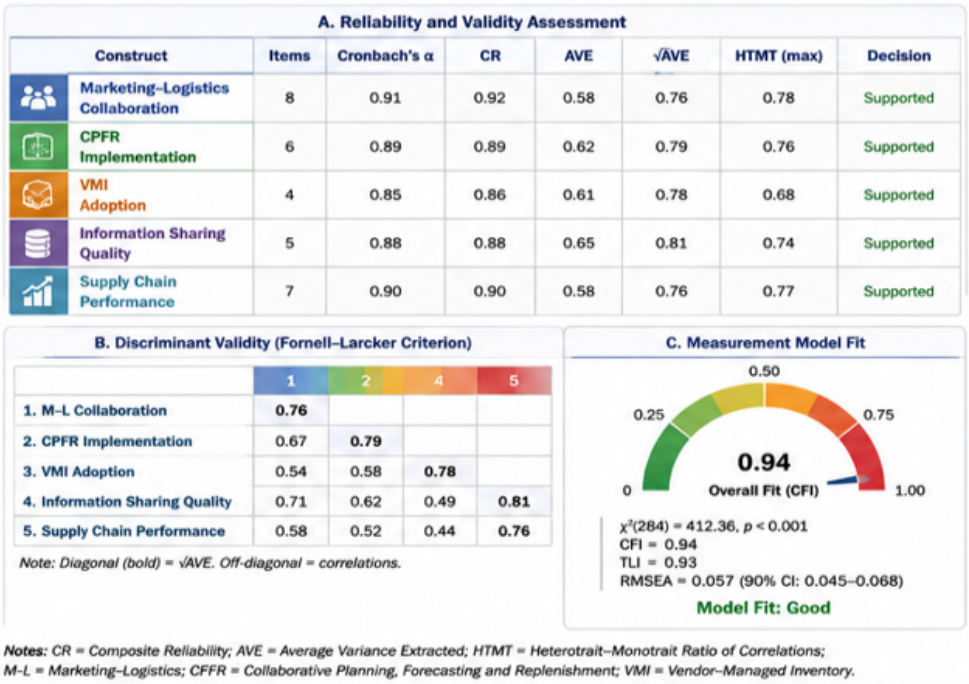


Figure 2 summarizes the results of the measurement model evaluation, including reliability, validity, and model fit. Taken together, these results support the adequacy of the measurement model for subsequent structural model analysis.

4.2. Descriptive Statistics and Correlations

Table 5 presents the descriptive statistics and correlations among the principal study variables. Marketing-logistics collaboration had a mean of 4.87 (SD = 1.23), while CPFR implementation had a mean of 4.12 (SD = 1.45) and VMI adoption had a mean of 3.76 (SD = 1.52). Information sharing quality had a mean of 4.53 (SD = 1.31), and supply chain performance had a mean of 4.92 (SD = 1.18).

Table 5. Descriptive Statistics and Correlations

Variable	Mean	SD	1	2	3	4	5
1. Marketing-Logistics Collaboration	4.87	1.23	1.00				
2. CPFR Implementation	4.12	1.45	0.67**	1.00			

Continued table:

Variable	Mean	SD	1	2	3	4	5
3. VMI Adoption	3.76	1.52	0.54**	0.58**	1.00		
4. Information Sharing Quality	4.53	1.31	0.71**	0.62**	0.49**	1.00	
5. Supply Chain Performance	4.92	1.18	0.58**	0.52**	0.44**	0.61**	1.00

Note: N = 142. p < 0.01. M-L = Marketing-Logistics; SC = Supply Chain.

Marketing-logistics collaboration was positively correlated with CPFR implementation ($r = 0.67$, $p < 0.01$) and VMI adoption ($r = 0.54$, $p < 0.01$). The positive correlations among the collaboration-related variables provide preliminary evidence of the interconnected nature of collaborative practices within manufacturer-retailer relationships.

Supply chain performance was also positively associated with the collaboration-related constructs. In particular, the reported correlation between marketing-logistics collaboration and supply chain performance was $r = 0.58$ ($p < 0.01$), while the correlations with CPFR implementation and VMI adoption were $r = 0.52$ and $r = 0.44$, respectively ($p < 0.01$).

These descriptive results are consistent with the conceptual argument that stronger collaborative relationships are associated with more favorable performance outcomes.

4.3. Structural Model and Hypothesis Testing

The structural model demonstrated an acceptable fit to the data, with $\chi^2(286) = 428.74$ ($p < 0.001$), CFI $= 0.93$, TLI $= 0.92$, and RMSEA $= 0.059$ (90% CI: 0.048–0.070).

The estimated structural paths are presented in **Figure 3**. The path from marketing-logistics collaboration to information sharing quality was positive and statistically significant ($\beta = 0.712$, $p < 0.001$). Information sharing quality also had a significant positive relationship with supply chain performance ($\beta = 0.423$, $p < 0.001$). The direct effect of marketing-logistics collaboration on supply chain performance was positive and significant ($\beta = 0.312$, $p < 0.001$), while the total effect was $\beta = 0.613$.

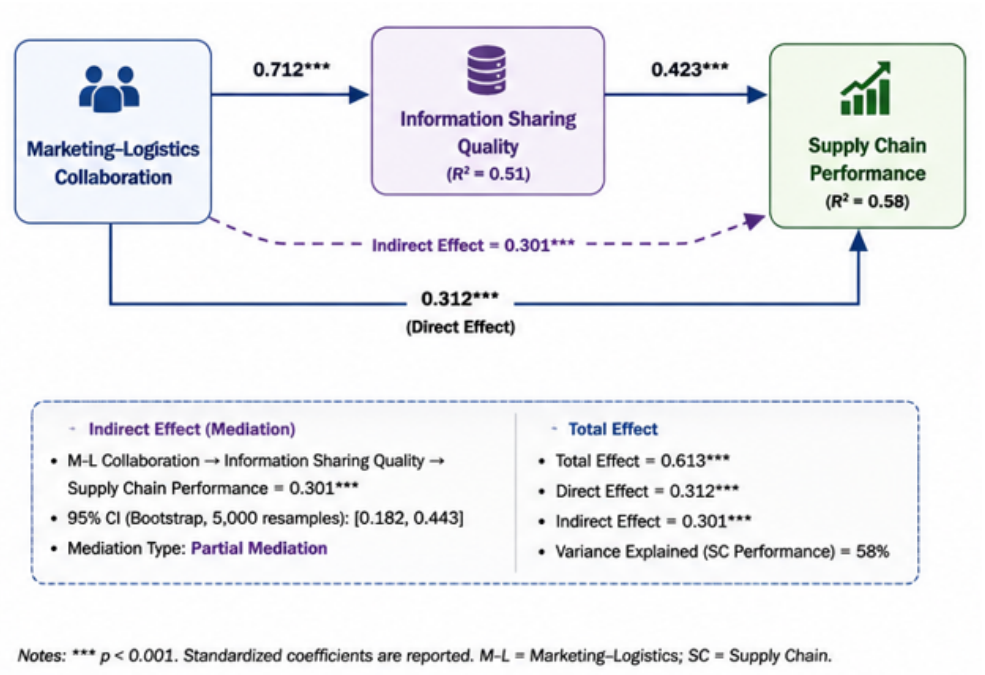


Figure 3. Structural Model Results: Direct and Indirect Effects

4.3.1. Hypothesis 1: Marketing-Logistics Collaboration and Supply Chain Performance

H1 proposed that marketing-logistics collaboration intensity would be positively associated with supply chain performance.

The results support H1. The direct path from marketing-logistics collaboration to supply chain performance was positive and statistically significant ($\beta = 0.312$, $p < 0.001$). This finding indicates that stronger collaborative relationships between manufacturers and retailers are associated with improved supply chain performance.

From the human and organizational perspective adopted in this study, this relationship suggests that coordination between marketing and logistics actors can contribute to performance when organizational partners are able to align activities, exchange relevant information, and coordinate interdependent decisions.

H1: Supported.

4.3.2. Hypothesis 2: The Mediating Role of Information Sharing Quality

H2 proposed that information sharing quality mediates the relationship between marketing-logistics collaboration and supply chain performance.

The mediation analysis was conducted using bootstrap resampling. The indirect effect of marketing-logistics collaboration on supply chain performance through information sharing quality was statistically significant ($\beta = 0.301$, 95% CI [0.182, 0.443]). Because the confidence interval does not include zero, the indirect effect is statistically significant.

The total effect of collaboration on performance was $\beta = 0.613$, comprising a direct effect of $\beta = 0.312$ and an indirect effect of $\beta = 0.301$ through information sharing quality. The results therefore indicate partial mediation.

This result is particularly important for the revised theoretical positioning of the study. It suggests that collaboration generates performance benefits not only through direct coordination but also through the quality of information exchanged among organizational actors. Information sharing therefore represents a key organizational mechanism through which collaborative relationships can be translated into coordinated action and performance outcomes.

H2: Supported.

4.4. Multi-Group Comparison by Retail Format

To explore whether the relationship between marketing-logistics collaboration and supply chain performance varies across retail formats, a multi-group comparison was conducted between hypermarkets and supermarkets. The analysis included 54 hypermarket observations and 62 supermarket observations. The 26 discount-store observations were retained in the overall dataset but were not included in this two-group comparison because of their smaller subgroup size.

Table 6 presents the estimated collaboration–performance relationships for hypermarkets and supermarkets. The results indicate differences in the estimated collaboration-performance relationship across the two retail formats. However, given the absence of a formally established measurement-invariance assessment prior to the group comparison, these differences should be interpreted as exploratory evidence rather than as definitive evidence of structural moderation.

Accordingly, the results provide preliminary support for the proposition that retail format may condition the relationship between marketing-logistics collaboration and supply chain performance. Further research using larger samples and formally established measurement invariance is required to confirm the moderating effect.

Table 6. Multi-Group Comparison by Retail Format

Structural Path	Hypermarket	Supermarket	$\Delta\chi^2$
Collaboration → Performance	0.67***	0.42***	8.42**
Collaboration → Information Sharing	0.74***	0.68***	1.23
Information Sharing → Performance	0.51***	0.38**	2.15

Note: *** $p < 0.001$; ** $p < 0.01$.

The direct effect of marketing-logistics collaboration on supply chain performance was significantly stronger among hypermarkets ($\beta = 0.67$) than among supermarkets ($\beta = 0.42$). The chi-square difference was statistically significant, $\Delta\chi^2(1) = 8.42$, $p < 0.01$.

By contrast, the differences between the two formats for the collaboration-information sharing path ($\Delta\chi^2 = 1.23$) and the information sharing-performance path ($\Delta\chi^2 = 2.15$) were not statistically significant at the reported level.

Thus, the evidence specifically supports a moderating effect of retail format on the direct collaboration-performance relationship, rather than on all structural paths in the model.

H3: Exploratory support

From a human and organizational perspective, the stronger collaboration-performance relationship observed in hypermarkets may be associated with differences in organizational scale, available resources, technological infrastructure, and the formalization of coordination mechanisms. However, these factors should be interpreted as possible contextual explanations rather than as empirically tested mediators or moderators in the present study.

4.5. Additional Analyses: CPFR and VMI

Supplementary regression analyses were conducted to examine the association between specific collaborative practices and supply chain performance. CPFR and VMI were entered separately and jointly, while relationship duration and firm size were included as control variables.

CPFR showed a significant positive association with supply chain

performance when entered separately ($\beta = 0.34$, $p < 0.001$). VMI also showed a significant positive association when entered separately ($\beta = 0.22$, $p < 0.01$). When both practices were entered simultaneously, CPFR remained strongly significant ($\beta = 0.28$, $p < 0.001$), while VMI remained significant at the 5% level with a smaller coefficient ($\beta = 0.14$, $p < 0.05$).

The supplementary results therefore suggest that both collaborative practices are positively associated with supply chain performance, although CPFR exhibits the stronger association in the combined specification. These findings provide complementary evidence concerning specific operational manifestations of collaboration but do not modify the principal SEM or introduce CPFR and VMI as additional structural constructs.

Additional analyses were conducted to examine the individual contribution of CPFR implementation and VMI adoption to supply chain performance. The regression results are presented in **Table 7**.

Table 7. Regression Results: Collaboration Practices and Performance

Variable	Model 1	Model 2	Model 3	Model 4
Control Variables				
Relationship Duration	0.12	0.08	0.09	0.07
Firm Size	0.15*	0.11	0.13	0.10
Main Effects				
CPFR Implementation	—	0.34***	—	0.28***
VMI Adoption	—	—	0.22**	0.14*
R^2	0.04	0.15	0.10	0.18
ΔR^2	—	0.11	0.06	0.03
F-statistic	2.89	7.84***	5.12**	7.62***

*Note: Standardized coefficients reported. * p < 0.05; ** p < 0.01; *** p < 0.001.*

Both CPFR and VMI showed significant positive relationships with supply chain performance when entered separately. CPFR produced a standardized coefficient of $\beta = 0.34$ ($p < 0.001$), while VMI produced $\beta = 0.22$ ($p < 0.01$). When both practices were included simultaneously, CPFR remained strongly significant ($\beta = 0.28$, $p < 0.001$), whereas VMI remained statistically significant at the 5% level but with a smaller coefficient ($\beta = 0.14$, $p < 0.05$).

These findings suggest that CPFR may have a comparatively stronger association with supply chain performance than VMI in the Moroccan context. The result is also consistent with the human and organizational interpretation of CPFR as a practice requiring sustained coordination among actors involved in demand planning, forecasting, and replenishment.

The supplementary analyses further examined the relationships between specific collaborative practices and supply chain performance. CPFR and VMI were considered as operational manifestations of collaborative practice rather than as separate latent constructs in the principal SEM.

The regression results provide additional evidence regarding the performance relevance of these practices. However, these findings are interpreted as supplementary to the main structural model and are not used to establish additional causal paths within the proposed conceptual framework.

4.6. Performance Outcomes by Retail Partner

The main analysis of supply chain performance is based on respondents' subjective assessments of their organization's performance relative to key competitors. Accordingly, the study does not claim to provide independently

verified objective performance differences between Marjane Holding and Label'Vie Group.

Because the survey dataset does not provide independently verified organizational records for indicators such as inventory turnover, stockout rates, order fulfillment, forecast accuracy, or sales growth, these indicators are not used as objective measures in the hypothesis-testing analysis. The principal performance construct remains the seven-item perceptual scale described in Section 3.2.5.

Any comparison between the two retail groups should therefore be interpreted only in terms of the survey-based measures included in the empirical model and not as evidence based on independently verified operational records.

4.7. Summary of Hypothesis Testing

Table 8 summarizes the hypothesis-testing results, distinguishing the supported direct and indirect relationships from the exploratory findings concerning retail format.

Table 8. Summary of Hypothesis Testing

Hypothesis	Relationship	Result
H1	Marketing-Logistics Collaboration → Supply Chain Performance	**Supported**
H2	Marketing-Logistics Collaboration → Information Sharing Quality → Supply Chain Performance	**Supported**
H3	Retail Format moderates Marketing-Logistics Collaboration → Supply Chain Performance	**Exploratory support**

Overall, the results provide empirical support for the proposed conceptual framework. Marketing-logistics collaboration has a significant positive direct relationship with supply chain performance, while information sharing quality constitutes a significant mediating mechanism. In addition, the strength of the direct collaboration-performance relationship varies significantly according to retail format, with a stronger effect observed among hypermarkets.

Taken together, these findings support the interpretation of marketing-logistics collaboration as more than a purely operational integration mechanism. The significant role of information sharing indicates that the effectiveness of collaboration depends on the ability of organizational actors to exchange and use information in coordinated decision-making processes. This provides an empirical basis for the human and organizational perspective developed in the theoretical framework.

5. Discussion

5.1. Key Findings and Theoretical Implications

This study examined how marketing-logistics collaboration between manufacturers and retailers is associated with supply chain performance in the Moroccan mass retailing sector, with particular attention to the organizational mechanisms through which collaboration operates. Based on survey data from 142 organizational observations, the results provide support for the proposed relationships between marketing-logistics collaboration, information sharing quality, and supply chain performance. Marketing-logistics collaboration is positively associated with supply chain performance, information sharing quality significantly mediates this relationship, and the strength of the direct collaboration-performance relationship differs across retail formats.

The findings extend the established literature on marketing-logistics integration by confirming the performance relevance of cross-functional and

interorganizational coordination in an emerging-market context. Previous research has shown that integration between marketing and logistics can improve organizational performance by reducing functional misalignment and facilitating coordinated decision-making [1]–[3]. The present findings are consistent with this perspective and extend it to Moroccan mass retailing, where manufacturers and retailers operate within rapidly evolving organizational and technological environments.

An important theoretical implication of this study concerns the role of human and organizational drivers in shaping marketing-logistics collaboration. Although these drivers were not operationalized as separate latent constructs in the empirical model, the theoretical framework highlights their importance as the organizational conditions through which collaborative practices are enabled and implemented. Effective collaboration requires organizational actors to communicate across functional boundaries, clarify responsibilities, develop shared objectives, and receive adequate managerial and organizational support.

The findings therefore suggest that the performance implications of marketing-logistics collaboration should not be understood exclusively in technological or process terms. Collaborative practices ultimately depend on the capacity of organizational actors to coordinate activities, exchange useful information, and translate shared information into joint decisions. This perspective reinforces the importance of integrating human and organizational considerations into explanations of interorganizational supply chain collaboration.

At the same time, because these human and organizational factors were not separately measured and tested in the present study, their effects should be interpreted as theoretically informed mechanisms rather than as statistically established causal drivers. Future research could operationalize these dimensions explicitly and examine their direct and indirect effects within a more comprehensive structural model.

5.1.1. Marketing-Logistics Collaboration and Supply Chain Performance

The results provide support for H1. Marketing-logistics collaboration has a significant positive direct association with supply chain performance ($\beta = 0.312$, $p < 0.001$). This finding is consistent with previous evidence indicating that integration between marketing and logistics contributes to operational and financial performance [2], [7].

Importantly, the revised interpretation of this finding goes beyond viewing collaboration exclusively as an operational integration mechanism. Marketing and logistics activities are performed by organizational actors who must coordinate information, responsibilities, decisions, and expectations across functional boundaries. Consequently, collaboration effectiveness depends not only on the existence of technological or procedural integration but also on the organizational capacity to coordinate people and activities.

This interpretation is particularly relevant to collaborative practices such as CPFR. CPFR requires partners to jointly develop forecasts, coordinate promotional plans, and align replenishment decisions. Previous research has identified top-management support, clearly defined roles and responsibilities, joint performance measures, compatible information systems, and equitable sharing of costs and benefits as important conditions for successful CPFR implementation [8], [9]. The present findings therefore suggest that the performance value of marketing-logistics collaboration should be understood as an organizational coordination phenomenon rather than simply as a technical supply chain mechanism.

From this perspective, collaboration creates value when individuals and teams are able to transform shared information into coordinated decisions and

actions. This provides a stronger organizational interpretation of the significant relationship identified in H1 while remaining consistent with the variables actually measured in the study.

H1: Supported.

5.1.2. Information Sharing Quality as an Organizational Coordination Mechanism

The mediation results provide support for H2. The indirect effect of marketing-logistics collaboration on supply chain performance through information sharing quality was statistically significant ($\beta = 0.301$, 95% CI [0.182, 0.443]). Because the confidence interval does not include zero, the indirect effect is statistically significant.

The total effect was $\beta = 0.613$, comprising a direct effect of $\beta = 0.312$ and an indirect effect of $\beta = 0.301$. The results therefore indicate partial mediation. This finding suggests that the performance relevance of collaboration operates partly through the quality of information exchanged among organizational actors.

The result is particularly consistent with the human and organizational perspective developed in this study. Information sharing requires more than technological connectivity: organizational actors must be able to communicate, interpret information, coordinate responsibilities, and use shared information in joint decision-making. Information sharing quality can therefore be understood as an organizational coordination mechanism linking collaborative relationships to performance outcomes.

Nevertheless, the cross-sectional design does not permit a definitive causal interpretation of the mediation pathway. The findings should therefore be interpreted as evidence of an empirically significant indirect association rather than proof of temporal causality.

5.1.3. Retail Format as a Contextual Boundary Condition

The multi-group analysis provides Exploratory support for H3. The direct relationship between marketing-logistics collaboration and supply chain performance is significantly stronger among hypermarkets ($\beta = 0.67$) than among supermarkets ($\beta = 0.42$), with $\Delta\chi^2(1) = 8.42$, $p < 0.01$.

This finding suggests that organizational context matters when evaluating the effectiveness of collaboration. Hypermarkets generally operate with greater scale and resource availability, which may facilitate the development of more formalized coordination processes and information-sharing infrastructures. The stronger relationship observed in this format is therefore consistent with the argument that organizational resources and technological capabilities can facilitate collaborative practices.

However, the results do not demonstrate that organizational size, employee skills, or technological infrastructure statistically mediate the observed difference. These factors should therefore be interpreted as contextual explanations rather than empirically tested mechanisms.

The absence of significant differences for the collaboration-information sharing path ($\Delta\chi^2 = 1.23$, $p = 0.27$) and the information sharing-performance path ($\Delta\chi^2 = 2.15$, $p = 0.14$) is also informative. It suggests that retail format primarily conditions the direct performance value of collaboration rather than systematically altering every relationship in the model.

This finding highlights the importance of organizational structure in determining how collaborative practices are converted into performance outcomes.

H3: Exploratory support.

5.2. Human and Organizational Interpretation of Collaboration

The main theoretical contribution of the revised study lies in positioning

marketing-logistics collaboration as a human and organizational coordination process rather than solely as an operational integration mechanism.

The empirical model does not directly measure employee collaboration capability, training, incentive systems, or employee performance. Accordingly, these variables should not be presented as empirically tested determinants. Nevertheless, the results provide a basis for interpreting collaboration through the organizational mechanisms identified in the existing literature.

First, collaboration requires cross-functional coordination. Marketing and logistics employees operate with different objectives, information sources, performance priorities, and professional responsibilities. Effective collaboration therefore requires mechanisms that enable these actors to coordinate decisions and resolve functional conflicts. Previous research identifies interfunctional coordination, information sharing, and joint planning as central dimensions of marketing-logistics integration [2].

Second, collaboration requires role clarity and organizational responsibility. CPFR, for example, involves multiple stages of planning, forecasting, execution, and performance evaluation. Ambiguous responsibilities can create delays, duplicated activities, or conflicting decisions. Previous research identifies clear roles and responsibilities as an important condition for successful CPFR implementation [8].

Third, collaboration requires organizational learning and capability development. Employees involved in collaborative planning must be capable of interpreting shared information and adapting decisions to changing demand and supply conditions. Although training and skill development were not directly measured in the present study, they represent plausible organizational mechanisms that can strengthen the implementation of collaboration practices.

Fourth, collaboration can be influenced by performance-management systems. When marketing and logistics employees are evaluated exclusively according to functional objectives, collaboration may generate organizational tensions. Joint performance indicators can instead encourage actors to pursue shared outcomes. The literature on CPFR emphasizes the importance of joint performance metrics in supporting collaborative arrangements [8].

Finally, collaboration requires managerial support and organizational commitment. Collaborative practices frequently require changes to established routines, information-sharing practices, and decision-making structures. Without managerial support, employees may have limited incentives or authority to engage in cross-functional coordination.

Thus, the findings suggest that the effectiveness of marketing-logistics collaboration should be understood as the result of an interaction between processes, information, organizational structures, and human coordination.

5.3. Human and Organizational Drivers as a Theoretical Perspective

An important contribution of this study is its interpretation of marketing-logistics collaboration through a human and organizational perspective. The findings should not be understood as indicating that specific human resource practices were statistically established as determinants of collaboration, since employee training, incentive systems, role clarity, managerial support, and employee collaboration capabilities were not operationalized as separate latent constructs in the survey.

Rather, the human and organizational perspective provides the theoretical lens through which the empirical relationships are interpreted. Marketing-logistics collaboration is implemented by organizational actors who must communicate across functional boundaries, coordinate responsibilities, develop shared understandings, and translate information into joint decisions. Organizational

structures and managerial practices can create the conditions that facilitate or constrain these behaviors.

This interpretation is particularly relevant to the significant role of information sharing quality. Information has limited organizational value if employees cannot interpret it, communicate it appropriately, or incorporate it into coordinated decisions. Consequently, the performance implications of collaboration may depend on the organizational capacity of the individuals and teams involved.

The findings therefore extend the understanding of marketing-logistics collaboration beyond a purely technological or operational perspective. They suggest that collaboration should be considered as a socio-organizational process involving people, information, processes, responsibilities, and organizational routines.

At the same time, the human and organizational drivers identified in the theoretical framework should not be presented as empirically confirmed determinants in the current study. Their potential effects constitute an important avenue for future research, which could explicitly measure employee collaboration capability, cross-functional training, role clarity, managerial support, incentive alignment, and joint performance-management systems.

5.4. Managerial Implications

The findings provide several implications for managers in Moroccan mass retailing.

5.4.1. Develop Cross-Functional Collaboration Structures

Manufacturers and retailers should establish formal cross-functional teams bringing together marketing, logistics, sales, procurement, and supply chain personnel. Such teams can facilitate the integration of promotional planning, demand forecasting, inventory management, and replenishment decisions.

This recommendation is particularly relevant because CPFR requires coordination across several organizational functions rather than isolated implementation within a single department [8], [9].

5.4.2. Strengthen Information-Sharing Quality

The significant mediating role of information sharing quality indicates that managers should focus not only on increasing the quantity of information exchanged but also on its accuracy, timeliness, accessibility, and usability.

Information systems should therefore be accompanied by organizational procedures defining who provides information, who validates it, who interprets it, and how it is incorporated into joint decisions.

5.4.3. Invest in Skills for Cross-Functional Coordination

Although employee training was not directly tested in this study, the organizational interpretation of the findings suggests that employees involved in marketing-logistics collaboration require appropriate skills in data interpretation, collaborative planning, communication, negotiation, and cross-functional problem solving.

Training programs should therefore complement investments in digital infrastructure and collaborative technologies.

5.4.4. Align Performance Management With Collaborative Objectives

Managers should avoid relying exclusively on function-specific performance indicators. Marketing teams evaluated primarily on sales growth and logistics teams evaluated primarily on inventory costs may have conflicting incentives.

Joint indicators covering forecast accuracy, stock availability, order fulfillment, inventory turnover, and service quality could encourage employees

from different functions to pursue shared supply chain outcomes. The importance of joint performance metrics has also been highlighted in research on CPFR [8].

5.4.5. Adapt Collaboration to Retail Format

The significant difference between hypermarkets and supermarkets indicates that a uniform collaboration strategy may not be equally effective across retail formats.

Hypermarkets may have sufficient scale and resources to implement comprehensive CPFR and VMI programs, whereas supermarkets may benefit from more targeted approaches focused on high-volume products, demand visibility, and critical information-sharing processes.

The managerial objective should therefore be to match the intensity of collaboration with organizational capacity and retail format rather than assuming that more complex collaboration is always superior.

5.5. Implications for the Moroccan Retail Sector

The findings have broader implications for the modernization of Moroccan retailing. The modern retail sector is characterized by the coexistence of different retail formats and a relatively concentrated market structure. The study's evidence suggests that collaboration between manufacturers and major retailers can contribute to operational efficiency, particularly through improved information exchange and coordinated planning.

The findings have broader implications for the modernization of Moroccan retailing. The modern retail sector is characterized by the coexistence of different retail formats and a relatively concentrated market structure. The study's evidence suggests that collaboration between manufacturers and major retailers can be associated with improved supply chain performance, particularly when information can be exchanged and used effectively for coordinated planning and decision-making.

The multi-group results further indicate that the strength of the collaboration-performance relationship differs across retail formats. This finding suggests that organizational context should be considered when designing collaborative arrangements. However, because the study relies primarily on perceptual survey measures, these results should not be interpreted as independently verified differences in operational performance between retail groups.

From a managerial perspective, this suggests that the development of collaborative capabilities may constitute an important component of the continuing modernization of Moroccan retail supply chains.

From a managerial perspective, this suggests that the development of collaborative capabilities may constitute an important component of the continuing modernization of Moroccan retail supply chains.

At the same time, the concentrated structure of modern retail creates an important organizational challenge. Differences in bargaining power between large retailers and manufacturers may influence information-sharing behavior, trust, and perceptions of equitable benefit distribution. Existing research identifies power imbalance and concerns about information leakage as potential barriers to collaborative initiatives [8].

Consequently, collaboration strategies should not focus exclusively on technological integration. They should also establish clear governance mechanisms, shared objectives, transparent responsibilities, and mutually agreed performance criteria.

5.6. Limitations and Future Research

Several limitations should be acknowledged.

First, the cross-sectional research design limits causal inference. Although the findings demonstrate statistically significant associations among collaboration, information sharing quality, and supply chain performance, they do not establish temporal causality. Reverse causality is also possible because higher-performing organizations may have greater resources or incentives to invest in collaboration. Longitudinal research would therefore be valuable for examining the evolution of collaborative relationships and the temporal ordering of the proposed mechanisms.

Second, the study relies primarily on perceptual survey measures of supply chain performance. Although this approach enables the multidimensional assessment of performance, it may be subject to respondent perceptions and common method variance. Future research should combine survey measures with independently verified organizational performance records where access to such data is possible.

Third, the empirical model does not directly operationalize the human and organizational drivers emphasized in the theoretical framework. Variables such as employee collaboration capability, cross-functional training, role clarity, managerial support, incentive alignment, and joint performance-management systems were not measured as separate explanatory constructs. Future research should explicitly operationalize these dimensions and examine their direct, mediating, or moderating effects on marketing-logistics collaboration.

Fourth, the multi-group comparison is based on relatively small subgroup sizes, with 54 hypermarket and 62 supermarket observations. The 26 discount-store observations were retained in the overall sample but were not included in the reported two-group comparison. The relatively small subgroup sizes may affect parameter stability and statistical power. Furthermore, definitive cross-group comparisons require evidence of measurement invariance. The H3 findings should therefore be interpreted cautiously and confirmed in future studies using larger samples and formal measurement-invariance procedures.

Fifth, the final sample is concentrated on organizations associated with the two major modern retail groups represented in the study. This limits the generalizability of the findings to smaller retailers and traditional retail channels. Future research should examine whether the observed relationships are similar across a broader range of Moroccan retail organizations.

Finally, the study examines collaboration primarily at the organizational manufacturer-retailer interface and does not incorporate distributors, logistics providers, or other supply chain actors. Future research could adopt a multi-tier or network perspective to examine how human and organizational capabilities develop across more complex supply chain structures and compare the Moroccan context with other emerging-market economies.

6. Conclusion

This study examined the relationship between marketing-logistics collaboration and supply chain performance in Moroccan mass retailing, with particular attention to the organizational mechanisms through which collaboration is translated into performance. Based on structural equation modeling of survey data from 142 organizational observations, the study provides empirical support for the proposed relationships between marketing-logistics collaboration, information sharing quality, and supply chain performance.

The findings demonstrate that marketing-logistics collaboration is significantly associated with supply chain performance. More importantly, the results indicate that information sharing quality represents a significant mediating mechanism in this relationship. The indirect effect is statistically significant,

while the direct effect remains significant, indicating partial mediation. These findings suggest that collaboration generates performance value not simply through the existence of collaborative arrangements, but through the ability of organizational actors to exchange and use information effectively in coordinated decision-making processes.

The study also identifies an important contextual difference across retail formats. The direct relationship between collaboration and supply chain performance is significantly stronger among hypermarkets than supermarkets. This finding indicates that the organizational context in which collaboration takes place matters for its performance implications. Rather than assuming that a single collaboration model is equally effective across all retail formats, manufacturers and retailers should consider differences in organizational scale, resources, coordination structures, and implementation capabilities when designing collaborative arrangements.

From a theoretical perspective, the study contributes to the literature by extending the analysis of marketing-logistics integration beyond a purely operational perspective. Collaboration between marketing and logistics is ultimately implemented through people, teams, organizational routines, and decision-making structures. The significant role of information sharing observed in this study reinforces this interpretation: information becomes valuable when organizational actors possess the capacity and organizational conditions necessary to interpret it, communicate it, and transform it into coordinated action.

This human and organizational perspective also provides a stronger interpretation of collaborative practices such as CPFR and VMI. Although the present study does not directly test employee training, cross-functional skills, incentive systems, role clarity, or managerial support, these dimensions represent important organizational conditions that may influence the implementation and effectiveness of collaborative practices. Future empirical research should therefore integrate these human and organizational variables into the present framework.

From a managerial perspective, manufacturers and retailers should develop collaboration strategies that combine technological integration with organizational coordination. Investments in information-sharing systems should be accompanied by cross-functional teams, clearly defined responsibilities, joint performance indicators, and appropriate employee capabilities. Collaborative planning should also be adapted to the characteristics of individual retail formats rather than implemented through a uniform model.

These implications are particularly relevant to the continuing transformation of Moroccan retailing. The existing study indicates that effective collaboration between manufacturers and retailers can contribute to supply chain efficiency, while the original analysis also emphasizes the importance of information-sharing capabilities, CPFR implementation, and adaptation to retail format.

Nevertheless, the findings should be interpreted in light of the study's limitations. The cross-sectional design prevents strong causal inference, and reverse causality remains possible. The use of perceptual performance measures may also introduce common method bias. In addition, the concentration of the sample on the two dominant modern retail groups limits generalizability to smaller retailers and traditional retail channels.

Future research should therefore adopt longitudinal designs, incorporate objective performance indicators, and extend the empirical model to include human and organizational variables such as employee collaboration capability, cross-functional training, role clarity, managerial support, incentive alignment, and joint performance-management systems. Research could also examine multi-tier supply chain networks and compare Morocco with other North African and

emerging-market contexts.

Overall, the findings indicate that successful marketing-logistics collaboration should not be understood solely as a matter of operational integration or technological connectivity. Its effectiveness depends on the organizational capacity to coordinate people, information, processes, and decisions across functional and interorganizational boundaries. In this sense, the development of human and organizational capabilities represents an important avenue for strengthening collaborative performance in Moroccan mass retailing.

Author contributions: Conceptualization, Fatima Ezzahra Mnajli ; methodology, Fatima Ezzahra Mnajli ; Meriem Azari and Hind Benkirane ; software, Mohammed Benelmallam; validation, Abdellatif Messoudi ; formal analysis, Nabil Nadia and Abdellatif Messoudi ; investigation, Fatima Ezzahra Mnajli, and Hind Benkirane; resources, Mohammed Benelmallam and Abdellatif Messoudi ; data curation, Meriem Azari ; writing—original draft preparation, Mohammed Benelmallam; writing—review and editing, Mohammed Benelmallam ; visualization, Fatima Ezzahra Mnajli ; supervision, Abdellatif Messoudi; project administration, Nabil Nadia. All authors have read and agreed to the published version of the manuscript.

Funding: The authors declare that no external funding was received for the conduct of this research, data collection, analysis, or preparation of this article.

Acknowledgments: The authors thank all those who contributed to the completion of this article.

Conflict of interest: The authors declare that there are no conflicts of interest regarding the publication of this article.

References

[1] U. Y. Alvarado and H. Kotzab, “Supply chain management: The integration of logistics in marketing,”Ind. Mark. Manage., vol. 30, no. 2, pp. 183–198, 2001. https://doi.org/10.1016/S0019-8501(00)00142-5

[2] M. J. T. Claassen, A. J. Van Weele, and E. M. Van Raaij, “Performance outcomes and success factors of vendor managed inventory (VMI),”Supply Chain Manage.: Int. J., vol. 13, no. 6, pp. 406–414, 2008. https://doi.org/10.1108/13598540810905660

[3] S. M. Disney and D. R. Towill, “The effect of vendor managed inventory (VMI) dynamics on the Bullwhip effect in supply chains,”Int. J. Prod. Econ., vol. 85, no. 2, pp. 199–215, 2003. https://doi.org/10.1016/S0925-5273(03)00110-5

[4] J. Robinson and P. Ralston, “Process supply chain integration: Construct development and model testing,”Benchmarking: An International Journal, vol. 32, no. 6, pp. 2330–2356, 2025, https://doi.org/10.1108/BIJ-07-2023-0443.

[5] K. Demeter, L. Szász, and B.-G. Rácz, “The impact of subsidiaries’ internal and external integration on operational performance,”International Journal of Production Economics, vol. 205, pp. 13–23, 2018, https://doi.org/10.1016/j.ijpe.2016.08.014.

[6] K. Govindan, “Vendor-managed inventory: A review based on dimensions,”Int. J. Prod. Res., vol. 51, no. 13, pp. 3808–3835, 2013. https://doi.org/10.1080/00207543.2012.751511

[7] A. Bais and K. Amechnoue, “New approaches modeling for making resilient decisions under deep uncertainty to manage the supply chain in downstream,”LogForum, vol. 20, no. 2, art. no. 7, 2024, https://doi.org/10.17270/J.LOG.001030.

[8] R. L. Hollmann, L. F. Scavarda, and A. M. T. Thomé, “Collaborative planning, forecasting and replenishment: A literature review,”Int. J. Product. Perform. Manage., vol. 64, no. 7, pp. 971–993, 2015. DOI : https://doi.org/10.1108/IJPPM-03-2014-0039

[9] K. Mathu and S. Phetla, “Supply chain collaboration and integration enhance the response of fast-moving consumer goods manufacturers and retailers to customer’s requirements,”South Afr. J. Bus. Manage., vol. 49, no. 1, pp. 1–11, 2018. https://doi.org/10.4102/sajbm.v49i1.192

[10] F. Panahifar, C. Heavey, P. J. Byrne, and P. Fazenda, “Developing retailer selection factors for collaborative planning, forecasting and replenishment,”Ind. Manage. Data Syst., vol. 115, no. 7, pp. 1292–1313, 2015. https://doi.org/10.1108/IMDS-01-2015-0009

[11] J. Rezaei, R. Ortt, and P. Trott, “Supply chain drivers, partnerships and performance of high-tech SMEs: An empirical study using SEM,”Int. J. Product. Perform. Manage., vol. 67, no. 4, pp. 629–653, 2018. DOI : https://doi.org/10.1108/IJPPM-01-2017-0017

[12] M. A. Salam, “The mediating role of supply chain collaboration on the relationship between technology, trust and operational performance: An empirical investigation,”Benchmarking: Int. J., vol. 24, no. 2, pp. 298–317, 2017. https://doi.org/10.1108/BIJ-07-2015-0075

[13] K. Sari, “Exploring the benefits of vendor managed inventory,”International Journal of Physical Distribution & Logistics Management, vol. 37, no. 7, pp. 529–545, 2007. https://doi.org/10.1108/09600030710776464.

[14] R. J. Sherman, “Collaborative Planning, Forecasting & Replenishment (CPFR): Realizing the Promise of Efficient Consumer Response through Collaborative Technology,”Journal of Marketing Theory and Practice, vol. 6, no. 4, pp. 6–9, 1998. https://doi.org/10.1080/10696679.1998.11501806.
[15] A. A. Abdul Rahman, U. Imran, F. Naz, and A. Irfan, “Supply chain integration and firm performance: A bibliometric analysis of emerging trends, sustainability, and digital transformation,”International Journal of Financial Studies, vol. 14, no. 4, art. no. 99, 2026, https://doi.org/10.3390/ijfs14040099.
[16] USDA Foreign Agricultural Service, “Retail foods annual: Morocco,”GAIN Rep. MO2025-0016, 2025. https://www.fas.usda.gov/data/gain-report/2025/09/Retail\TU\textbackslash{}%20Foods\TU\textbackslash{}%20Annual_Rabat_Morocco_MO2025-0016.pdf
[17] W. Li, J. He, and Y. Shi, “Contracting supply chains considering retailers’ marketing efforts,”Mathematics, vol. 12, no. 11, art. no. 1635, 2024, https://doi.org/10.3390/math12111635.
[18] A. Hmid, “Consumer perceptions of AI pricing and their implications for destination branding,”in Strategic Branding With Anthropomorphic Service Robots and AI, M. Altaf, Ed. IGI Global, 2026, ch. 5, https://doi.org/10.4018/979-8-2600-3184-1.ch005.
[19] A. Hmid, “Destination marketing innovation: The role of humanlike service robots in brand positioning,”in Strategic Branding With Anthropomorphic Service Robots and AI, M. Altaf, Ed. IGI Global, 2026, ch. 6, https://doi.org/10.4018/979-8-2600-3184-1.ch006.
[20] M. Çerçi, Z. B. Kanık, H. C. Uzgören Kazanç, et al., “Transforming logistics with horizontal collaboration: A systematic review of trends, challenges, and sustainability perspectives,”Review of Managerial Science, 2026, https://doi.org/10.1007/s11846-026-01044-7.
[21] M. Smirnova, S. C. Henneberg, B. Ashnai, P. Naudé, and S. Mouzas, “Understanding the role of marketing–purchasing collaboration in industrial markets: The case of Russia,”Industrial Marketing Management, vol. 40, no. 1, pp. 54–64, 2011, https://doi.org/10.1016/j.indmarman.2010.09.010.
[22] T. P. Stank, P. J. Daugherty, and A. E. Ellinger, “Marketing/logistics integration and firm performance,”The International Journal of Logistics Management, vol. 10, no. 1, pp. 11–24, 1999,
[23] A. E. Ellinger, S. B. Daugherty, and A. E. Ellinger, “Improving marketing/logistics cross-functional collaboration in the supply chain,”Industrial Marketing Management, vol. 29, no. 1, pp. 85–96, 2000, doi:

Appendix A —Measurement Items

All measurement items were assessed using a seven-point Likert scale ranging from 1 = "strongly disagree" to 7 = "strongly agree."

A.1. Marketing-Logistics Collaboration

Code	Item
MLC1	Marketing and logistics jointly develop plans for promotional activities.
MLC2	Marketing and logistics coordinate their activities when planning promotions.
MLC3	Marketing and logistics jointly plan inventory requirements related to market demand.
MLC4	Relevant sales and point-of-sale information is regularly shared between marketing and logistics.
MLC5	Marketing and logistics exchange information to coordinate supply and demand decisions.
MLC6	Logistics activities are integrated with marketing activities and decisions.
MLC7	Marketing and logistics work together to resolve operational problems.
MLC8	Marketing and logistics coordinate their processes across functional boundaries.

Source :Adapted from Stank et al. [22]

A.2. Collaborative Planning, Forecasting, and Replenishment (CPFR)

Code	Item
CPFR1	Our organization jointly develops demand forecasts with its retail/manufacturing partners.
CPFR2	Sales forecasts are developed collaboratively with supply chain partners.
CPFR3	Promotional plans are incorporated into collaborative forecasting activities.
CPFR4	Forecast information is jointly reviewed and adjusted with supply chain partners.
CPFR5	Replenishment decisions are coordinated with collaborative forecasts.
CPFR6	Our organization regularly evaluates collaborative forecasting and replenishment activities.

Source : Adapted from Hollmann et al. [8].

A.3. Vendor-Managed Inventory (VMI)

Code	Item
VMI1	Suppliers monitor inventory levels for the products they supply.
VMI2	Suppliers participate actively in replenishment decisions.
VMI3	Inventory information is shared with suppliers to support replenishment.
VMI4	Suppliers have responsibility for maintaining agreed inventory levels.

Source : Adapted from the VMI literature.

A.4. Information Sharing Quality

Code	Item
ISQ1	Information received from supply chain partners is timely.
ISQ2	Information exchanged with supply chain partners is accurate.
ISQ3	Information exchanged between partners is complete.
ISQ4	Information shared by partners is relevant to operational decision-making.
ISQ5	Information received from partners is useful for coordinating supply chain activities.

A.5. Supply Chain Performance

The supply chain performance items cover operational and financial aspects, assessed through respondents' perceptions of their organization's performance relative to key competitors.

Code	Item
SCP1	Our organization achieves high inventory management performance relative to key competitors.
SCP2	Our organization experiences low levels of stockouts relative to key competitors.
SCP3	Our organization achieves high order fulfillment performance relative to key competitors.
SCP4	Our organization achieves high forecast accuracy relative to key competitors.
SCP5	Our organization achieves strong sales growth relative to key competitors.
SCP6	Our organization achieves satisfactory profitability relative to key competitors.
SCP7	Our organization achieves strong return on assets relative to key competitors.

Note: The items were adapted to the Moroccan mass-retailing context and refined following pilot testing with industry experts. The original survey used a seven-point Likert response format.