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Exploring The Influence of Information Exchange Determinants on Supply Chain Performance: An Empirical Study

Nisrine Kourt
National School of Business and Management of Tangier
Abdelmalek Essaadi University, Morocco.
Email: nisrinekou@gmail.com

Imad Ait Lhassan
Laboratory of Organizational and Territorial Governance (LARGOT)
National School of Applied Sciences of Tetouan, Abdelmalek Essaadi University, Morocco.
Email: iaitlhassan@uae.ac.ma (*Corresponding Author*)

ABSTRACT

In the field of supply chain management, information exchange is increasingly recognized as an intangible asset when it concerns specific operational and strategic data shared between partners. In this study, information exchange refers in particular to the sharing of demand forecasts, inventory levels, production plans, and order status updates between Moroccan manufacturing companies and their logistics partners. Organizations aim to develop such information-sharing practices to gain a comparative advantage within their supply chain, influencing the entire process, both upstream and downstream. Logistics, grounded in principles of flexibility and cost-effective adaptability, leverages accurate and timely information as a key driver for optimal performance. This paper addresses the following question: How can the exchange of specific supply chain information (e.g., demand forecasts, inventory data, production schedules) influence the supply chain performance of Moroccan manufacturing companies? A quantitative approach was employed with a positivist stance and a hypothetico-deductive reasoning framework. The study used the Smart PLS model to test the relationships between variables. Data were collected from a sample of 100 Moroccan manufacturing companies, enabling an analysis of interactions between these specific forms of information exchange and supply chain performance within the specific context of Morocco. The study's findings reveal that targeted information exchange, particularly regarding operational and strategic supply chain data, within logistics partnerships has a positive impact on the supply chain performance of Moroccan manufacturing companies. Companies fostering structured and reliable information exchange with their logistics partners achieve superior performance, particularly in terms of flexibility, adaptability, and efficiency in logistics processes. The results confirm that specific information exchange is a critical factor in enhancing supply chain performance. By prioritizing the exchange of key supply chain information (e.g., demand forecasts, inventory levels, production and delivery data), Moroccan manufacturing companies can improve key logistical outcomes such as flexibility and efficiency, thereby gaining a competitive edge in their supply chain operations.

Keywords: ***Information Exchange, Supply Chain Performance, Trust, Integration, Continuity.***

1. INTRODUCTION

Effective exchange of specific supply chain information, such as demand forecasts, inventory levels, production schedules, and order status within supply chains has become a critical factor for improving overall performance and achieving competitive advantage. The growing complexity of global markets has pushed companies to collaborate more closely with their partners, emphasizing the importance of these targeted information exchange relationships. These relationships facilitate the transfer of operational and strategic data, enabling better decision-making and problem-solving across the supply chain (Grant, 1996).

Several studies have highlighted that supply chain performance improves significantly when partners share specific and relevant information and knowledge (Fawcett *et al.,* 2007; Wong *et al.,* 2015). This improvement is closely tied to trust between organizations, which fosters a collaborative environment and reduces uncertainties (Dyer & Hatch, 2006). Trust is essential for ensuring that partners are willing to engage in accurate and timely information

exchange without fear of opportunistic behavior (Panayides & Venus Lun, 2009). Additionally, effective integration of processes and standardized information flows is crucial for optimizing performance. Integration requires aligning internal systems with those of external partners to create a seamless flow of precise supply chain information across the supply chain (Chen *et al.,* 2004; Zhao *et al.,* 2008). This alignment enhances supply chain performance by improving responsiveness, reducing costs, and increasing service quality.Our research focuses on exploring the dynamics of targeted information exchange relationships in Moroccan industries. We aim to understand how trust and integration influence the efficiency of these relationships and contribute to overall supply chain performance. By fostering a culture of structured and reliable information exchange, companies can enhance their competitive advantage, promote innovation, and achieve long-term success. The results of our empirical investigation confirm that focused information exchange is a critical factor in enhancing supply chain performance. By prioritizing the exchange of key operational and strategic information, Moroccan manufacturing companies can improve key logistical outcomes such as flexibility and efficiency, thereby gaining a competitive edge in their supply chain operations.

Thus, our research will be structured to answer the following question: To what extent can the exchange of specific supply chain information between logistics partners impact supply chain performance? To address this issue, we will first present studies that have examined the information exchange relationship and supply chain performance, introduce our research model, and present our methodological choices along with the results and research discussion.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Inter-organizational Trust and Information Exchange

Trust is essential for fostering collaboration and facilitating the exchange of specific supply chain information between firms. According to Zaheer et al. (1998), trust complements formal controls by reducing concerns about opportunism, thereby promoting smoother exchanges. In supply chains, trust encourages partners to share critical operational information, such as demand forecasts and inventory levels, without the fear of exploitation, improving overall performance (Ganesan, 1994). Research highlights that trust mitigates opportunistic behaviors by encouraging firms to prioritize long-term partnerships over short-term gains (Madhok, 1995). It can also serve as a substitute for hierarchical governance in inter-firm relationships, enabling companies to achieve mutual goals even in the absence of rigid control mechanisms (Aulakh *et al.,* 1997).

Trust is influenced by two key factors: process-based trust, which depends on a partner's reliability and predictability, and institutional trust, based on reputation and commitment to fulfilling obligations (Sevensson, 2004). This foundation fosters stronger partnerships, making targeted and reliable information exchange more effective in supply chains. Moreover, addressing cultural differences and communication barriers is critical in buyer-supplier relationships. Dyer and Singh (1998) argue that trust strengthens interfirm relationships by facilitating learning and resource sharing, which ultimately enhances competitive advantage. This idea is further supported by Bessant et al. (2003), who emphasize that continuous and precise information exchange leads to long-term value creation. Also, Pham and Anh (2024) examined the impact of trust on buyer-supplier relationships and information exchange between stakeholders, focusing on reducing opportunism before and after contract signing. Based on 25 semi-structured interviews conducted in Japan and Vietnam (2020–2021), their study highlights that trust evolves throughout the relationship stages: initially built on empirical evidence and relational assessments, it later strengthens through emotional bonds and personal experiences. This process helps mitigate opportunism and promotes sustainable relationships.

From these previous empirical studies, the following hypothesis can be supposed:

H1: Organizational trust positively impacts the exchange of specific supply chain information between firms.

2.2 Inter-organizational System Integration and Information Exchange

Recent studies examine the impact of inter-organizational system integration on the exchange of standardized and operational supply chain information between firms. Zhou et al. (2023) conducted a study on the role of inter-organizational systems (IOS) in enhancing supply chain agility in uncertain environments. The objective was to explore how IOS contribute to collaboration and performance. The study involved 156 manufacturing firms in China, using a two-wave survey with business and IT executives. The results showed that IOS characteristics, especially standardization and adaptability, positively influenced supply chain agility. Additionally, collaboration mediated this relationship, demonstrating that integrated systems enhance timely and accurate information exchange and improve decision-making. This highlights the crucial role of IOS in improving agility, especially in dynamic environments. Similarly, Thiele et al. (2023) examined the state of digitalization and inter-organizational information exchange among small and medium-sized enterprises (SMEs) in Germany. Their objective was to assess how SMEs adopt digital systems to improve collaboration. The study surveyed 180 German SMEs, with 135 from the manufacturing sector, focusing on information exchange practices and digitalization levels. The results indicated that while SMEs recognize the importance of information exchange, challenges remain due to a lack of standardization. The study emphasized that adopting standardized and adaptable digital systems is key to overcoming these barriers and enhancing communication. System integration between firms enhances information exchange by creating structured channels that link people, information, and resources. Tsai (2002) highlights that the

effectiveness of information exchange is influenced by the structural characteristics of these channels.

Empirical evidence shows that inter-organizational electronic connections promote collaborative information sharing. Malhotra et al. (2007) found that electronic systems positively impact supply chain interactions, making knowledge transfer more efficient. These systems also support the exchange of tacit knowledge, which is difficult to codify and requires stable interactions to transfer effectively (Inkpen & Dinur, 1998). In buyer-supplier relationships, process integration fosters close interactions that facilitate the dissemination of innovative practices (MacDuffie & Helper, 1997). Higher levels of integration are linked to richer information exchanges, especially in logistics, production, and product design (Koka & Prescott, 2002; Krause *et al.,* 2000; Inkpen & Tsang, 2005). Informal and frequent interactions create opportunities for transferring tacit knowledge, which plays a critical role in strengthening partnerships (Spekman *et al.,* 2002). Repeated interactions further enhance communication quality by helping partners develop a shared language and establish norms for information exchange. Hoetker (2005) and Modi and Mabert (2007) provide evidence that frequent buyer-supplier interactions improve information flow and reinforce collaborative relationships.

Based on these prior empirical studies, the following hypothesis can be proposed:

H2: Inter-organizational system integration positively impacts the exchange of specific supply chain information.

2.3 Relationship with Partners and Information Exchange

Inter-organizational relationships evolve over time, requiring continuous adaptation between partners. As the duration of a partnership increases, companies gradually adjust to one another, thereby enhancing the likelihood of maintaining a successful collaboration (Kim *et al.,* 2010). Furthermore, as the relationship persists over an extended period, expectations about its future continuity become more predictable and stable (Anderson & Narus, 1990). This growing sense of certainty encourages partners to prioritize collaborative practices (Lusch & Brown, 1996), fostering greater trust and a more receptive attitude toward information exchange. Consequently, a longer relationship duration not only amplifies the level and breadth of information exchange but also significantly boosts inter-organizational performance.

Considering the specific challenges and characteristics of the Moroccan and broader developing economy business contexts, such as lower digital maturity and distinct cultural factors, long-term relationships may play an even more pivotal role in facilitating effective information exchange.

The following hypothesis may be suggested, considering the results of earlier empirical studies:

H3: Relationship continuity positively impacts the exchange of specific supply chain information.

2.4 Information Exchange and Supply Chain Performance

Supply chain performance depends on collaboration between stakeholders to enhance efficiency, reduce costs, and shorten cycle times (Ezekari *et al.,* 2024). However, the mere presence of complementary knowledge between partners is not enough to achieve these outcomes. Harrison et al. (2001) emphasize that knowledge must be effectively shared and applied across the supply chain to drive performance improvements.

Recent research underscores the critical role of **structured and targeted information exchange** in supply chain performance. According to Bentaleb and Taki (2023), a study was conducted within a Moroccan agri-food company to examine the impact of information integration through an ERP system on supply chain performance. The results show that structured information exchange facilitates decision-making, improves operational efficiency, and strengthens coordination among internal and external stakeholders. The Moroccan context is characterized here by public initiatives aiming to modernize value chains, particularly through sectoral strategies such as "Génération Green." On the other hand, Oubrahim et al. (2023) conducted an empirical study based on a sample of 134 Moroccan manufacturing companies to analyze the impact of digital transformation on supply chain integration and sustainable performance. The findings indicate that adopting digital technologies enhances information exchange between partners and improves overall performance. The Moroccan context in this study is marked by increasing efforts toward digitizing industrial processes in a competitive environment with rising sustainability demands.

Effective information exchange across supply chains has become a cornerstone of operational performance, innovation, and adaptability in dynamic markets. Lin (2007) argues that sharing knowledge improves various supply chain functions, including customer service and product innovation. Building on this foundation, Shih et al. (2012) and Huang et al. (2010) find that knowledge-sharing practices reduce operational costs and improve service quality, thereby enhancing overall competitiveness. Kembro et al. (2014) highlight that information sharing in supply chains has often been studied without strong theoretical grounding, and when theories are applied, they mainly include transaction cost economics, contingency theory, resource-based view, and relational governance theories. These frameworks help explain why, what, and how specific information is shared with partners, and emphasize that sharing precise, targeted information rather than broad, generic knowledge is essential for improving coordination and achieving supply chain performance adapted to the business context. Similarly, Huang et al. (2003) reviewed over 100 studies and found that the sharing of production-related information plays a key role in shaping supply chain dynamics. Their work shows that exchanging specific operational data (e.g., production schedules, inventory levels) directly influences supply chain design, responsiveness, and management practices. This reinforces the importance of focusing on well-defined, actionable information flows to strengthen supply chain

outcomes. Finally, Zhou and Benton (2007) provide empirical evidence that the exchange of detailed and relevant supply chain information significantly enhances operational practices and overall performance. They show that in dynamic supply chain environments, such specific information exchange becomes even more critical for improving flexibility, efficiency, and responsiveness, all of which are essential dimensions of supply chain performance.

Later research has reinforced this view while introducing a more collaborative lens. Rajabion et al. (2019) highlight that buyer-supplier collaboration significantly boosts operational efficiency and fosters co-innovation, especially when knowledge flows are reciprocal and trust-based. Similarly, Fri et al. (2019) argue that timely information exchange fosters creativity and improves the execution of supply chain activities. These contributions align with Fawcett et al. (2007), who assert that information exchange is a critical enabler of supply chain effectiveness.

More recent studies have refined these ideas by exploring the interplay between knowledge integration, trust, and digital technologies. For example, Zhou et al. (2023) show that digital platforms can support real-time information exchange and increase transparency across supply chain tiers, particularly in volatile environments. These systems act as technical enablers, but their impact is maximized when combined with relational enablers like trust and commitment (Thiele & Peters, 2023). This supports earlier findings by Li and Lin (2006) and Crook et al. (2008), who argue that the integration of knowledge across firm boundaries is directly linked to improved supply chain performance. Knowledge also serves as a source of competitive advantage by helping firms navigate complexity. Hart (1995) stressed that value creation arises when stakeholders jointly apply knowledge for innovation and problem-solving. This idea has gained renewed importance in the context of supply chain resilience. Bounou and Charkaoui (2022) show that firms with robust knowledge-sharing mechanisms were better able to respond to disruptions during the COVID-19 pandemic, further confirming the strategic role of information exchange. Trust remains a critical antecedent of information exchange. Salam (2017) demonstrates that trust improves coordination and operational efficiency within supply chains (Lee & Ha, 2025). However, trust alone does not ensure knowledge flow; it must be coupled with effective information-sharing systems and processes. Hurley et al. (2005) emphasize the direct link between information exchange and organizational performance, particularly in innovation-driven markets.

Recent empirical studies extend this line of inquiry to agility and responsiveness. Afshan et al. (2018) show that trust enhances supply chain adaptability by promoting partner commitment, while Chen (2019) finds that trust-based relationships allow firms to respond more effectively to changing customer demands. More recently, Cao and Zhang (2022) examined the synergy between trust, digital technologies, and supply chain agility, concluding that digitally mediated trust accelerates the flow of strategic information. From these previous empirical studies, the following hypothesis can be supposed:

H4: The exchange of specific supply chain information positively affects supply chain performance.

3. RESEARCH MODEL

After presenting the various hypotheses of our research, we proceed to the design of the research model (**Figure 1**), which is structured around key elements: inter-organizational trust, inter-organizational system integration, and relationship continuity, as well as inter-organizational information exchange as explanatory variables, and supply chain performance as the dependent variable.

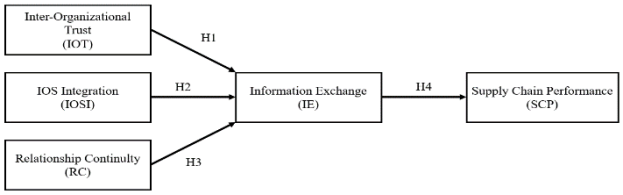

Figure 1 Conceptual Model

4. RESEARCH METHODOLOGY

4.1 Data Collection

In this research study, data were collected using a structured questionnaire **(Appendix A)** administered both online through a Google Form and in person by meeting respondents to complete the survey. A total of 354 questionnaires were sent to industrial companies in the northern region of Morocco. Of these, 116 were returned completed, resulting in an initial response rate of 32.77%. Out of these 116 responses, 16 questionnaires were unusable due to missing data, reducing the actual response rate to 28.25%. Ultimately, data from 100 industrial companies in the northern region of Morocco were processed.

4.2 Instrument development

To measure the study variables, a structured questionnaire was developed using a five-point Likert scale ranging from "strongly disagree" to "strongly agree." This scale captures a wide range of responses and allows for the assessment of the intensity of participants' perceptions. To ensure the validity and reliability of the instrument, measurement items were adapted from established scales used in prior research.

Specifically, Inter-Organizational Trust (IOT) was measured using 11 items adapted from McKnight et al. (2002), focusing on perceived sincerity, competence, and goodwill of partners. For instance, one item states, "The partner company is sincere in its relationship with us," reflecting the quality of inter-organizational relationships. Furthermore, IOS Integration (IOSI) was assessed through 5 items adapted from Seines and Sallis (2003), evaluating the technological collaboration between supply chain partners. One illustrative item is: "Our company and supply chain partners use inter-organizational systems to understand sales trends and customer preferences." Additionally, Relationship Continuity (RC) was measured using 5 items based on Kumar et al. (1995), capturing loyalty and long-term commitment to partners. For

Table 1 Study participants' characteristics

		Frequency	Percentage (%)
Size	Less than 50	20	20%
	Between 50 and 100	10	10%
	Between 100 and 250	9	9%
	More than 250	61	61%
Sector of Activity	Automotive	40	40%
	Agri-food	29	29%
	Textile	12	12%
	Aerospace	14	14%
	Other	5	5%
Nationality of the company	Moroccan	45	45%
	French	23	23%
	Spanish	18	18%
	American	8	8%
	Other	6	6%
Job title	Supply Chain Manager	52	52%
	Purchasing Manager	36	36%
	Logistics Coordinator	12	12%
Work experience	1 – 3 years	15	15%
	3 – 5 years	27	27%
	5 – 10 years	45	45%
	Above 10 years	13	13%

example, an item reads, "We expect our relationship with the partner company to last for a long time."

Moreover, Information Exchange (IE) was assessed using 8 items adapted from Kotabe et al. (2003). Although the original scale refers broadly to knowledge exchange, we have adapted the items to specifically capture the exchange of explicit and technical information relevant to operational and production aspects within the supply chain. The items focus on sharing detailed opinions, technical data, product specifications, and documented processes, such as production schedules, raw material quality standards, functional requirements for new product development, and inter-organizational procedures. For example, one item reads: "We exchange product design specifications and functional requirements for new product development with the supplier." These items reflect concrete, explicit information exchanges rather than tacit knowledge or experiential insights.

Finally, Supply Chain Performance (SCP) was evaluated using 16 items inspired by Bhagwat and Sharma (2007), covering four key dimensions from the Balanced Scorecard: financial, internal processes, customer, and innovation/learning. For instance, the indicators include profitability, product and service quality, productivity, operational efficiency, and continuous value creation.

4.3 Data analysis method

To evaluate the proposed research model and test the hypotheses, the partial least squares structural equation modeling (PLS-SEM) approach was employed using SmartPLS 4 software. This technique is particularly suitable for predictive and exploratory research and is widely used in social sciences when dealing with complex models and relatively small samples (Hair *et al.*, 2017; Ringle *et al.*, 2015).

PLS-SEM is a variance-based structural equation modeling method that allows researchers to examine complex cause-effect relationship models involving latent constructs that are not directly observable but are measured through multiple indicators. It is preferred in situations where theory is less developed or when the research aims to predict key target constructs.

The analysis followed a two-step procedure to ensure rigor and clarity:

First, the measurement model (also called the outer model) was assessed to verify the reliability and validity of the constructs. Reliability checks ensure that the questionnaire items consistently measure the same concept. Convergent validity was verified through the evaluation of factor loadings (which indicate how well each item represents its construct and are expected to exceed 0.7), composite reliability (CR > 0.7), and average variance extracted (AVE > 0.5), which measures the amount of variance captured by the construct from its indicators relative to measurement error (Hair *et al.*, 2017). Discriminant validity, which tests that constructs are sufficiently distinct from one another, was checked using the Fornell-Larcker criterion (which compares the square root of AVE with inter-construct correlations) and cross-loadings (to ensure items load higher on their assigned construct than on others).

Second, the structural model (inner model) was analyzed to evaluate the strength and significance of hypothesized relationships between constructs. This involved examining the coefficient of determination (R^2), which indicates how much variance in the dependent variable is explained by the independent variables (values closer to 1 indicate stronger explanatory power). Predictive relevance (Q^2) was assessed through blindfolding procedures to measure the model's ability to predict data points not used in model estimation. The significance of the path coefficients (which represent the hypothesized effects) was tested using bootstrapping, a non-parametric resampling technique that generates multiple subsamples to estimate the stability and confidence intervals of the paths.

Table 2 Results of reliability, convergent and discriminant validity

Variables	Alpha	Rho_A	CR	AVE	IOT	RC	IE	IOSI	SCP
IOT	**0.913**	**0.915**	**0.929**	**0.623**	**0.789**				
IOSI	**0.859**	**0.878**	**0.904**	**0.701**	0.495	**0.938**			
RC	**0.787**	**0.788**	**0.876**	**0.702**	0.578	0.916	**0.752**		
IE	**0.871**	**0.876**	**0.900**	**0.565**	0.484	0.452	0.527	**0.938**	
SCP	**0.949**	**0.952**	**0.955**	**0.572**	0.575	0.471	0.551	0.931	**0.756**

***IOT** : Inter-Organizational Trust ; **IOSI** : IOS Integration ; **RC** : Relationship Continuity ; **IE** : Information Exchange ; **SCP** : Supply Chain Performance*

Table 3 Discriminant validity based on the cross-loading criteria

Items	IOT	RC	IE	IOSI	SCP
CONF_ORG10	**0.765**	0.380	0.447	0.433	0.500
CONF_ORG2	**0.726**	0.472	0.537	0.279	0.359
CONF_ORG3	**0.728**	0.397	0.441	0.343	0.398
CONF_ORG4	**0.823**	0.391	0.476	0.425	0.502
CONF_ORG5	**0.821**	0.356	0.424	0.288	0.387
CONF_ORG7	**0.844**	0.385	0.453	0.379	0.451
CONF_ORG8	**0.832**	0.398	0.438	0.456	0.535
CONF_ORG9	**0.766**	0.312	0.398	0.468	0.507
CONT_REL2	0.364	**0.809**	0.766	0.342	0.379
CONT_REL3	0.548	**0.864**	0.791	0.425	0.444
CONT_REL4	0.326	**0.839**	0.743	0.368	0.358
ECH_CONN1	0.447	0.524	**0.718**	0.297	0.329
ECH_CONN2	0.443	0.619	**0.805**	0.414	0.409
ECH_CONN3	0.381	0.636	**0.789**	0.536	0.514
ECH_CONN4	0.535	0.474	**0.661**	0.399	0.474
ECH_CONN6	0.369	0.805	**0.759**	0.324	0.365
ECH_CONN7	0.550	0.860	**0.784**	0.406	0.429
ECH_CONN8	0.314	0.826	**0.735**	0.379	0.365
INTEGR_SIO1	0.373	0.273	0.352	**0.765**	0.716
INTEGR_SIO2	0.503	0.395	0.474	**0.879**	0.855
INTEGR_SIO3	0.394	0.329	0.389	**0.847**	0.765
INTEGR_SIO5	0.353	0.479	0.519	**0.855**	0.777
PERF_CL_CLT1	0.470	0.364	0.454	0.737	**0.810**
PERF_CL_CLT2	0.540	0.355	0.421	0.748	**0.829**
PERF_CL_CLT3	0.503	0.395	0.474	0.879	**0.855**
PERF_CL_CLT4	0.394	0.329	0.389	0.847	**0.765**
PERF_CL_FIN1	0.404	0.257	0.371	0.631	**0.713**
PERF_CL_FIN2	0.340	0.258	0.315	0.529	**0.790**
PERF_CL_FIN3	0.364	0.266	0.339	0.759	**0.712**
PERF_CL_FIN4	0.413	0.082	0.205	0.511	**0.794**
PERF_CL_IA1	0.431	0.358	0.418	0.617	**0.731**
PERF_CL_IA2	0.492	0.341	0.376	0.578	**0.712**
PERF_CL_IA3	0.576	0.365	0.433	0.628	**0.776**
PERF_CL_IA4	0.427	0.390	0.445	0.636	**0.751**
PERF_CL_PI1	0.353	0.479	0.519	0.855	**0.777**
PERF_CL_PI2	0.309	0.408	0.400	0.759	**0.785**
PERF_CL_PI3	0.472	0.540	0.572	0.786	**0.838**
PERF_CL_PI4	0.456	0.408	0.453	0.688	**0.806**

***IOT** : Inter-Organizational Trust ; **IOSI** : IOS Integration ; **RC** : Relationship Continuity ; **IE** : Information Exchange ; **SCP** : Supply Chain Performance*

Table 4 Results of R2 and Q2

	R^2	Q^2	Interpretation
Information exchange	0.867	0,857	**Significant**
Supply Chain Performance	0.303	0,324	**Significant**

Table 5 Results of hypothesis tests.

Hypothesis		Original sample	Sample mean	Standard deviation	T statistics	P values	Decision
H1 :	IOT → IE	0.122	0.123	0.042	2.899	0.004**	Supported
H2 :	IOSI → IE	0.097	0.103	0.043	2.260	0.024***	Supported
H3 :	RC → IE	0.818	0.813	0.047	17.553	0.000*	Supported
H4 :	IE → SCP	0.548	0.554	0.076	7.249	0.000*	Supported

***IOT** : Inter-Organizational Trust ; **IOSI** : IOS Integration ; **RC** : Relationship Continuity ; **IE** : Information Exchange ; **SCP** : Supply Chain Performance*

***p < 0.001; **p < 0.01; ***p < 0.05**

This systematic approach ensures a robust validation of both the measurement instruments and the hypothesized relationships among the constructs, providing confidence in the reliability of the study's conclusions.

4.4 Sample

According to **Table 1**, 61% of the surveyed companies have more than 250 employees, indicating a predominance of large companies. In contrast, small and medium-sized enterprises account for 19%, while micro-enterprises represent 20%. Regarding the industrial sector, 40% of the companies operate in the automotive industry, making it the most represented sector. The remaining companies are distributed across the agri-food sector (29%), textiles (12%), and aerospace (14%), showing a strong presence of automotive firms among northern Moroccan enterprises. The sample consists of multinational industrial companies located in northern Morocco. Among them, 45% are of Moroccan origin, followed by 23% French, 18% Spanish, 8% American, and 6% from other countries such as the Netherlands and Japan. The nationality of a company refers to its country of origin or legal registration, regardless of its operational presence in Morocco. As for the job titles of the respondents in our sample: 52% are Supply Chain Managers, making it the most common role. Purchasing Managers account for 36%, while Logistics Coordinators represent 12%. Concerning work experience, 45% of participants have 5 to 10 years of experience, followed by 27% with 3 to 5 years, 15% with 1 to 3 years, and 13% with more than 10 years, indicating a majority of mid-career professionals.

5. RESULT

5.1 Validity and reliability

Table 2 presents the results of the measurement model's assessment. The outer loadings of all indicators are above 0.7. Additionally, the AVE values are all above 0.5, indicating that each construct explains at least 50% of the variance in its items (Hair *et al.*, 2017). Furthermore, the values of Cronbach's α and Composite Reliability (CR) are both above 0.70, demonstrating strong convergent validity. Discriminant validity is confirmed through the Fornell-Larcker criterion, as recommended by Henseler *et al.* (2016). Similarly, the discriminant validity of the outer models is supported by the cross-loading criteria (**Table 3**).

5.2 Results of assessing structural model

The testing of the inner model involves examining various criteria, including the coefficient of determination (R2), predictive relevance (Q2), and goodness-of-fit. The study's findings reveal that the R2 values for information exchange and supply chain performance are 0.867 and 0.303, respectively, indicating a satisfactory level of determination for these dependent variables. Moreover, as depicted in **Table 4**, the Q^2 values for information exchange and supply chain performance exceed 0.39, standing at 0.857 and 0.324, respectively, thus substantiating the model's predictive relevance (Hair *et al.*, 2020). Lastly, the goodness-of-fit (GoF) value is calculated as 0.608334, indicating a strong fit of the model (Henseler *et al.*, 2009).

5.3 Hypotheses Testing

The empirical findings showed in **Table 5** and **Figure 2** offer support for all research hypotheses. The results demonstrate that inter-organizational trust has a positive impact on information exchange ($T = 2.899$; $p < 0.01$), while inter-organizational systems integration has a positive and significant effect on information exchange ($T = 2.260$; $p < 0.05$). Additionally, relationship continuity positively influences information exchange ($T = 17.553$; $p < 0.001$), and finally, the variable "Information exchange" positively impacts supply chain performance ($T = 7.249$; $p < 0.001$).

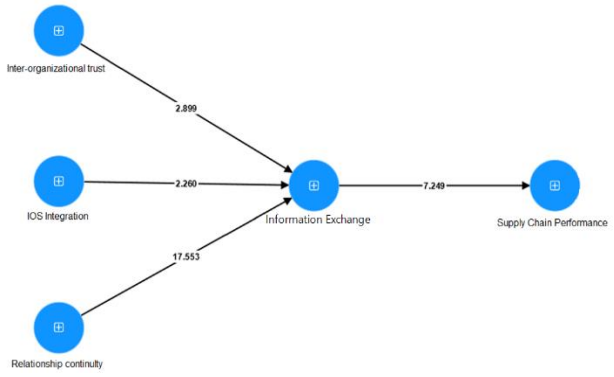

Figure 2 Results of model testing

6. DISCUSSION AND CONCLUSION

6.1 Discussion

The analysis of the empirical research data yielded favorable results, confirming and validating all the proposed hypotheses of this study **(Table 5)**. The findings reinforce the importance of trust, system integration, and relationship continuity in fostering effective and contextually specific operational information exchange, which in turn enhances supply chain performance. This section provides a focused interpretation of these results, highlighting their alignment with the literature and their implications for theory and practice.

The positive correlation between inter-organizational trust and information exchange confirms that trust is a key enabler of open communication among partners. Trust reduces uncertainty and encourages the exchange of operationally sensitive and relevant information by minimizing fears of opportunism. This aligns with prior studies (Chen *et al.*, 2014; Cheng *et al.*, 2008; McKnight *et al.*, 2002) and contributes to the Relational View Theory (Dyer & Singh, 1998; Goertler *et al.*, 2024), which underscores trust-based collaboration as a source of relational rents. In the context of northern Moroccan industrial enterprises, where informal networks and long-term partnerships are common, trust becomes especially crucial in facilitating smooth and reliable flows of specific supply chain information. From a managerial perspective, this result implies that Moroccan firms should actively invest in building trust with their supply chain partners through transparency, reliability, and consistent communication. These actions are directly tied to improving the quality and quantity of shared information, as demonstrated by the empirical evidence.

The confirmation of a positive relationship between system integration and information exchange emphasizes the role of digital infrastructure in enhancing structured and real-time knowledge-sharing practices. Technological integration helps reduce data redundancy, improve communication speed, and support accurate decision-making. This finding is consistent with the work of Malhotra et al. (2007) and Inkpen & Dinur (1998), who highlight the benefits of integrated systems in facilitating timely and efficient knowledge exchange. For managers in northern Moroccan enterprises, this suggests the importance of adopting and maintaining compatible information systems that align with supply chain partners. The data confirm that such integration directly supports the flow of operational and strategic supply chain information. Therefore, any investment in ERP systems, cloud-based tools, or IoT technologies should be accompanied by training programs to ensure employees can use these systems effectively.

Regarding relationship continuity, the results validate that long-term partnerships foster an environment conducive to consistent and open information exchange. Sustained relationships reduce uncertainty and enable mutual understanding, which strengthens the capacity to share valuable knowledge. This supports previous research (Kim *et al.*, 2010; Lusch & Brown, 1996) and reflects the collaborative nature of many Moroccan industrial networks. As a managerial implication, firms are encouraged to focus on maintaining long-term relationships with key supply chain partners, as continuity has been empirically shown to enhance communication and cooperation. This can be achieved through regular engagements, shared planning activities, and joint improvement efforts all of which promote trust and long-term alignment.

Finally, the positive link between information exchange and supply chain performance confirms that targeted, high-quality, and relevant knowledge-sharing significantly contributes to operational excellence. As shown by prior studies (Wang & Hu, 2020; Haque & Islam, 2018, Kembro *et al.*, 2014; Huang *et al.*, 2003; Zhou & Benton, 2007), efficient information flows improve decision quality, responsiveness, and customer satisfaction. In practical terms, this finding supports the adoption of structured information-sharing practices. Companies that enhance information exchange with partners can expect improved performance outcomes such as reduced lead times, greater flexibility, and higher service quality benefits directly observed in our empirical results.

6.2 Conclusion

This research investigates how an organizational unit can acquire knowledge from other units to enhance its performance. It highlights that access to specific, operational, and strategic supply chain information, alongside internal learning capacity, are critical components in this process.

To begin, we defined the concept of knowledge and its relationship with data and information, while also detailing the process of creating logistical knowledge. The study shed light on the nature of knowledge, distinguishing between tacit and explicit knowledge as well as personal, collective, and organizational knowledge. Subsequently, we analyzed the impact of information exchange on supply chain performance and examined how the nature of inter-organizational relationships influences this sharing.

Moreover, an epistemological study was conducted within a positivist framework. We defined hypotheses and developed a research model, focusing on independent variables such as trust, system integration, and relationship continuity, and their influence on information exchange. The validation of these hypotheses demonstrated that inter-organizational trust, system integration, and the continuity of relationships positively impact information exchange, which, in turn, enhances logistical performance. This study provides empirical evidence of the significant role that structured and relevant information exchange plays in logistics partnerships, especially within the Moroccan context.

Despite its comprehensiveness, this research has certain limitations. It does not cover all industrial sectors, focusing instead on emerging industries in northern Morocco. Additionally, it could benefit from incorporating more variables. The findings are region-specific, which limits their generalizability. Future studies could explore other determinants of inter-organizational information exchange and investigate how an organization's position within the supply chain affects this capability. Qualitative

research, including interviews and observations, could further deepen our understanding of the dynamics observed in this study.

DECLARATIONS OF INTEREST

This research has no conflicts of interest to declare.

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Appendix A - Questionnaire

Part 1: Identification

1) The name of your company:					
2) What is the size of your company?					
Between 10 and 50	Between 50 and 100	Between 100 and 150	Between 150 and 200	Between 200 and 250	More than 250
3) Industry sector					
Agri-food	Automotive	Aerospace	Textile		
4) Nationality					
Marocaine	Foreign, specify:				

Part 2 : Information exchange

Please indicate your agreement or disagreement with the following statements using the Likert scale below:
1 "Strongly Disagree" - 5 "Strongly Agree"

	1	2	3	4	5
1. We exchange detailed opinions on production schedules and workflow optimization with the supplier.					
2. We exchange technical knowledge regarding raw material specifications and quality standards with the supplier.					
3. We exchange product design specifications and functional requirements for new product development with the supplier.					
4. We exchange precise work methods related to production techniques and task execution with the supplier.					
5. We test and apply supplier-provided technical knowledge when developing new markets or launching new products.					
6. The supplier and we adjust and document inter-organizational processes (e.g., quality checks, inventory updates) to improve operational performance.					
7. We exchange technical data about component specifications and daily operational procedures with the supplier.					
8. The supplier's technical support provides specific solutions to production process problems (e.g., machine setup, defect resolution).					

Part 3 : Inter-organizational trust

Please indicate your agreement or disagreement with the following statements using the Likert scale below:
1 "Strongly Disagree" - 5 "Strongly Agree"

	1	2	3	4	5
1. I believe that this partner company will act in our best interest.					
2. If I needed help, the partner company would do its best to assist us.					
3. The partner company cares about our well-being, not just its own.					
4. The partner company is sincere in its relationships with us.					
5. I would describe the partner company as honest.					
6. The partner company will keep its commitments.					
7. The partner company is sincere and authentic.					
8. The partner company is competent and effective in transmitting business-related knowledge.					
9. The partner company performs its role as a knowledge provider very well.					
10. Overall, the partner company is a competent and effective knowledge provider.					
11. In general, the partner company is very well-informed about its activities.					

Part 4 : Inter-organizational system integration

Please indicate your agreement or disagreement with the following statements using the Likert scale below:
1 "Strongly Disagree" - 5 "Strongly Agree"

	1	2	3	4	5
1. Our company and supply chain partners use inter-organizational systems to understand sales trends and customer preferences.					
2. Our company and supply chain partners use inter-organizational systems to store, search, and retrieve business information.					

	1	2	3	4	5
3. Our company and supply chain partners use inter-organizational systems to make inferences from past events (e.g., process exceptions, demand evolution patterns, what worked and what didn't).					
4. Our company and supply chain partners use inter-organizational systems to combine information from different sources to discover trends and patterns.					
5. Our company and supply chain partners use inter-organizational systems to interpret information from different sources in various ways depending on different requirements.					

Part 5: Continuity of relationships

Please indicate your agreement or disagreement with the following statements using the Likert scale below:
1 "Strongly Disagree" - 5 "Strongly Agree"

	1	2	3	4	5
1. We make special agreements with our partner companies that are aimed at improving our performance.					
2. We are loyal to our key suppliers and customers.					
3. We hope that our relationship with the partner company will continue for a long time.					
4. The renewal of our relationship with the partner company is practically automatic.					
5. It is unlikely that our company will still do business with the partner company in two years. (R)					

Axe 6: Supply chain performance

Please measure the performance of your company's supply chain based on the following indicators:
1 "Not satisfied at all" - 5 "Very satisfied"

	1	2	3	4	5
Financial Perspective					
1. Achieving profitability					
2. Maintaining liquidity					
3. Revenue growth					
4. Maximizing shareholder wealth					
Internal Processes Perspective					
1. Production cycle time					
2. Employee competence					
3. Productivity					
4. Production quality					
Customer Perspective					
1. Execution time					
2. Quality of products and services					
3. Performance of company services					
4. Cost effectiveness					
Innovation and Learning Perspective					
1. Continuously improving and creating value					
2. Buyer-supplier partnership					
3. Product differentiation					
4. Operational efficiency					

Nisrine Kourt holds a Ph.D. in Management Sciences from the National School of Business and Management of Tangier, Abdelmalek Essaadi University, Morocco. Her research primarily focuses on supply chain management. She also has professional experience as a customs inspector at the Moroccan Customs and Excise Administration in Morocco, which has enriched her expertise in logistics and international trade practices.

Imad Ait Lhassan is an Assistant Professor at the National School of Applied Sciences (ENSA) in Tetouan, part of Abdelmalek Essaadi University in Morocco. He holds a Ph.D. in Management Sciences. His research interests cover supply chain management, green supply chains, management control, and entrepreneurship. In addition to his academic activities, he has acquired valuable professional experience in both industrial and service-oriented companies. He has contributed to several academic journals and presented his work at international conferences. As a member of the LARGOT research laboratory, he actively engages in advancing knowledge in the field of management sciences.