



Digital Capability Alignment and Customer Value Creation: A Dynamic Capabilities Perspective on AI-Enabled Marketing and Supply Chain Analytics

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Received: 02 March 2026

Accepted: 08 June 2026

DOI: <https://doi.org/10.32479/irmm24206>

ABSTRACT

This research questions the concomitant impact of AI-based digital marketing and supply-chain analytics capabilities on customer experience with the digital supply-chain integration, and the digital maturity is used as a moderator variable of retail industry. Based on the DCT, AI-based marketing is envisaged as a sensing potential, supply-chain analytics as a seizing potential, and digital supply-chain integration as the reconfiguring mechanism that converts digital intelligence into the customer value. By using data gathered by using surveys with 487 respondents in the role of retail managers within Jordan and PLS-SEM analysis, the results suggest that supply-chain analytics abilities have a beneficial impact on digital integration and customer experience. Conversely, AI-based digital marketing has a statistically significant but negative effect on integration and customer experience, which suggests a lack of alignment between the front-end digital programs and the operational readiness on the back-end. Digital supply-chain integration moderates the correlation between the analytics and experience, whereas digital maturity strengthens the impacts of integration on customer experience. These findings highlight the paramount role played by the balanced capacity building and the cross functional alignment towards the sustainability of the value creation in the digital transformation of retail.

Keywords: AI-Based Digital Marketing, Supply Chain Analytics Capabilities, Digital Supply Chain Integration, Digital Maturity, Customer Experience, Digital Transformation

JEL Classifications: M31, M15, O32, L86

1. INTRODUCTION

The high rate of digital technologies change has radically transformed the retailing industry, forcing companies to reorganize their marketing activities as well as their supply-chain processes to survive in the increasingly volatile markets. Specifically, artificial intelligence (AI) has become a disruptive force, allowing organizations to shift to the fully data-driven approach to decision-making by being able to understand customer

insights and responsibilities in line with operational agility and responsiveness (Li and Xu, 2025; Usman and Moinuddin, 2025). With retailers striving to meet rising customer demands in the area of personalized experiences, precision, and end-to-end omni-channel experiences, AI-based digital marketing (AIDM) has become an intrinsic strategic asset, which enables sensing customer preferences in real time and enhancing alignment between demand signals and operational processes at the back end (Zong et al., 2025). These trends imply that there is an increasing

overlap between digital marketing technologies and supply-chain performance and that customer-facing analytics are no longer a peripheral concern but rather core to supply-chain integration and responsiveness (Alzuod et al., 2025).

Meanwhile, the supply-chain ecosystem is increasingly volatile due to global shocks, the spread of e-commerce, and the growing demands of customers (Abu-IsSondos, 2025; Khaddam and Alzghoul, 2025). Organizations, in their turn, are making significant investments in the data-enabled supply chain analytics technologies to enhance the visibility, predictability of the forecasts, and the quality of the decisions made throughout the value chain (Ivanov and Dolgui, 2021). These are capabilities that enable predictive and prescriptive insights that increase the integration of information between suppliers, logistics partners, and retail channels, which eventually improves supply-chain operations, which are more synchronized and resilient (Redžeb, 2024). However, even with the fast development of the analytics use, most retailers are still having difficulty in turning digital applications into high-quality customer delivery, which suggests that the theoretical and empirical research of the digital capabilities as joint input to supply-chain-customer correlations requires further advancement (Abualrejal et al., 2022; Alghizzawi et al., 2025).

A solid framework on the study of this interaction is the dynamic capabilities theory (DCT) (Teece, 2007, 2018). In the lenses of dynamic capabilities, AIDM is a sensing capability whereby companies are able to identify shifting customer preferences as well as new market opportunities. The seizing capability of the firm is reflected in supply-chain analytics capabilities that allow the firm to act on the insight by making decisions based on data using data-enabled forecasting, planning, and coordination. Digital supply chain integration (DSCI) is a reconfiguring capacity and helps to transform the operations processes more efficiently and responsively to generate value. A combination of these two abilities defines the ability of a firm to transform digital intelligence into higher customer experience and satisfaction which are among the key performance outcomes in the modern retail setup (Tarawneh and Alzghoul, 2026).

Although this combined view is theoretically relevant, the empirical studies are still disjointed. The available literature tends to investigate AI in marketing or analytics in supply chains separately, ignoring the effect of these features on customer-level performance (Alsabt et al., 2023; Smyth et al., 2024). Additionally, little has been said about the role of digital maturity as the preparedness of the organization and its capacity orchestrate digital technologies although this was long known as an important prerequisite to the success of a digital transformation (Adem et al., 2018). This gap identifies the necessity of an all-time model that encompasses the way AI-based marketing and analytics-based supply-chain functionality works collectively to advance DSCI and consequently customer experience in the retail industry. To fill this gap, the current paper hypothesizes and empirically verifies a dual-capabilities model through which AIDM, supply-chain analytics capabilities, and digital supply-chain integration, and customer experience, are mediated by a moderating condition;

that is, digital maturity. The research incorporating information provided by digital marketing, supply-chain analytics, and dynamic capabilities literature offers a new angle that will explain how retailers can utilize digital capabilities to generate a high level of customer value. The results provide theoretical insights as well as practical suggestions to the retail managers in navigating the digital competition, customer expectations and supply-chain complexity in the digital age of swift technological transformation.

2. LITERATURE REVIEW

The increasing rate of digitization of business processes has radically changed the processes of creating value in the retail industry, as it requires companies to develop new technological competencies that can help them make better decision-making, optimize marketing operations in the supply-chain, and provide customers with enhanced experiences. The main driver of this transformation is the growth of AI, data analytics, and digital tools of integration that allow organizations to transform mass data into actionable information (Al-Kasasbeh et al., 2022; Al-Maaitah et al., 2026). The literature therefore highlights the significance of the customer-facing and supply-chain-facing capabilities as the two organizational performance engines in the digital era. Recent research emphasizes that not only do the retailers with the data-driven capabilities gain the operational efficiency but also the enhanced customer relationships, responsiveness, and long-term competitiveness (Azher et al., 2025; Horbach, 2013). It is on this background that increasing amounts of literature have indicated that AIDM should be combined with supply-chain analytics to develop coordinated digital supply-chain systems that can respond to changing market conditions and consumer demands.

The digital marketing based on AI has become an important capability that organizations that want to feel the changes in the market in real time. AI-based marketing, in comparison with the traditional digital marketing, which is largely based on retrospective data and rule-based systems, is built upon machine-learning algorithms, natural-language processing, deep learning, and predictive analytics to predict trends in consumer behavior, content delivery optimization, demand forecasting, and the personalization of customer interactions on a large scale (Atieh et al., 2025; Oubrahim et al., 2023). These smart applications supplement the capability of a firm to acquire finer customer data and convert the same into specific marketing interventions that elevate the customer acquisition, conversion, and retention processes. AI-based segmentation, personalized recommendations, and automated customer engagement systems will help companies to identify subtle changes in demand and therefore, serves as a sensing capability in the dynamic capabilities model (Mahmoud, 2026; Teece, 2018).

AI-based marketing possibilities are needed in the retail market where the behavior of customers changes quickly in digital platforms in order to remain relevant and competitive. According to scholars, real-time AI analytics close the existing gap in customer insight and operational decision-making, allowing retailers to change the availability of products and delivery options, as well as promotional decisions, in a short period of time,

based on predictive demand trends (Garay-Rondero et al., 2020; Ivanov and Dolgui, 2021). Consequently, AIDM is becoming an increasingly conceptualized source of strategic strength able to increase market agility and promote downstream and upstream integration in the supply chain by enhancing information accuracy and responsiveness. However, although empirical findings support the claim that the AI-based marketing tools enhance customer interaction and brand loyalty, much less studies investigate how these technologies could enable the integration of supply chains and customer satisfaction at the same time.

In parallel with the advancements in AI marketing, the supply-chain analytics functionalities have received much attention as organizations are trying to respond to uncertainty, complexity, and variability in the global supply networks. These analytics technologies include descriptive, diagnostic, and predictive and prescriptive advanced analytics, which give insights to decision-makers on real-time demand forecasts, inventory optimization, logistics planning, and supplier performance (Ma et al., 2022; Reyes et al., 2023). The supply-chain analytics solutions increase visibility throughout the supply chain, allowing companies to minimize inefficiencies, eliminate disruptions, optimize resource utilization, and coordinate workflows when collaborating with internal departments and outside partners (Abousweilem et al., 2023; Nürk, 2019). Furthermore, scholars report that companies that are armed with strong analytics perform better in their operation, are more resilient, and have a better fit between supply and demand.

The concept of DSCI assumes the center stage in the modern supply-chain management literature because companies are starting to realize that digital marketplaces demand operations that are flexible, accurate, and fast to be delivered by siloed operations. Integration can be defined as the smooth integration of processes, information systems, resources and technologies between internal and external supply-chain participants to allow the flow of appropriate and timely information and help to make synchronized decisions (Dubey et al., 2024). Literature also defines various forms of integration, such as internal integration, supplier integration, and customer integration, and the peripheral effect they have on operational efficiency, innovation, and responsiveness (Mahmoud and Othman, 2023). This integration becomes enhanced in the digital age with the help of cloud computing, IoT tracking systems, and AI analytics platforms and digital collaboration tools (Ali et al., 2024).

Customer experience and customer satisfaction are now targeted as key performance metrics within the retail industry, because the digital transformation has changed the competitive advantage to the company that provides a personalized, frictionless and convenient service intersection. Conceptualized in the literature, the customer experience is their holistic and multidimensional construct with cognitive, emotional, behavioral, and sensory responses to brand interactions during the customer journey (Albayrak Ünal et al., 2023). Marketing content and online touchpoints do not create the experience in digital retail space; it is equally the activity of supply-chain operations like order accuracy, speed of delivery, transparency, and reliability of the services. Because of this reason, researchers believe that the performance of supply-chain has

become a strategic driver of customer satisfaction, and the roles of marketing and operations are becoming intertwined (Umar et al., 2017). The digital technologies enhance these linkages through the means of real-time communication, personalized service options, and better tracking options, which enhance the customer perceptions of control and trust. The studies also show that there is a growing demand among customers to have coordinated interactions between digital and physical channels, and digital supply-chain integration is a fundamental requirement to achieve excellent experience (Harrir and Triqui Sari, 2025).

Another body of literature is discussing the importance of digital maturity as it is conceptualized as the ability and preparedness of an organization to use digital technologies in both strategic and operational decision-making. Digital maturity does not merely represent technological infrastructure but also digital literacy, organizational culture, leadership pledge, and process flexibility (Abushaikha et al., 2020). The firms that are more digitally mature are defined by the enhanced alignment of IT and business strategy, the inclination to experiment with digital, and more effective governance processes, which facilitate the process of digital transformation (Oluwafunmilayo Esan et al., 2024). Therefore, digital maturity is a facilitator, which enhances the beneficial impacts of digital supply-chain integration on customer satisfaction, which indicates that digital supply-chain integration might not translate into significant customer results in low-maturity firms.

2.1. Hypotheses Development

Based on the DCT, this paper conceptualizes AIDM and supply chain analytics abilities as complementary dynamic capabilities that together help the retailers be able to sense market changes, dive on the data-driven opportunities, and reshape their supply chain processes in a way that enhances the customer experience. The digital marketing provided by AI is a sophisticated sensory facility enabling companies to obtain small-scale, real-time information on consumer preferences, purchasing intentions, and interaction habits through machine-learning-based classification, personage system, and predictive analytics (Garza-Reyes et al., 2019; Zhou et al., 2024). Such insights produce the rich demand signals that can be upwardly communicated to the operations and logistics functions and hence assist in making more accurate forecasts, positioning inventory and achieving increased synchronization in planning. A skilled retailer is more likely to align their supply-chain operations with the real demand, minimize the lack of match between the supply and demand, and organize the actions with their partners in a much more responsive way when they successfully convert AI-generated customer intelligence into operational decisions (Aboalghanam and Alzghoul, 2025; Lu et al., 2018). AI-supported sensing help augment the information foundation where integration choices are reached, which raises the chances that companies will invest in and leverage digital platforms, data interfaces, and collaboration tools that enable integration of supply-chains. Thus, it can be anticipated that AI-driven digital marketing can have a positive impact on the digital supply-chain integration. In these regards, the hypothesis is as follows:

- H_1 : AIDM has a positive effect on DSCI.

Simultaneously, the seizing aspect of dynamic capabilities is reflected in supply chain analytics capabilities (SCAC) that help companies to change data into actionable information that assists in decision-making in the procurement, production, warehousing, and distribution areas (Adem et al., 2018; Sharma et al., 2021). Companies that have more sophisticated analytics can track end-to-end material and information flows, discover bottlenecks, model alternative conditions, and can optimize the allocation of resources in real-time. These abilities are based on the combination of heterogeneous data sources that include transactional data, sensor data, sales data and customer interaction data. The literature always shows that the companies with strong analytics perform better supply-chain visibility and can better implement collaborative planning and information-sharing processes with their partners (Jena and Singhal, 2023). Insights based on analytics stimulate the use of unified digital platforms, including joint dashboards and cloud-based systems of coordination, which connect the departments within an organization and stakeholders outside of it. SCAC, therefore, significantly improve performance, but also serve as the drivers of all-out digital integration of supply-chain. In this regard, it is understandable to expect that, as the SCAC increase, the digital integration in the retail supply chain also increases. This brings about the second hypothesis.

- H_2 : SCAC have a positive effect on DSCI.

The DSCI has been recognized as one of the key drivers towards customer-related results. DSCI ensure a smooth flow of information and help retailers synchronize inventory, replenishment and react promptly to channel changes in demand (Vern et al., 2025). The customers of omni-channel retail settings would not judge their experiences only on the quality of marketing communication or the usefulness of digital interface, but also on the speed, reliability and transparency of fulfilment procedures. Integrated supply-chain systems can help retailers to offer precise information about the availability of products, reduce stockouts and shipping delays and have flexibility in fulfilment options like click-and-collect, same-day delivery, or convenient returns. Such features increase the rates of service quality, trust, and convenience, which leads to the development of more positive customer experience and the degree of satisfaction (Singh, 2025; Zhou et al., 2024). Also, built-in electronic systems allow monitoring the current state of affairs and maintaining contact with customers proactively, which will additionally strengthen the feeling of transparency and control as important elements of the modern customer experience. Digital supply-chain integration is the reconfiguring capability, according to dynamic capabilities perspective whereby the firms reconfigure the resources and processes to bring the best value. Therefore, the increased digital integration of supply-chain ought to result in improved customer experience and consumer satisfaction in the retail domain. It is this that leads to the formulation of the hypothesis as follows:

- H_3 : DSCI has a positive effect on customer experience/satisfaction.

Continuing on the points made above, it can be assumed that the integration of digital supply chain is the mediating force that can be used to improve the customer experience via AIDM. The AI-based marketing solutions would create detailed data on customers and

more precise demand predictions; however, these advantages are not going to be completely actualized to the customers without the supply chain being capable of responding to this data. In the case that AI-driven digital marketing is not linked with the process of supply chain, companies can understand the intentions of customers but fail to deliver goods in a timely and trusted way, thus offering them a fragmented experience. On the contrary, in case the AI-based insights are integrated into the planning processes, inventory management, and logistics, the retailers will be able to react proactively to reduce the stock levels, offer delivery, and guarantee the service promises to the predicted needs of the customers (Cichosz et al., 2020; Saunders et al., 2021). This alignment enhances more accurate order fulfillment, less waiting time, and helps to align fulfilment strategies more personally, which in turn directly leads to customer satisfaction and the qualitative perception of the perceived experience. With regards to dynamic capabilities, AIDM triggers sensing, though its effects on customer outcomes rely on reconfiguring capabilities that are represented by DSCI. Consequently, the flow of the beneficial impact of the AIDM to customer experience is likely to be conveyed by DSCI. Thus, such an argument leads to the following mediation hypothesis:

- H_4 : DSCI mediates the relationship between AIDM and customer experience/satisfaction.

A similar mediating logic can be used in the association between the analytics competences of supply-chain and customer experience. Supply-chain analytics provide the analytical base of more accurate forecasting, optimized replenishment, and high-quality routing choices, which can be used to improve the customer experience. However, analytics potentials alone cannot perform their functions satisfactorily unless the organization and technology systems to bring them together are not in place. Without the inclusion of digital systems, the analysis obtained by analytics might not be spread to the specific departments they are needed or might never reach the partners necessary to take action on them. On the other hand, integrating supply-chain analytics features in an interconnected digital supply chain can enable the rapid dissemination of the insights derived through this method in functions and partners and, as a result, lead to the coordinated action that would raise the reliability of delivery, its responsiveness, and customization of services (Cichosz et al., 2020). Analytics can be used with integrated systems, which can then trigger automated replenishment, dynamic routing, or real-time capacity adjustments, so that those systems are directly visible in the experience of the customers as they will deliver faster, have fewer stockouts, and be a more reliable service. The analytics, seen in the prism of dynamic capabilities are the capacity to seize capabilities, the value of which is realized through the process of reconfiguring due to the power of digital integration. As a result, it is foreseen that digital supply-chain integration will become one of the key channels of connecting analytics capabilities and customer experience. In relation to this, the hypothesis is developed as follows:

- H_5 : DSCI mediates the relationship between SCAC and customer experience/satisfaction.

Although the hypotheses that were presented above focus on the direct and indirect links between capabilities and outcomes, the

authors of the literature on the digital transformation state that the degree to which companies can utilize digital integration to the maximum benefit of their customers depends on their degree of digital maturity to a significant degree. Digital maturity is used to describe the extent to which a company has the technological environment, data management, digital capabilities, and conducive culture required to coordinate the digital initiatives (Dulaimi et al., 2006; Popoola et al., 2024). Companies with strong digital maturity have high standardized data architecture, interoperable systems, agile processes, and leadership with a focus on cross-functional collaboration. In these types of settings, the integrated digital supply chains are more prone to be fully utilized, since employees are able to process the data effectively, the systems are able to communicate easily and decision-making processes promote quick changes based on the real-time information. As a result, the beneficial influence of DSCI on customer experience must be more significant when the level of digital maturity is high, since the organization is in a better position to transform integration into the observable service benefits, e.g., personalized delivery options, proactive communication, and uniform omni-channel experiences (Alsmairat and Hammad, 2023; Oubrahim et al., 2023).

On the other hand, in organizations that are poorly digitalized, the digital integration can be superficial or under-utilized. Old systems, data segmentation, lack of digital savvy, and resistance to change may impede the successful application of integrated systems and limit the organization to act quickly on the insights created by integration. In this case, despite the existence of technological integration, its effect on customer experience might not be prominent, because the working processes are inflexible, communication with the customers is sluggish or not regular. In dynamic capabilities perspective, the digital maturity may be considered a higher-order capability of how sensing, seizing, and reconfiguring activities can be orchestrated to create high-quality customer value. It therefore acts as a limit to the association between DSCI and customer experience. Based on this, it is hypothesized as follows as a moderating hypothesis:

- H_6 : Digital maturity positively moderates the relationship between DSCI and customer experience/satisfaction.

2.2. Conceptual Framework

The theoretical framework employed to design the conceptual framework of the proposed study incorporates the current insights in AI, supply chain analytics, digital integration, and customer experience, and is conceptually. As per DCT, organizations remain competitive in digital turbulent settings by building the potential to discern opportunities, capture data driven actions and re-structure the processes of operations (Teece et al., 1997). The AIDM and supply chain analytics in this model are dynamic capabilities that complement each other to increase the capacity of the firm to create value throughout the supply chain. AI-driven digital marketing constitutes the main sensing ability of the framework allowing retailers to understand the needs and behavioral patterns of customers in real time with the help of machine learning, predictive analytics, and personalized digital interaction. These insights will offer precise and in-time demand indicators that can go a long way in improving supply-chain decision-making (Ali et al., 2021; Khan et al., 2022). AI-based customer intelligence and

its alignment with operational processes can be used when they assist in more synchronized planning, better demand forecasting, and a more effective integration of the supply-chain partners.

The seizing capability, in its turn, is supply-chain analytics capability. The advanced analytics tools, in turn, help companies transform various streams of data into operational decisions that enhance the visibility, transparency, and coordination of supply-chain processes (Ivanov et al., 2018; Ivanov and Dolgui, 2021). These capabilities underpin the organizations capacity to integrate digital systems and streamline the information flows within procurement, logistics, inventory management and the customer facing functions. Digital supply-chain integration is the core of the conceptual model as it is the reconfiguring power that helps firms to reorganize processes, restructure workflow, and implement digital technologies to facilitate smooth coordination. Unified digital systems enable organizations to react efficiently to signals to be produced via AI-based marketing and analytics that enhance the accuracy of the orders, the rate of fulfilment, traceability, and the quality of communication (Ivanov et al., 2019). Consequently, the digital supply-chain integration turns out to be the central process by which internal digital capabilities are converted into the external value.

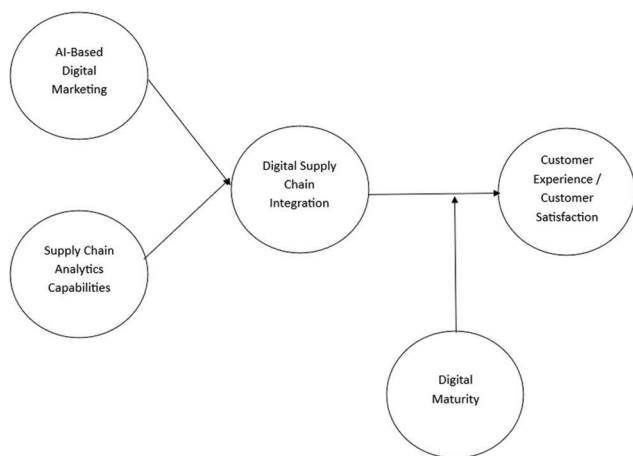
Customer experience/customer satisfaction is the ultimate outcome in the framework as it is the general perception of the customer of the firm, in terms of its capacity to provide reliable, timely and personalized service. The existing literature confirms that the performance of the supply-chain processes, especially in terms of availability, accuracy of deliveries, and transparency, has a strong impact on customer experience, so the integration of the supply-chain digitally is an essential factor that defines customer value in the retail context (Swafford et al., 2008; Tang et al., 2023). Lastly, digital maturity moderates the association between digital supply-chain integration and customer experience. Companies that are more digital have superior technological frameworks, digital expertise, and nimble cultures that allow them to utilize integration capabilities in a better way (Končar et al., 2020; Wong et al., 2020). In such a way, digitally mature organizations are better placed to transform integration into high quality customer experiences, and firms that are lowly digitally mature might not be able to take advantage of these advantages to the fullest extent.

All in all, the conceptual model offers a two-capabilities approach where AIDM and supply-chain analytics work together to boost DSCI, which in turn positively influences the customer experience. This is enhanced by the relationship of the digital maturity, which supports the notion that digital preparedness is necessary to optimize the worth of integrated capabilities. Based on the DCT, the framework gives a consistent reason why retailers can coordinate AI-based marketing, analytics-based operations, and coordinated supply chains to achieve high customer value in data-rich settings. As Figure 1 illustrates, the proposed model of the study:

3. METHODOLOGY

The current research design is based on the explanatory research design which is quantitative in nature and explores the relationship

Figure 1: The study model



between AIDM, digital SCAC, DSCI, digital maturity, and customer experience in the retail industry on an empirical basis. The quantitative approach is explained by the fact that the model requires testing theoretically based causal mechanisms and in addition to this it examines the direct and moderated effects, among causal latent constructs. The explanatory orientation is consistent with the aim of the study to establish the influence of the dual digital capabilities on the customer outcomes through digital integration, which is in line with the assumptions of DCT. The target market is made up of managers, supervisors, and decision-makers who are working in retail organizations in Jordan such as e-commerce retailers, supermarkets, fashion retailers, electronic retailers, and omni-channel retail companies. The selection of these respondents was due to the reason that they have firsthand knowledge in digital marketing operations, adoption of analytics, mechanisms of supply chain integration, and customer related outcomes. Purposive sampling method was used with the intention of making sure that the respondents possessed the digital and operational experience of relevance that adds to the validity of the responses.

Electronic distribution of questionnaires was done through email, LinkedIn and organization WhatsApp groups (n = 550). Upon excluding incomplete or inconsistent responses, 487 valid responses were obtained and analyzed and the response rate (88.5) was achieved. This is above the minimum acceptable levels of structural equation modeling (Hair et al., 2019; Sarstedt et al., 2022) which is enough to have sufficient statistical power to estimate measurement and structural models in SmartPLS4. The research gathered data by use of online structured questionnaire, which was created on Google Forms. The instrument was reviewed by three scholarly professionals in the field of digital transformation and supply chain management before it was distributed to make sure the content and clarity are clear and valid. The reliability of the items was checked with the pilot test that comprised 30 people and led to slight changes in wording. Participation was on a voluntary basis; the respondents were advised that their responses would remain confidential and that they could pull out any time. There was no collection of any personally identifying data.

Multi-item five-point Likert scales were used to measure all constructs in this study, ranging from 1 (Strongly Disagree) to

5 (Strongly Agree). All constructs were operationalized using multiple reflective items (four to five per construct) adapted from prior validated studies to ensure adequate construct coverage, reliability, and validity within the PLS-SEM framework. The measurement of AIDM was established based on the items that were modified according to the existing studies on the topic of digital and AI-enabled marketing (Umar et al., 2017), and they measured the level of personalized targeting, automated delivery of content, and predictive insights into the customers. The SCAC were based on the works by (Ivanov et al., 2018; Ivanov and Dolgui, 2020) with emphasis on the use of predictive analytics, real time dashboards and data-driven operational decision making by firms. The items of DSCI were selected in accordance with (Kache and Seuring, 2017) to determine the extent of digital coordination, information systems sharing, and real-time communication among the supply chain partners. The measures of Customer Experience and Customer Satisfaction were based on the adapted items developed by (Al Mamun et al., 2025; Jamil et al., 2024) focusing on perceptions of the quality of the services, the reliability of the fulfillment, and the responsiveness in general. Digital Maturity was operationalized based on items that were based on (Kalusivalingam et al., 2022), which considered the organizational digital preparedness, interoperability of the systems, and cultural ability to benefit digital technologies. All measurement items were also narrowed down to suit contextual and operational realities of retail organizations in Jordan.

4. DATA ANALYSIS AND RESULTS

Data analysis process was done through SmartPLS 4.0 whereby two-phase analysis approach was followed as a basis of the analytical procedure in accordance with the guidelines of PLS-SEM. At the initial phase, the measurement model was put to its test to ensure that the constructs displayed sufficient reliability, convergent and discriminant validity. After confirming the reliability of the measurement model, the second step involved the analysis of structural model in order to verify the put forth hypothesized correlations between AIDM, supplying chain analytics capabilities, DSCI, digital maturity, and customer experience.

4.1. Measurement Model Assessment

Measurement model was assessed to also make sure that all constructs had sufficient reliability and validity before proceeding to the structural analysis. The first measure of the indicator reliability was the standardized factor loadings which were all above the recommended standard of 0.70 thus indicating that all the items had a real contribution to the individual construct (See Table 1). Cronbachs alpha and composite reliability (CR) were used to check internal consistency reliability and the results of all the values were greater than the agreed cutoff (0.70), and this is a sign of high reliability with the model. Convergent validity was achieved by ensuring that the variation extracted by each construct was >0.50 which proved that the items were able to collectively account an adequate amount of variance. The evaluation of discriminant validity was done subsequently using Fornell-Larcker criterion and the HTMT ratio, the findings of which supported that each of the constructs was empirically different between the others. In general, the measurement model demonstrated good

psychometric characteristics, which justified the application of constructs in the further testing of the structural model.

The factor loadings are all greater than the recommended 0.70 which proves a high indicator reliability. The value of Cronbach alpha as well as composite reliability (ρ_a and ρ_c) of all constructs are >0.70 and it reflects high internal consistency. The AVE values exceed 0.50 and thus portray that the measurement model has satisfactory convergent validity.

Figure 2 shows the standardized factor loadings in each of the measurement items that refer to the five constructs, including AIDM, SCAC, DSCI, Digital Maturity and Customer Experience/ Customer Satisfaction. The loadings are all above the suggested value, which is 0.70, thus illustrating good indicator's reliability, and confirming that the measurement scheme is sufficient.

4.2. Discriminant Validity (Fornell-Larcker)

Discriminant validity was assessed by use of Fornell-Larcker criterion which compares the square root of the mean variance extracted (AVE) of each construct with its inter-construct relationships. As shown in Table 2, the diagonal scores which depict the square roots of the AVE are always greater in value than the inter-construct correlations. As an example, the square root of the AVE of the AIDM (0.837) is bigger than its correlations with Customer Experience (0.671), Digital Maturity (0.669), DSCI (0.624), and SCAC (0.632). Similar tendencies can be observed in all other constructs. These results provide potent evidence of discriminant validity and support the idea that each construct provides a specific conceptual space of the measurement paradigm.

The square root of AVEs of each construct is represented as diagonal values. The discriminant validity is determined as the value of the diagonal of each construct is greater than the value of the correlation coefficients with all the rest of constructions that prove the empirical delimitation of latent variables.

4.3. Discriminant Validity (HTMT)

Discriminant validity was also analyzed by use of Heterotrait Monotrait ratio (HTMT). As illustrated in Table 3, all the HTMT

values are less than the recommended value of 0.85 and this gives strong support that the constructs are empirically different. The highest value of the HTMT, 0.808, is between the SCAC and Customer Experience which is within acceptable limits. Besides, the interaction term, Digital Maturity x DSCI, reveals significantly low values of the HTMT as compared to other constructs, which implies that the moderator does not create redundancy and overlapping concepts in the model. Such results prove the sufficiency of the measurement model and prove that discriminant validity is well achieved.

All the ratios of HTMT are less than the conservative of 0.85 and this indicates a satisfactory discriminant validity at all the constructs. The value of the interaction term (Digital Maturity × DSCI) is much lower than the threshold, which proves that there is neither a multicollinearity between the moderator and other constructs nor a concept overlap.

4.4. Structural Model Assessment

Structural model was evaluated based on the path coefficient, t-statistic and p-value obtained through the use of SmartPLS4 bootstrap procedure with 5,000 subsamples. This test will allow establishing the importance, strength, and direction of the postulated relationships. The summary of structural pathways between the constructs is provided in Table 4 with the moderating effect of digital maturity.

The correlations between AIDM and DSCI and customer experience were statistically significant, but since it is negative, it means that the effects were opposite to the proposed beneficial relationships. Even though there is a relatively high path coefficient between SCAC and DSCI ($b = 0.875$).

4.5. Mediation Analysis

The mediation analysis was also conducted to examine whether DSCI should be regarded as a mediating variable in the relationships between AIDM and SCAC and Customer Experience. Indirect effects were evaluated using the SmartPLS4 bootstrapping method and used 5, 000 subsamples and the results are shown in Table 5.

Figure 2: Measurement model

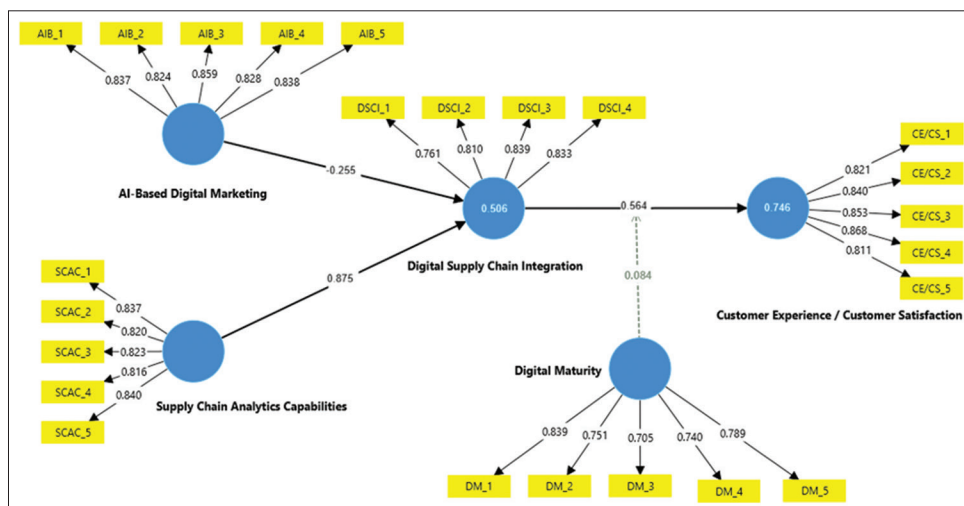


Table 1: Measurement model results

Construct	Item	Loading	Cronbach's alpha	CR (ρ_a)	CR (ρ_c)	AVE
AI-based digital marketing	AIB_1	0.837	0.894	0.898	0.922	0.701
	AIB_2	0.824				
	AIB_3	0.859				
	AIB_4	0.828				
	AIB_5	0.838				
Customer experience/ customer satisfaction	CE/CS_1	0.821	0.894	0.896	0.922	0.703
	CE/CS_2	0.840				
	CE/CS_3	0.853				
	CE/CS_4	0.868				
	CE/CS_5	0.811				
Digital maturity	DM_1	0.839	0.823	0.835	0.876	0.587
	DM_2	0.751				
	DM_3	0.705				
	DM_4	0.740				
	DM_5	0.789				
Digital supply chain integration	DSCI_1	0.761	0.828	0.838	0.885	0.658
	DSCI_2	0.810				
	DSCI_3	0.839				
	DSCI_4	0.833				
Supply chain analytics capabilities	SCAC_1	0.837	0.885	0.889	0.916	0.685
	SCAC_2	0.820				
	SCAC_3	0.823				
	SCAC_4	0.816				
	SCAC_5	0.840				

Table 2: Fornell-Larcker criterion for discriminant validity

	AI-Based digital marketing	Customer experience/customer satisfaction	Digital maturity	digital supply chain integration	Supply chain analytics capabilities
AI-based digital marketing	0.837				
Customer experience/customer satisfaction	0.671	0.839			
Digital maturity	0.669	0.682	0.766		
Digital supply chain integration	0.624	0.605	0.705	0.811	
Supply chain analytics capabilities	0.632	0.721	0.670	0.705	0.827

Table 3: Heterotrait–Monotrait Ratio (HTMT)

	AI-based digital marketing	Customer experience/customer satisfaction	Digital maturity	Digital supply chain integration	Supply chain analytics capabilities	Digital maturity X digital supply chain integration
AI-based digital marketing						
Customer experience/customer satisfaction	0.745					
Digital maturity	0.769	0.718				
Digital supply chain integration	0.720	0.730	0.760			
Supply chain analytics capabilities	0.749	0.808	0.777	0.818		
Digital maturity×Digital supply chain integration	0.189	0.403	0.378	0.264	0.217	

The indirect effects were also determined through bootstrapping using 5,000 subsamples. Findings whose P-values are below 0.05 are regarded to be statistically meaningful.

5. DISCUSSION

The overall goal of the proposed research was to test how AIDM and supply-chain analytics features interact to create customer experience through digital supply-chain integration, considering the moderating effect of digital maturity in the retail industry. The conceptualization of AI-based marketing, supply-chain analytics, and digital supply-chain integration as a seizing capability,

reconfiguring mechanism, and sensing capability respectively, respectively, formed the basis of the study, which equates digital insights into customer value. The results provide strong empirical data in favor of the critical importance of supply-chain analytics capabilities. These findings suggest that analytics capabilities have a tremendous and positive influence on digital supply-chain integration and customer experience. As a result, retailers with such developed predictive analytics, real-time visibility systems, and data-driven decision-making systems will be better equipped to organize operations and meet the changing customer demands. Analytics are a powerful seizing capability in terms of dynamic capabilities perspective as firms can take advantage of sensed

Table 4: Structural model

Path	Original sample (O)	Standard deviation	T-statistics	P-values	Result
AI-based digital marketing→Customer experience/customer satisfaction	-0.144	0.066	2.192	0.028	Not supported (Significant negative effect)
AI-based digital marketing→Digital supply chain integration	-0.255	0.117	2.185	0.029	Not supported (Significant negative effect)
Digital maturity→Customer experience/customer satisfaction	0.393	0.036	11.001	0.000	Supported
Digital supply chain integration→Customer experience/customer satisfaction	0.564	0.033	16.842	0.000	Supported
Supply chain analytics capabilities→Customer experience/customer satisfaction	0.532	0.071	7.476	0.000	Supported
Supply chain analytics capabilities→Digital supply chain integration	0.875	0.115	7.609	0.000	Supported
Digital maturity×Digital supply chain integration→Customer experience/customer satisfaction	0.084	0.014	6.076	0.000	Supported (Positive moderation)

Table 5: Mediation effects

Indirect Path	Original sample (O)	Standard deviation	T-statistic	P-value	Result
Supply chain analytics capabilities→Digital supply chain integration→Customer experience	0.493	0.065	7.585	0.000	Supported
AI-based digital marketing→Digital supply chain integration→Customer experience	-0.144	0.064	2.25	0.024	Significant (Opposite direction)

opportunities by transforming information to operational action. These findings are in line with the previous studies that highlight the significance of analytics in improving the transparency, agility, and service delivery of the supply-chain.

However, depending on the opposite hypothesis, which assumes the positive correlation, the results demonstrate that the impact of AIDM on digital supply-chain integration and the customer experience is significant, but the impact is negative. This unforeseen course of action implies a possible disconnect between front end digital strategies and back end operationalities. Although AI-based marketing increases the customer sensing, making it personalized, automated, and predictive, the demand stimulation is more likely than the responsiveness and the satisfaction capacity of the supply chain. In this regard, the degree of promotion and customized demand cues can foster instability, business pressure, and disappointment. In the perspective of dynamic capabilities, this outcome is indicative of the lack of balance between sensing and reconfiguring capabilities. The retailers can successfully identify customer opportunities with AI-based marketing and not necessarily reorganize the internal processes and supply-chain activities. Under these circumstances, operational readiness is surpassed by sensing, and digital disequilibrium occurs. Instead of improving customer performance, an excess of front-end AI devices without sufficient integration systems can reduce perceived service reliability and satisfaction. The discovery is part of the new debates on misalignment in digital transformation under the ability, which show that technological sophistication is not a sufficient requisite to value creation.

The findings also prove the mediating effect of digital supply-chain integration. Integration is seen to be the key process by which digital capabilities are converted to customer-facing value.

Both AI-based marketing and analytics functions affect customer experience in terms of reconfiguring through the integration functionality. It is also important to note that the high strength of mediation effect related to analytics indicates that data-driven insights help improve customer outcomes when they are embedded into unified digital systems that coordinate the processes of procurement, inventory, logistics, and customer communication. This highlights the fact that, integration is not an upgrade of technology but a strategic organizational capability.

In addition, digital maturity not only indicates a large direct impact on customer experience but also a positive moderating impact on the relationship between digital supply-chain integration and customer outcomes. Companies that are defined as interoperable, digital culture and technologically prepared are in a better position to harness integration initiatives to provide high level of service reliability and responsiveness. Consistent with DCT, digital maturity is an enabling condition at the higher-order that increases the effectiveness of sensing, seizing, and reconfiguring capabilities. The combined customer advantages of integration will be greater in case they are backed by organizational readiness and digital correspondence. On balance, the results support the dynamic capabilities model, as they demonstrate the interplay between sensing (AIDM), seizing (analytics capabilities), and reconfiguring (DSCI) in the experience of customers in the retail environment. However, the disadvantage linked to AIDM shows that sense faculties are not enough to create value. It is needed that the ability of digital measures should be balanced in terms of ability development, and aligned in terms of cross functionality so that digital initiatives can be transformed into operational consistency and better customer performance.

All in all, this research contributes to the body as it empirically confirms a dual-capabilities framework, in which marketing

intelligence and operational analytics should be coordinated strategically. The findings highlight the pivotal significance of both integration and digital maturity as structural and contextual antecedents of digital investments to customer value at the point of sustainability. The competitive advantage in the rapidly growing data-rich retail ecosystems is not in individual technological implementation but in the coordinated, harmonized, front-end digital sense, and back-end operational execution.

6. CONCLUSION

The Study has discussed the joint effects of AIDM and supply chain analytics functions in improving customer experience via DSCI and digital maturity in the retail industry. Following the DCT, the results reveal that analytics capabilities are an effective seizing capability that directly improves integration and customer performance, with AI-based marketing, though a significant sensing capability, potentially causing operational strains in the absence of alignment with the supply chain capacity. The core reconfiguring ability that came into focus was DSCI which converted the digital insights into integrated operations that enhanced delivery reliability, responsiveness, and customer satisfaction, in general. The modifying effect of digital maturity also brings out the fact that organizational preparedness, organizational culture, and technological infrastructures play significant roles in increasing the value of the digital integration. In general, the research contributes to the theoretical knowledge by providing the dual-capabilities approach where the marketing intelligence and analytics capabilities should be balanced and coordinated strategically to create customer value.

Even though this study presents useful findings, it has a number of limitations that leave room to undertake future research. To start with, cross-sectional design limits the possibility of the causal relationship about the constructs. Although the structural model supports the postulated relationships, longitudinal studies would allow scholars to extend the effects of digital capabilities, integration processes, and customer experience through time, particularly when the AI and analytics technologies reach their maturity. Second, the study is based on self-reported survey data which is collected among managers in the retail market, a research approach that can lead to common method bias and perceptual subjectivity. The future research might also include objective performance measures, system log, or multi-source data to triangulate the research and enhance the accuracy of measurements. Besides, the case study or experiments might provide more information about the implementation of AI-driven marketing and supply chain analytics in real working conditions.

Third, the study is limited to the Jordanian retail industry, which limits the externalizability of the research findings to other sectors or nations with other technological infrastructure and operating market dynamics. Comparative studies over developing markets and developed markets or in fields like healthcare, manufacturing or logistics would help in confirmation of the model and discovery of the contextual differences in the use of digital capabilities. Fourth, the adverse impact of AIDM highlights the possibility of the lack of compatibility between marketing intelligence

and supply-chain capability. Future studies ought to learn more about such connection, and possibly use moderating variables (organizational agility, data governance quality, cross-functional collaboration, etc.) to identify the circumstances in which AI marketing can contribute to customer experience instead of weakening it. Lastly, despite the fact that digital maturity was discussed as one moderating construct, the digital transformation is multi-dimensional in nature. To build a more complete picture of the organizational factors that may or may not reinforce or mitigate the effect of digital capabilities on customer outcomes, future research might investigate other enabling conditions such as the role of digital leadership, innovation culture, or IT-business strategic alignment.

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