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Enhancing Logistics Performance through Digital Marketing Capabilities: Examining Customer Engagement and Supply Chain Integration

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ABSTRACT

The study considers the influence of the digital marketing capabilities on logistics performance using customer engagement as a mediating variable and digital supply chain integration as the moderating variable. Based on the resource-based view and dynamic capabilities theory, the study starts with the proposition that digital marketing capabilities allow firms to leverage the digital platforms, customer data, digital analytics, and online communication to enhance customer interaction and logistics related outcomes. A quantitative research design was used and data was gathered using a structured questionnaire from the employees and managers in logistics related firms such as logistics service providers, delivery firms, transportation firms, third party logistics providers and e-commerce logistics firms. Structural equation modeling was used to analyze the data. Results indicated a positive relationship between digital marketing capabilities and logistics performance and customer engagement. Results further indicated that customer engagement has a positive impact on logistics performance and partially mediated the digital marketing capabilities-logistics performance relationship. Furthermore, it was observed that digital supply chain integration contributes to reinforce the links between digital marketing capabilities and logistics performance. The results in this research add to the literature by connecting the digital marketing capabilities with the logistics performance and by explaining the effect of customer engagement and digital supply chain integration in this relationship.

Keywords: Digital Marketing Capabilities, Logistics Performance, Customer Engagement, Digital Supply Chain Integration, Logistics Firms
JEL Classifications: M15, M31, L81, O33

1. INTRODUCTION

Digital transformation has enabled and impacted how companies communicate, share information with customers, and boost how they operate. Digital marketing capabilities have emerged as a valuable resource to gain market insights, understand customer behavior, send personalized messages, and act swiftly to market trends within this landscape (Aboalganam and Alzghoul, 2025; Aslam et al., 2025; Safitri and Komaryatin, 2025). It is no longer just an ad tool or a tool for online promotion; today these are key organizational capabilities for being market responsive, managing customer relationships, and making data-driven decisions. Digital marketing capabilities are more important than ever in logistics and supply chain contexts. Nowadays, in addition to the traditional measure of logistics cost efficiency and transportation speed, logistics performance is also assessed by the logistics responsiveness, delivery reliability, service quality, information accuracy, and customer satisfaction (Alahmari and Awad, 2025; Khan and Emon, 2025). Customers are getting more and more reliant on digital platforms to follow the progress of their order,

make contact with companies, and assess their experience of being served, which means that logistics businesses must integrate customer-facing digital tools with logistics operations (Muhammad et al., 2025). Hence, digital marketing skills can help in logistics performance by enhancing the communication with customers, understanding demand, making visible services and adjusting to customers' expectations.

Digital marketing capabilities can impact logistics performance, among other ways, by enhancing customer engagement. In a digital business context, customer engagement can be seen as the extent of customer interaction, response, and engagement with a company's digital initiatives (Harmanen, 2019). Companies with excellent digital marketing skills can improve customer engagement by providing timely information, customized content, and interactive communication, along with digital service experiences. Engaged customers are more likely to leave reviews, voice their service expectations and have better relationships with companies that can help logistics providers better coordinate deliveries, respond more quickly and improve customer satisfaction (Bataineh et al., 2022; Harmanen, 2019). Furthermore, digital supply chain integration is important in the context of connecting digital marketing activities with logistics performances. According to (Alshaketheep et al., 2024), supply chain integration is the process of coordinating information, processes and decisions within the internal organizational units and with external parties (Muhammad et al., 2025). In the digital world, integration is even more important because data that is collected via digital marketing channels needs to be tied into data on logistics planning, inventory systems, delivery processes and service operations (Muhammad et al., 2025; Safitri and Komaryatin, 2025). Digitally integrated supply chains enable companies to better convert customer insights into efficient logistic decisions and enhanced service results when they are highly integrated.

Although digital marketing and supply chain digitalization are important, the previous literature has mostly focused on digital marketing capabilities and logistics performance separately (Alghizzawi et al., 2025; Alkhwaldi et al., 2025). Most of the literature has been devoted to the impact of digital marketing capabilities on overall firm performance, compared to a scarcity of research examining the impact on logistics outcomes. Many of the studies have investigated the impact of digital marketing capabilities on overall firm performance, and fewer have examined the impact on logistics outcomes via customer engagement and digital supply chain integration (Al-Maaitah et al., 2026; Moschogianni, 2024; Sanbella et al., 2024). This opens up a research gap, especially in the emerging market environment where the companies are under immense pressure to boost up logistics responsiveness, customer satisfaction, digital service quality, etc.

Hence in this study, attention is focused on the effect of digital marketing capabilities on logistics performance, customer engagement as a mediator and digital supply chain integration as one of the logistics integration mechanisms. This study adds to the literature by connecting marketing capabilities with logistics outcomes, thus explaining how customer oriented digital capabilities can support logistics performance. In practice, the study will be beneficial for logistics companies looking to enhance their digital integration within the supply chain and the quality of their services, which will result in better customer responsiveness and operational effectiveness through stronger digital marketing practices.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Digital Marketing Capabilities

Digital marketing capabilities are the capacity that a company has to leverage digital tools, platforms, data, and communication to gain insight into customers, coordinate the firm's market relationships, and provide value by engaging with customers digitally. These capabilities range from social media and websites to digital analytics, web advertisements, CRM systems, and data-informed communication. Digital marketing capabilities are strategic capabilities since they are able to support a firm's ability to react more rapidly to market changes, to tailor and personalize customer communication and to base decisions on real-time customer information (Homburg and Wielgos, 2022; Salah and Alzghoul, 2024). Viewing digital marketing capabilities as valuable and hard to imitate resources embedded in firm routines, employee skills, customer data and digital systems is a resource-based view. Consistent with this, Homburg and Wielgos (2022) showed that digital marketing skills matter to firm performance, and that these are relevant in addition to traditional marketing skills. This indicates that businesses with a higher digital marketing capability could obtain better results as they are better able to sense customers' needs, act on market changes, and convert customer data into business value. In the logistics industry, digital marketing skills play a crucial role, as customers' expectations for quick communication, real-time information, delivery updates and responsive service grow. Logistics companies are not just competing with one another on the ground when it comes to transportation and delivery efficiency—they're competing on customer service, customer experience, and the ease with which they can be seen and touched online. Thus, digital marketing skills can be useful in enhancing logistics company's communication with its customers, knowing customer expectation and aiding in service delivery process.

2.2. Logistics Performance

Logistics performance is the effectiveness of a firm's logistics activities that includes delivery reliability, timeliness, responsiveness, service quality, information accuracy, cost effectiveness, and customer satisfaction. Before now, logistics and supply chain research has highlighted the need for service orientated measures as well as customer orientated measures as part of performance measurement, in addition to cost measures (Gunasekaran et al., 2004). Thus, the logistics service quality research indicates that customers assess logistics services with aspects like order accuracy, timeliness, communication quality, information, and problem-handling capability (Mentzer et al., 2001). In digital business contexts, logistics performance has increasingly been linked to the flow of information and/or customer

communications. Customers are expecting companies to be on top of order information, have timely responses, offer online tracking and fulfill order promises. In addition to this, the performance of logistics depends not only on the efficiency of internal logistics operations, but also on the capacity of the firm to link digital activities (towards customers) to logistics activities. Digital marketing skills can help in enhancing logistics performance by increasing the visibility of the demand, customer communication and responsiveness of the service (Alzghoul et al., 2024). For instance, with customer data collected via digital marketing channels, companies can gain insight into customer expectations for a specific service, what issues they are experiencing in the delivery of that service, and faster address customer complaints. Hence, it can be expected that better logistic performance will be exhibited by a firm with a stronger digital marketing capability.

H_1: Digital marketing capabilities positively affect logistics performance.

2.3. Customer Engagement

Customer engagement is the customer's attention, emotional response, or involvement in a company, brand or service via repetitive interactions and participation. The typical indicators of customer engagement in digital space are customer feedback, online interaction, content sharing, digital participation, loyalty and repeat communication with the firm (Aldaibat et al., 2019). The value of customer engagement has grown with the advent of digital technologies, which enable businesses and consumers to connect (Popoola et al., 2024). The impact of digital marketing capabilities is expected to boost engagement with customers by enabling the companies to deliver more personalized messages, quicker responses, interactive content and improved digital service experiences (Ballester et al., 2021). Digital marketing tools enable the customers to be engaged in the marketing of services and are more willing to share their preference, complaint, and expectations (Knuuttila, 2024). This kind of interaction can lead to enhancing the customer's trust and satisfaction and also the quality of the relationship. Customer engagement is crucial in logistics services since the consumers engage with the logistics companies both before, during and after the delivery. Customers who are engaged can offer valuable feedback on delivery habits, customer service, delays or issues. This data can aid logistics companies in enhancing service arranging, distribution coordination, and responsiveness (Kalra et al., 2023). In this regard, customer engagement can play a crucial role as a mechanism to connect digital marketing capabilities and logistics performance.

H_2: Digital marketing capabilities positively affect customer engagement.

H_3: Customer engagement positively affects logistics performance.

2.4. Customer Engagement as a Mediating Variable

The relationship between digital marketing capabilities and logistics performance may not be only direct, but may be through the engagement of customers. Digital Marketing skills enable companies to draw in customers, connect with them, and develop digital relationships that are interactive (Salah and Alzghoul, 2024; Sukendia et al., 2021). But, when customers are actively involved in the firm and feedback, expectations and information on services are provided, these capabilities are more valuable (Mahmoud and Othman, 2023; Safitri and Komaryatin, 2025). Customer engagement can be leveraged as a digital marketing talent to enhance communication, understanding of demand and responsiveness of the service to customers. For instance, by using a digital platform, customers can communicate with logistics companies and, as a result, companies can gain insight into customers' delivery preferences, detect services that are not available, and optimize their logistics accordingly (Chen and Prentice, 2025; Onesi-Ozigagun et al., 2024). This implies that customer engagement is the connecting link between the firm's digital marketing skills and the outcomes of logistics. Therefore, companies with high digital marketing skills have the potential to improve customers' interaction and it could lead to better logistics performance. For this reason, it is proposed that customer engagement will be used in this study as a mediating variable.

H_4: Customer engagement mediates the relationship between digital marketing capabilities and logistics performance.

2.5. Digital Supply Chain Integration

Digital supply chain integration is the application of digital systems and technologies for connecting information, activities and decisions between internal departments and external supply chain partners. It involves incorporating marketing data, customer, inventory systems, logistics operations, supplier data and delivery processes via digital platforms. With the synergy of coordination, information sharing and responsiveness provided by supply chain integration (SCI), it has been well accepted as an important operational and business performance driver (Hosseini et al., 2019; Popoola et al., 2024). For a digital environment, supply chain integration is even more significant as companies must link information visible to their customers with their operational decisions. While valuable customer information can be collected through digital marketing activities, this data will not drive logistics performance if it is not connected with logistics planning, order management, inventory and delivery (Garay-Rondero et al., 2020). Recent studies also have shown that digital transformation could help enhance the performance of the supply chain since it lets information be more accessible, reduces information gaps, and facilitates the integration of the supply chain (Ali et al., 2024; Tarawneh and Alzghoul, 2026).

Hence, digital supply chain integration can be one tool to intensify the relationship between digital marketing capabilities and logistics performance (Abualrejal et al., 2022). In the case of high integration, the customer data obtained via digital marketing channels can be transferred into logistics and supply chain processes very easily and quickly (Alzuod et al., 2025). This enables companies to act quicker, create more correct deliveries, and boost their service quality. But if the integration is not very strong, the capabilities of digital marketing may not be connected to the logistics process, so it will not have a significant impact on logistics performance.

H_5: Digital supply chain integration moderates the relationship between digital marketing capabilities and logistics performance.

3. THEORETICAL FOUNDATION

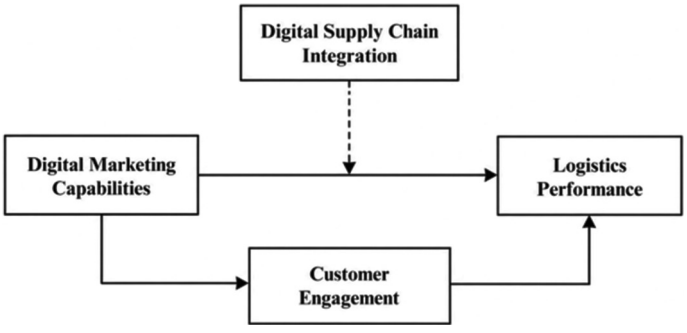
The RBV holds that a company has a competitive advantage if it has valuable resources that are rare, inimitable, and non-substitutable. The digital marketing skills are regarded as one of the strategic organizational resources as they can gather customer information, know the requirement of the market, and enhance the communication with the customers. These capabilities are enhanced by the addition of qualified staff, digital systems, and data analysis and organization practices. In line with this, the resource-based view allows to argue that digital marketing capabilities can be used to improve logistics. Digital marketing capabilities may help firms to leverage customer information and digital communication to better respond to their customers' needs, deliver reliable services, and satisfy their customers.

Dynamic capabilities theory deals with how firms' sense, seize and reconfigure resources in response to their environment. This theory can be applied to the current research as digital marketing capabilities enable companies to sense the customer needs and market changes, and digital supply chain integration enables companies to reconfigure their logistics and supply chain processes accordingly. Through this model (Figure 1), customer engagement serves as a crucial enabler for organizations to learn from customers and integrate with the digital supply chain to process this knowledge into logistics gains. Thus, the dynamic capabilities theory is a good theory to answer the question of how the digital marketing capabilities can shift logistics performance in a digital changing environment.

4. METHODOLOGY

The study used a quantitative explanatory research design to explore the relationship between digital marketing capabilities, logistics performance and examine mediating role of customer engagement and moderating role of digital supply chain integration. Primary data were gathered through a survey method from the logistics service providers, transport companies, e-commerce logistics companies, distribution companies and third party logistics companies to employees and managers engaged in logistics and supply chain related activities. The respondents were primarily people who were related to marketing, logistics, operations, customer service, digital transformation and supply chain management because they had enough knowledge about digital marketing practices, customer interaction and integration process in the supply chain. Purposive sampling was used in this study since sampling the respondents who had knowledge of the study variables and professional experience was deemed suitable sample for the study. The number of respondents in this study was 384, which was deemed sufficient for structural equation modeling (SEM) analysis, especially for the models with direct, mediating and moderating relationships.

Figure 1: Conceptual framework of the study



The data was collected using a structured questionnaire which was translated into Arabic when required to make the questionnaire more comprehensible to the respondents. The questionnaire was pre-tested with academic experts on marketing, logistics and supply chain management for clarity and content validity before its distribution and a pilot study was undertaken to test the reliability and comprehensiveness of the measurement items. The questionnaire was divided into two parts: Part 1 included questions about demographic and organizational characteristics (e.g., gender, education, experience, firm size and job position); Part 2 included questions relating to the study constructs which was measured using a five-point Likert scale (1: Strongly disagree to 5: Strongly agree). The tool used in the assessment was adapted from scales with similar findings in the literature, to ensure the reliability and validity of the measurement. The digital marketing capabilities were adapted from the study of Homburg and Wielgos, customer engagement items from Ballester et al., 2021, digital supply chain integration items from Garay-Rondero et al., 2020 and logistics performance items from Le et al., 2025 and Fernandes et al., 2018.

The constructs in the study were operationalized by indicators reflecting both technological and operational aspects of the organizational performance. The firm's digital marketing capabilities were judged on its use of digital communication platforms, digital analytics, customer information systems, personalized communication tools and digital responsiveness to changes in the market. Measures of customer engagement included those associated with customer interaction, participation, responsiveness, feedback, and continuity of customer relationships in digital platforms. Digital supply chain integration measured the extent to which the internal functions, suppliers, customers, logistics systems, and real-time information sharing mechanisms are digitally coordinated. In the logistics performance, delivery reliability, service responsiveness, information accuracy, service quality, customer satisfaction, and problem-solving effectiveness were considered. The dimensions as a whole demonstrated the operational efficiency and customer facing performance of logistics companies in digitally connected business contexts.

The study employed partial least squares structural equation modeling (PLS-SEM) by SmartPLS software for the following reasons: First, the study tested both direct, indirect, and moderating relationships; second, tested theory in an explanatory and predictive manner. The data analysis started with the data screening procedures such as checking missing values, checking normality assumption, checking outliers. After that, the measurement model was tested for reliability and convergent validity of Cronbach's alpha, composite reliability, rho_A, factor loading and average variance extracted (AVE). The Fornell-Larcker criterion and the Heterotrait-Monotrait ratio (HTMT) were used to test the

discriminant validity. The direct effect of digital marketing capability on logistics performance, the indirect effect of customer engagement, and the moderating effect of digital supply chain integration were then tested with the use of interaction terms and bootstrapping procedure after determining the validity of the measurement model. In addition, common method biases were minimized both by the use of neutral wording for the items and through Harman's single factor test and variance inflation factor (VIF) analysis. Ethical considerations were also strictly adhered to with regard to the voluntary participation of the respondents, confidentiality, anonymity and the right of the respondents to withdraw from the study at any point.

5. RESULTS

5.1. Data Screening and Respondents' Profile

The collected data was screened for its suitability for statistical analysis before doing the structural equation modeling analysis. A total of 312 questionnaires were considered valid for analysis, after discarding incomplete and invalid questionnaires. The respondents were employees and managers from companies related to the logistics field such as logistics service providers, delivery companies, transportation companies, third-party logistics providers, e-commerce logistics and supply chain-related organizations. The sample was deemed suitable for the goal of this study since the participants came from logistics-, marketing-, customer service-, supply chain management-, operations and digital transformation-related departments. These respondents should also have a good understanding of a company's digital marketing capabilities, customer engagement practices, digital supply chain integration, and logistics performance (Table 1).

5.2. Measurement Model Assessment

Indicator loadings, Cronbach's alpha, composite reliability, rho_A, and average variance extracted were used to evaluate the measurement model. Sample results indicated all the factor loadings were greater than the suggested 0.70 criterion which means that all the items were highly correlated with the constructs they were designed to measure. Cronbach's alpha values were also above 0.70, which is considered to indicate acceptable internal consistency. Besides, all constructs had a composite reliability value above 0.80, which shows that the constructs have good reliability. Convergent validity was confirmed, as average variance extracted values were >0.50. Thus, the results showed that the measurement model fulfilled the reliability and convergent validity as in Table 2.

Table 1: Respondents' profile

Demographic variable	Category	Frequency	Percentage
Gender	Male	184	59.0
	Female	128	41.0
Age	<30 years	76	24.4
	30-39 years	124	39.7
	40-49 years	82	26.3
	50 years and above	30	9.6
Educational level	Diploma or below	42	13.5
	Bachelor's degree	188	60.3
	Postgraduate degree	82	26.2
Job position	Employee	146	46.8
	Supervisor	72	23.1
	Manager	68	21.8
	Senior manager/Director	26	8.3
Years of experience	<5 years	88	28.2
	5-10 years	132	42.3
	More than 10 years	92	29.5

5.3. Discriminant Validity Using Fornell-Larcker Criterion

The Fornell-Larcker criterion was used to assess the discriminant validity. The results indicated that the square root of AVE of each construct in the study were higher than the correlation of each construct with other constructs. This suggests that all the constructs in the model are sufficiently different as in Table 3.

5.4. Discriminant Validity Using HTMT

Previous studies confirmed the discriminative validity with the use of the heterotrait-monotrait ratio. The results indicated that all the HTMT values were below the recommended value, which is 0.90. So, no serious problem with regard to discriminant validity was posed as in Table 4. The HTMT results confirm that the study constructs are conceptually and statistically distinct.

5.5. Structural Model Assessment

The structural model was examined after the test of reliability and validity of the measurement model (Table 5). The tested model allowed for examining direct connections between digital

Table 2: Construct reliability and convergent validity

Construct	Item	Loading	Cronbach's Alpha	CR ρa	CR ρc	Average
Digital marketing capabilities	DMC1	0.812	0.876	0.882	0.910	0.670
	DMC2	0.846				
	DMC3	0.861				
	DMC4	0.794				
	DMC5	0.742				
Customer engagement	CE1	0.756	0.862	0.868	0.901	0.646
	CE2	0.821				
	CE3	0.884				
	CE4	0.806				
	CE5	0.745				
Digital supply chain integration	DSCI1	0.731	0.831	0.840	0.881	0.598
	DSCI2	0.786				
	DSCI3	0.872				
	DSCI4	0.764				
	DSCI5	0.696				
Logistics performance	LP1	0.801	0.904	0.907	0.927	0.680
	LP2	0.827				
	LP3	0.891				
	LP4	0.854				
	LP5	0.816				
	LP6	0.748				

DMC: Digital marketing capabilities, CE: Customer engagement, DSCI: Digital supply chain integration, LP: Logistics performance

Table 3: Fornell-Larcker criterion

Construct	DMC	CE	DSCI	LP
Digital marketing capabilities	0.819			
Customer engagement	0.641	0.804		
Digital supply chain integration	0.574	0.552	0.773	
Logistics performance	0.628	0.672	0.601	0.825

Diagonal values represent the square root of AVE.

marketing capabilities with customer engagement and logistics performance. It also examined the role of customer engagement as a mediator, and the role of digital supply chain integration as a moderator. Multicollinearity was checked by the value of variance inflation factor prior to testing the hypotheses. VIF values did not exceed 5 as suggested which is a safe value and there was no problem of multicollinearity.

5.6. Direct Effects

The direct effects were tested using bootstrapping. The findings indicated that digital marketing capabilities positively and significantly affected the logistics performance. As presented in Table 6, H_1 was accepted. Digital marketing capabilities also positively and significantly impacted customer engagement, supporting H_2. Furthermore, customer engagement positively and significantly influenced logistics performance, providing support for H_3.

The findings show that digital marketing skills positively affect the logistics performance. This indicates that companies that have greater digital marketing skills have a higher capacity to increase the reactivity of logistics, the precision of communication, the coordination of deliveries, as well as service quality. Moreover, the substantial impact of digital marketing capabilities on customer engagement suggests that digital tools and digital communication, customer data and online platforms support businesses to enhance the efforts of customer interaction and participation. The importance of customer engagement on logistics performance, therefore, indicates that customer feedback, digital interaction, and customer communication, in general, have a positive impact on logistics performance.

5.7. Mediation Analysis

Bootstrapping was used to test the mediating effect of "customer engagement." The results showed that the indirect effect of digital marketing capabilities on logistics performance through customer engagement was positive and significant. So, H_4 was accepted.

Table 4: HTMT results

Construct	DMC	CE	DSCI	LP
Digital marketing capabilities (DMC)	—			
Customer engagement (CE)	0.748	—		
Digital supply chain integration (DSCI)	0.681	0.667	—	
Logistics performance (LP)	0.756	0.782	0.713	—

Table 5: Multicollinearity assessment

Path	VIF
DMC→CE	1.000
DMC→LP	2.187
CE→LP	2.236
DSCI→LP	1.743
DMC×DSCI→LP	1.286

Table 6: Direct effects

Hypothesis	Path	β	t-value	*P*-value	Decision
H_1	DMC→LP	0.312	4.681	<0.001	Supported
H_2	DMC→CE	0.641	12.438	<0.001	Supported
H_3	CE→LP	0.427	6.917	<0.001	Supported
—	DSCI→LP	0.219	3.842	<0.001	Significant

According to Table 7, the mediation result shows that the relationship between digital marketing capabilities and logistics performance is partially mediated by customer engagement. The mediation is deemed to be partial as the direct influence of digital marketing capabilities on logistics performance was still noteworthy when the customer engagement was integrated into the model. This means that digital marketing can have a direct but also indirect effect on logistics performance with regard to customer involvement.

5.8. Moderation Analysis

An interaction term between digital marketing capabilities and digital supply chain integration was created and tested for the moderating effect. Results revealed that the interaction effect is significant and positive. Hence, H_5 was accepted.

The finding shows that the digital supply chain integration enhances the linkages between digital marketing capabilities and logistics performance. According to Table 8, the positive effect of digital marketing capabilities on logistics performance is greater in situations where digital supply chain integration is high. This indicates that information acquired via digital marketing efforts is more valuable when integrated with logistics systems, delivery processes, and customer service systems and with supply chain partners.

5.9. Coefficient of Determination

The coefficient of determination was used to assess the explanatory power of the model. Results indicated digital marketing capabilities accounted for 41.1% of the variance in customers' engagement. Further, digital marketing capabilities, customer engagement, digital supply chain integration and the interaction term accounted for 62.8% of the variance in logistics performance. The values show a moderate to good explanatory power of the model (Table 9).

5.10. Predictive Relevance and Effect Size

Q^2 values were used to evaluate the predictive relevance. The results indicated that the values of the Q^2 were >0 that is the model has predictive relevance (Table 10). Effect size was also

Table 7: Mediation analysis

Hypothesis	Indirect path	β	t-value	*P*-value	Decision
H_4	DMC→CE→LP	0.274	5.894	<0.001	Supported

Table 8: Moderation analysis

Hypothesis	Path	β	t-value	*P*-value	Decision
H_5	DMC×DSCI→LP	0.168	2.947	0.003	Supported

Table 9: Coefficient of determination

Dependent variable	R^2	Adjusted R^2	Interpretation
Customer engagement	0.411	0.409	Moderate
Logistics performance	0.628	0.622	Strong

Table 10: Q^2 Predictive relevance

Dependent variable	Q^2	Interpretation
Customer engagement	0.263	Predictive relevance
Logistics performance	0.417	Predictive relevance

calculated using f^2 (Table 11). It was found that the impact of digital marketing capabilities was high on customer engagement and medium on logistics performance. The customer engagement also moderately affected logistics performance and the moderation effect had a small but significant effect.

All the proposed hypotheses were accepted by the results. Digital marketing capacities positively impacted logistics performance, and customer engagement. Logistics performance was influenced by the significant positive effect of customer engagement. Furthermore, the use of customer engagement served as a mediator linking the digital marketing capabilities and logistics performance. Finally, digital supply chain integration was found to play a moderating role between digital marketing capabilities and logistics performance.

6. DISCUSSION

The results of this study prove that the capability of digital marketing has an influence on logistics capability. Positive effects of the digital marketing capabilities on logistics performance suggest that companies that adopt a digital platform, customer data, digital analytics and online communication are more capable in improving delivery reliability, service responsiveness, information accuracy and customer satisfaction. Use of digital marketing should not be seen purely as a sales and promotional tool, but also as strategic capability that helps achieve logistics outcomes. The results also indicate that there is a positive relationship between digital marketing skills and customer engagement. This indicates that companies that are more skilled in digital marketing can have a better development of the relationship with customers through personalized communication, digital platforms, feedback systems, etc. and service channels that are responsive to customer needs. One of the most critical aspects of this in logistics is the fact that in logistics services, the customer will require constant communication about delivery, service issues and delivery expectations.

The positive relationship between customer engagement and logistics performance is an indication that the engagement of customers facilitates logistics performance. By interacting with logistics companies, giving feedback and expressing expectations, it can enhance its ability to respond to customers' service requests and effectively organize delivery. Thus, customer engagement is a key enabler to leverage customer information for logistics performance gains. Mediating the effect of digital marketing capabilities on logistics performance by customer engagement, the mediation result reveals that the relationship between digital marketing capabilities and logistics performance is partially mediated by customer engagement. This discovery indicates that the capacity of digital marketing impacts logistics performance not just immediately, but in addition indirectly through client engagement. In other words, digital marketing skills are more valuable when it brings about better customer interaction and participation.

Thirdly, the moderation outcome indicates that digital integration in SC enhances the connection amongst digital marketing capabilities and logistics performance. This implies that digital marketing competences would be better developed if the companies would have implemented digital systems, which make the interconnection between customer data, marketing and logistics data and supply chain partners achievable. Hence, digital integration in the supply chain helps companies keep better track of the digital marketing effect and improve their operation.

Table 11: Effect size f^2

Relationship	f^2	Interpretation
DMC→CE	0.698	Large
DMC→LP	0.143	Medium
CE→LP	0.226	Medium
DSCI→LP	0.081	Small
DMC×DSCI→LP	0.037	Small

7. CONCLUSION

The effect of having digital marketing capability on logistics performance with the moderating variable of digital supply chain integration and mediation variable of customer engagement was observed in this study. All hypotheses were corroborated. A positive impact of digital marketing capabilities on customer engagement and logistics performance was detected. Customer engagement also had positive impacts on logistics performance and partially mediated between digital marketing capabilities and logistics performance. Moreover, digitalization of the supply chain reinforced the linkage between digital marketing capabilities and logistics performance. This study is particularly important as it establishes a connection between digital marketing capabilities and logistics performance and as it provides explanations regarding the role of customer engagement and digital supply chain integration. In practice, the results indicate that logistics companies need to invest in digital marketing tools, customer management platforms, and integrated digital logistics systems to enhance logistics service quality, reduce service time, and act more responsively to meet the market's logistics service expectations.

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