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Navigating the interplay between innovation orientation, dynamic capabilities, and digital supply chain optimization: empirical insights from SMEs

Haitham M. Alzoubi[a,b], Muhammad Alshurideh[c,d*], Mounir El Khatib[e], Mohamed Dawood Shamout[d], Ramakrishna Yanamandra[a], Kiran Nair[f] and Shehadeh Mofleh Al-Gharaibeh[f]

[a]*School of Business, Skyline University College, Sharjah, United Arab Emirates*
[b]*Applied Science Research Center, Applied Science Private University, Amman, Jordan*
[c]*Department of Marketing, School of Business, The University of Jordan, Amman, Jordan*
[d]*Department of Management, College of Business Administration, University of Sharjah, Sharjah 27272, United Arab Emirates*
[e]*Hamdan Bin Mohammed Smart University, United Arab Emirates*
[f]*Abu Dhabi University, Abu Dhabi, United Arab Emirates*

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This study empirically explores the influence of innovation orientation on the digital supply chain, mediated by dynamic capabilities within the context of Small and Medium Enterprises (SMEs). This study, rooted in a comprehensive evaluation of dynamic capabilities and innovation orientation, introduces a framework that could serve as a valuable resource for subsequent research. It contributes to the global discourse on optimizing digital supply chain practices among SMEs. Quantitative method was employed, gathering data from 212 professionals in SMEs in Dubai, UAE, via an online questionnaire. The collected data were analyzed using SmartPLS 4, focusing on reliability, validity, discriminant validity, and hypothesis testing. The findings show a significant influence of innovation orientation on the digital supply chain. Dynamic capabilities also exhibit an indirect yet substantial impact on the relationship between innovation orientation and the digital supply chain. The identified dynamic capabilities are instrumental in refining decisions associated with the circular economy and leveraging technology to enhance supply chain mechanisms. These capabilities foster positive correlations between the digital supply chain and innovation. The predominant advantage of digital supply chains for consumers lies in their agility and speed, facilitating swift response to customer demand and bolstering business efficiency. The model presented is a template for future research, which could expand its scope to include other industries like manufacturing or services, augmenting the robustness of the findings.

1. Introduction

In the journey of innovation within digital supply chains, several pivotal elements emerge the harnessing of regenerative resources, an orientation towards future-centric design, the extension and preservation of pre-existing materials, reimagined business strategies, and the synergistic utilization of digital technologies for co-creating value and transforming wastes into resources (Dinkoksung et al., 2023). These aspects have ingrained innovation orientation as a core paradigm, championed by corporations, governmental bodies, and civil societies globally. In the context of the UAE, SMEs are pivotal in driving this paradigm, rigorously seeking innovative approaches to harness the competitive advantage offered by digital supply chains (Teodorescu & Korchagina, 2021). The dynamic nature of these supply chains mandates an infusion of creativity and innovation, underscored by dynamic capabilities that curate frameworks, models, and visions adept at navigating the complex terrains of the digital supply chain landscape (Fukawa et al., 2021). In the contemporary business ecosystem, sustainability converges at the nexus of supply chain strategies for goods and services production. With a global populace increasingly conscious of environmental footprints, a shift towards eco-friendly products is perceptible (Corvello et al., 2023). Industries, now more than ever, are ingraining sustainability into their operational ethos, making it a criterion of paramount importance,

* Corresponding author
E-mail address m.alshurideh@ju.edu.jo (H. Alzoubi)

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influencing market traction, product quality, cost efficiency, and profit optimization (Damanpour et al., 1989). This research delineates a comprehensive exposition of innovation orientation within digital supply chains, exploring the instrumental role of dynamic capabilities in streamlining logistics for UAE's SMEs. It provides an in-depth exploration of digital supply chain paradigms, innovation trajectories, and the integration of green technologies, illuminating their consequential impacts on SMEs. The innovation orientation, with its capacity to augment service quality and address multifaceted challenges within the SMEs' operational scope, is put under the microscope. In an era where digital and innovative supply chains are seen as linchpins for organizational development, this study unveils a spectrum of inventive methodologies and technological integrations propelling SMEs into future-ready entities. It positions itself as a seminal contribution, offering empirically-backed insights anticipating the transformative shifts earmarked for the future.

2. Theoretical Framework

2.1 Innovation Orientation

An organization's innovation orientation delivers a backdrop for the adoption centered on proactive actions for growth. An organization's innovation orientation identifies its level of innovation, segmenting the market and creating new goods and services for unexplored markets, and customizing products and services are all value-creation strategies used by businesses with a strong innovation orientation (Fetais et al., 2022). Additionally, this research emphasized three innovation dimensions: product, process and marketing. Organizations with low innovation orientations typically employ less aggressive and internally oriented strategies, placing less of an emphasis on things like brand reputation, customer service, and cooperation-based strategies like joint ventures and alliances (Vorobeva Victoria, 2022).

2.2 Digital Supply Chain

The definition of a digital supply chain (DSC) is "an intelligent best-fit technological system based on the capability of enormous data disposal and excellent cooperation and communication for digital hardware, software, and networks to support and synchronize interaction between organizations by increasing the value, accessibility, and affordability of services with consistent, agile, and effective results (Agrawal & Narain, 2018; M. T. Alshurideh et al., 2023)." Additionally, a digital supply chain provides information on how the network is functioning. Due to improved real-time visibility into supplier performance and customer needs, supply chain owners are able to build more intricate relationships with a larger number of providers. They are largely shielded from potential disruptions (Hanaysha & Alzoubi, 2022). Additionally, there are three points of superiority in demand fulfillment: speed, customization, and choice, are targets of digital supply chains, which are more customer-focused. According to (Ivanov & Dolgui, 2021), the benefits of digital supply chains may be evaluated in three categories; benefits to the consumers, to the suppliers, and the facilitators. The greatest advantage of digital supply chains for the customer is that they are quick or agile and avail products almost instantaneously upon demand by the consumers.

2.3 Dynamic Capabilities

Dynamic capabilities refer to a company's capacity to combine, enhance, and reorganize internal and external competencies in order to respond to rapidly changing situations (Jajja et al., 2018). According to (Dubey et al., 2019), dynamic capabilities are the company's ability to systematically solve problems by spotting possibilities and acting swiftly to meet market demands. (Jajja et al., 2018) stated that dynamic competencies include product development, alliance building, and strategic decision-making. They claim that while these capabilities may be identified and while fundamental business processes and activities are the same across organizations, they vary among industries. According to (Teece, 2016) the three categories of dynamic capabilities are sensing, seizing, and transformation. Dynamic capabilities use challenging-to-copy learning techniques to adjust to market opportunities and customer requirements. According to (Khan et al., 2021), dynamic skills that can be operationalized for analytical purposes include the ability to recognise and shape opportunities and threats, grasp opportunities, and sustain affordability by enlarging, joining, safeguarding, and, when necessary, reconfiguring the commercial enterprise's resources.

2.4 Operational Definitions

Variables	Definition	Reference
Innovation Orientation	Innovative orientation is principles of creativity, innovativeness, and proactiveness that help SMEs utilize the best mechanism of the digital supply chain environment.	(Ionescu & Ionescu, 2015)
Product	Any good or service you offer to satisfy a customer's need or desire is a product.	(Zehir et al., 2011)
Process	Implementing a novel or considerably better manufacturing or delivery strategy is referred to as a process innovation.	(Zehir et al., 2011)
Marketing	A marketing innovation is the implementation of a novel marketing strategy that modifies the positioning, promotion, pricing, or design of the product significantly.	(Zehir et al., 2011)
Digital Supply Chain	A set of processes known as a "digital supply chain" takes use of cutting-edge technology and offers better understanding of the responsibilities played by all stakeholders.	(Korpela et al., 2017)
Digital Customers	A customer that a business interacts electronically.	(Shcherbakov & Silkina, 2021)

Digital Supplier	A person, company, or other organization that sells or provides clients with goods like commodities or equipment via digital sources is known as a digital provider.	(Büyüközkan & Göçer, 2018)
Digital Production	The method used to turn creative concepts into a variety of digital media, including text, graphics, and interactive apps.	(Moeuf et al., 2018)
Dynamic Capabilities	The definition of "dynamic capability" is the firm's ability to combine, develop, and reconfigure internal and external competencies to address quickly changing situations.	(Correia et al., 2020)
Sensing	Sensing is the evaluation of customer requirements and externally-existing business opportunities.	(Ellonen et al., 2011)
Seizing	A company's response to market demands in order to increase firm value is referred to as seizing.	(Ellonen et al., 2011)
Reconfiguring	Reconfiguring is about updating company processes and keeping them consumer-relevant.	(Ellonen et al., 2011)

2.5 SMEs UAE Description

Dubai's economy is built on small and medium-sized enterprises (SMEs), which make up 95% of all firms in the Emirate. These small and medium-sized enterprises (SME) employ 42% of the labour force and provide around 40% of Dubai's economy's total value added. In order to help these companies compete with those in other industrialised and high-income countries, the government places a strong priority on the performance and contribution of the SME sector. In light of this, strategies aimed at helping SMEs grow and strengthening their support must be created based on a thorough analysis of their current condition and development needs.

3. Literature Review

3.1 Relationship and Impact of Innovation Orientation on Dynamic Capabilities

In earlier research (Erceg & Sekuloska, 2019), the significance of utilising the firm's capabilities to maintain them current and productive was less stressed. Firms must coordinate the attitudes and behaviours of managers to recognise and seize opportunities in order to create and optimise entrepreneurial capability. The internal and external changes that enable businesses to compete in the marketplace are made possible by entrepreneurial capability (Radwan & Farouk, 2021). As stated by (Joghee & Alshurideh, 2021), the principle of innovative orientation considering the dynamic capabilities assists in problem identification that is based on designing and redefining growth and focusing on the positive organizational based benefits (Akhtar et al., 2021). The studies (M. T. Alshurideh et al., 2022) outline that innovative orientation is anchored on the efforts to decouple commercial, economic and natural capital. A study of (Ellonen et al., 2011) highlighted the dynamic capabilities denote to a company's ability to quickly make market-focused decisions while quickly discovering chances to fix problems. According to (Moeuf et al., 2018), collaboration, strategic decision-making, and the development of new products are examples of dynamic skills. According to (M. Alshurideh et al., 2020), argue that while these abilities are distinct and that fundamental business procedures and activities are the same across firms, they vary among industries and are advantageous to the overall structure. Based on the above literature following hypothesis is developed:

H_1: *Innovation Orientation has a statistical impact on Dynamic Capabilities*.

3.2 Relationship with and Impact of Innovation Orientation on Quality of Digital Supply Chain

Hanaysha and Alzoubi (2022) discussed the factors that cause the digital supply chains to be suitable under certain contextual factors and unsuitable under a different set of circumstances. As indicated by (Ali et al., 2022), there are several factors that determine the suitability of digital supply chains. One of the major factors that determine the appropriateness is the organizational innovation and strategies adopted to become innovative (Al Ali, 2021). SMEs venture into the utilization of a digital supply chain, the need for the supply chain as well as its implication considered to be crucial by meeting the requirements of the customer based on technology and innovation (Aziz & Aftab, 2021). The SMEs intending to make use of digital supply chains also ensure that it has adequate resources and workforce to successfully introduce and implement the practices that enhance the business marketing and sales (Federico Del Giorgio, 2022). Moreover, the supplier must possess the knowledge and skills required to enter, retrieve, assess and utilize digital information in order to accomplish the set of organizational objectives (Miller, 2021). Based on the above literature following hypothesis was developed:

H_2: *Innovation Orientation has a statistical impact on Digital Supply Chain.*

3.3 Relationship and Impact of Dynamic Capabilities on Digital Supply Chain

According to Ageron et al. (2020), a company's sensing capability is its capacity to continuously scan, detect, and research opportunities across markets and technologies. In a market that is evolving swiftly, new knowledge and information can offer opportunities for innovation. Existing research shows that research effort improves the supply chain process by increasing a firm's expertise and capacity to evaluate new information (Cruz, 2021). Scholars and practitioners have long focused on the search for competitive advantages in a changing environment, as well as how to develop and maintain them while implementing the dynamic capabilities to ensure the efficiency of supply chain processes. It has stated (Tejumade V. Adeniran, 2012), the digital supply chain can be configured by indicating the need to the customer and requirement. Studies showed a significant relationship of dynamic capabilities on supply chains that assist in adopting advanced technological structures of businesses (Agrawal & Narain, 2018). As stated by (Ferreira et al., 2021), the organization's goals and ambitions influence how the digital supply chain is set up. By making real-time information available to support the organization's performance goals, including revenue, profit, market share, quality, responsiveness, cost, reliability, and sustainability, and

making decisions that are exact and timely (Alzoubi, 2021; Kashif et al., 2021). The dynamic capabilities help to increase the value chain's visibility of the material flows helps to reduce any negative effects. Based on the above discussion, following hypothesis was developed:

H3: *Dynamic Capabilities has a statistical impact on Digital Supply Chain.*

3.4 The Relationship and Impact of Innovation Orientation on Digital Supply Chain with mediating role of Dynamic Capabilities

Supply chain performance lies in determining the suitability of technological demand and innovation. It is the association that exists between digital content and supply chain integration (Nada Ratkovic, 2022). A past study affirmed that, the horizontal integration and digital content, as well as vertical integration and the digital content, may differ (Amrani et al., 2022). This requires that the managers in digital supply chains make informed decisions that will enhance the effectiveness of their digital supply chains while implementing innovative practices and developments (Eli, 2021). The digital supply chain management must ensure that the supply chain is characterized by efficient information sharing, supplier systems, proactive assessments, evaluations, and adequate visibility (Lee & Ahmed, 2021). In addition to this, the company's management utilizing a digital supply chain must also ensure that cultural issues do not delay the decision-making process to incorporate the innovation (Eli, 2021).

Abudaqa et al. (2020) highlighted that externally accessible information and resources have an impact on all innovation initiatives as well as the growth of a company. Integration capability is one of the three management duties that are important for dynamic capabilities. In this sense, dynamic capability is more concerned with maximising the flow of technology and information both within and across a company's many divisions (Wyawahare & Udawatta, 2018). In fact, by transferring technology and knowledge, integration promotes learning and expertise exchange inside an organisation. The ability to shape and manage a variety of capabilities is referred to as innovation capability (Alsharari, 2021). Firms with innovative capabilities may be able to successfully integrate key capabilities and resources while delivering products or services to its ultimate consumer (Mehmood, 2021). In fact, a company's flexibility to reconfigure itself encourages ongoing transformation and allows it to acquire new resources and reap the rewards of innovation (Yang et al., 2019). Marketing innovation, product innovation, and process innovation capabilities are how other academics have conceptualised innovation capabilities (Mourad & Ahmed, 2012). Having a product innovation capability enables businesses to efficiently transform their resources into creative, superior-quality goods that go above and beyond what customers anticipate, and that has proven to have a significant impact on the digital supply chain. Based on the literature, following hypothesis was developed:

H4: *Innovation Orientation has a statistical impact on Digital Supply Chain with the mediating role of Dynamic Capabilities.*

3.5 Problem Statement and Research Gap

Although the disciplines of the impacts of innovative orientation in the digital supply chain have specific value. It has been noticed that the digital supply chain has become one of the focus points for researchers to implement sustainable logistics on SME's. Regarding the effect of innovation orientation on the digital supply chain, there are a number of aspects that need to be identified empirically. The mediating role of dynamic capabilities necessitates a comprehensive examination that may incorporate knowledge assets from the corporate and academic levels. Although the scientific research on the circular economy is unorganized, it is vital to attract firms and policymakers to enact strategies for a sustainable supply chain through dynamic capabilities, creativity, and innovation.

3.6 General Research Model

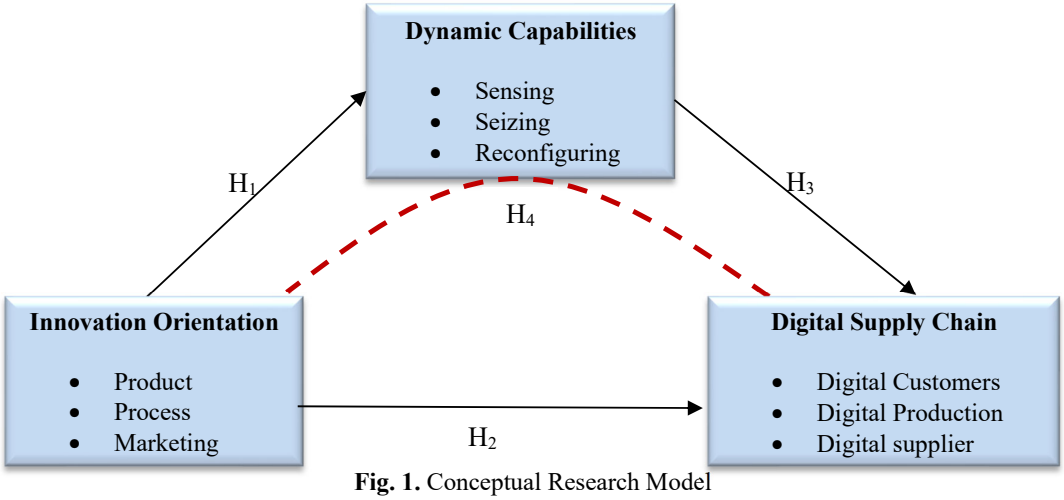

Fig. 1. Conceptual Research Model

3.7 Research Methodology and Design

Quantitative methodology was used to collect empirical data in order to appraise the proposed model and its hypotheses through Smart-PLS 4.0. Techniques for data analysis based on structural equation modelling are employed addressing descriptive, causal and analytical methods. A convenient sampling technique serves as the foundation of the sample selection procedure. The author created an online survey that she distributed to SMEs UAE employees in order to gather data.

3.8 Population, Sample, and Unit of Analysis

In order to collect the data, the research target population was small and medium enterprises (SMEs) based in Dubai UAE. For the objective of gathering data for research, 56 companies were approached. The responses of 212 employees were regarded as a representative sample size. Two portions of the questionnaire were dedicated to demographic and construct questions. The 5-point Likert scale, which ranges from 1 for strongly agree to 5 for strongly disagree, was used to design the questionnaire. The measuring instrument was based on a 39 items scale, 14 items used to assess the "innovation orientation" with its dimensions (product, process and marketing). There are 13 questions used to assess "dynamic capacities" including its dimension (sensing, seizing, reconfiguring), and 12 questions to assess "digital supply chain" with its dimensions (digital customer, digital production, digital supplier).

4. Data Analysis

The structural model shows how the variables under study are connected (inner model). The proposed model was tested and the PLS-SEM hypothesis was assessed using Smart-PLS 4. There was also testing for reliability, discriminant validity, average variance, structural equation modelling, and hypothesis testing. Additionally, it indicates that the PLS-SEM is an appropriate method for the proposed model. A growing number of people are using this methodology due to its potential benefits for knowledge management science.

4.1 Demographic Analysis

Comparing subpopulations through time and space, as well as between them, can be done using demographic analysis. By gender, age, and employment history, there are considerable differences in the frequency of demographic occurrences and states. Table 1 contains an overview of the demographic information mentioned below.

Table 1
Respondents Profile

Characteristics	Range	Frequency	Percent	Characteristics	Range	Frequency	Percent
Gender	Male	160	71.1				
	Female	52	28.9				
Age	18-25 years	74	45.5	Experience	2-5 years	63	22.5
	26-35 years	45	30.5		6-10 years	39	11.1
	36-40 years	53	13.9		11-20 years	82	53.5
	41 or above	40	10.1		20 or above	28	12.9

n=212, Gender Male=71%, Female=29%

4.2 PLS-SEM Analysis

The first step in the two-stage PLS-SEM data analysis procedure is evaluating the measurement model and is followed by an evaluation of the structural model. The first step is to ensure that only research constructs of the proper level are used in measurement models, the structural model takes reliability and validity into consideration. The predictive usefulness of the research model and path coefficients is assessed using a technique that also includes the importance of the suggested linkages. The Smart-PLS Software was used in the current investigation and applied to specific guidelines found in reliable PLS-SEM literature. Measurement Model Assessment is given below in Fig. 2.

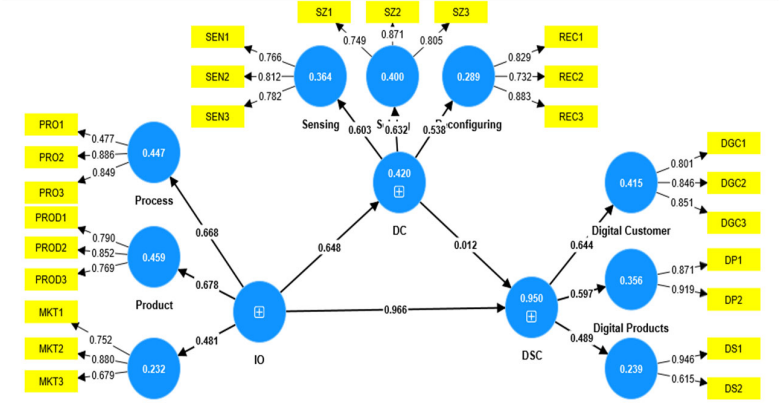

Fig. 2. Measurement Model

4.2.1. Reliability and Validity Analysis, Correlation coefficients

An indicator's internal consistency can be used to determine how much it represents a general concealed notion. The consistency and long-term stability of the results are assessed using the reliability criteria. In this study, the value of composite reliability was employed to assess the dependability of the concept. A variable is said to have construct reliability if its Cronbach's Alpha and composite reliability values are both higher than 0.7. The AVE value for each variable is greater than 0.50, as shown in Table 2. Consequently, the measurement model has shown discriminant validity.

Table 2
Cronbach's Alpha, Composite Reliability (CR), Average Variance Extracted (AVE) and Discriminant Variability

Variables	Cronbach's Alpha	CR (rho a)	CR(rho c)	AVE	R2	Q2	IO	DC	DSC
Innovation Orientation	0.848	0.849	892	0.623	0.51	0.33	-		
Dynamic Capabilities	0.865	0.869	908	0.712	0.43	0.52	0.45	-	
Digital Supply Chain	0.801	0.827	863	0.562	0.95	0.39	0.15	0.44	-

Note: n=210, IO=Innovation Orientation, DC=Dynamic Capabilities, DSC=Digital Supply Chain

The measuring model has therefore proven to have discriminant validity. The relationship between IO and DC is positively significant by r=.45, IO is positively correlated with DSC by r=0.15, and DC is also positively correlated with DSC by r=0.44. Discriminant summary is shown in Table 2 above.

4.3 Hypothesis Testing

Structural equation modelling (SEM) was utilized to assess the hypothesis and offer solutions to the main research problems for structural model analysis. The bootstrapping method was used to assess the significance of the hypothesis. This strategy involved statistical analysis to determine the significance of the presented hypothesis. The results show that each variable significantly correlates with the others when the variable route of the hypothesis has values lower than 0.05. The summary of the analysis is shown in (Table 3).

Table 3
Hypothesis Testing Using PLS SEM

Hypothesis	Paths	Beta	t-value	R-square	Sig	Decision
H1	IO→DC	0.198	2.41	0.420	0.000	Supported
H2	IO→DSC	0.937	6.59	0.950	0.000	Supported
H3	DC→DSC	-0.07	2.76	****	0.000	Supported
H4	IO*DC→DSC	0.328	16.92	****	0.000	Partial Mediation

IO=Innovation Orientation, DC=Dynamic Capabilities, DSC=Digital Supply Chain

The significance threshold for this model was set at a level that was too low to uncover any relevant associations, even though all of the data in Table 3 above indicated strong correlations that were positive and supported each and every hypothesis. Since all the direct hypotheses have t-values larger than 1.96, which indicates that they are all accepted, all of the direct hypotheses are supported by the data. The degrees of correlation and significance of the variables were looked at for the suggested research model. According to our model, the ambition to utilize an innovation-oriented approach will have a 42% impact on dynamic capacities. The R-square shows what percentage of the variance of the dependent variable can be attributed to the independent variable. Table 3 above includes information on the results.

4.4. Hypothesized Model Results

Based on the PLS SEM analysis measurement model results are shown below in the (Fig. 3).

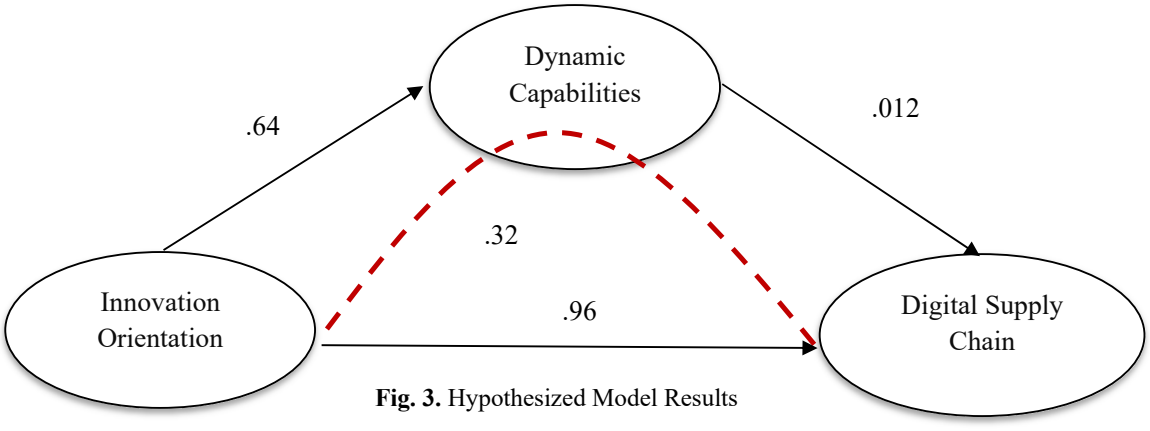

Fig. 3. Hypothesized Model Results

4.5. Mediation Analysis

To evaluate the mediating function of dynamic capacities (DC) in the relationship between Innovation Orientation (IO) and Digital Supply Chain (DSC), mediation analysis was carried out. A substantial overall impact of innovation orientation on the

digital supply chain was found (B=0.93, t=6.59, P<0.05) by the data illustration in (Table 3). Additionally, results declared a significant direct impact of dynamic capabilities and a digital supply chain (B=-.07, t=2.76, p<0.05). There is a significant influence when the mediator between IO and DSC is included (B=0.32, t=16.92, P<0.05). These results indicate that dynamic capabilities currently have a partial mediating role in the relationship between innovation orientation and the digital supply chain. The statistical analysis below was shown in (Table 3).

Table 3
Mediating Analysis Results

Direct Effect of DC on DSC				**Indirect Effect of DC on DSC**					
Beta	t-value	p-value	Hypothesis	Beta	SE	t-value	p-value	Percentile bootstrap 97.2% confidence interval	
								Lower	Upper
-0.07	2.76	0.000	H4:IO>DC>DSC	0.32	0.06	16.92	0.002	0.49	0.71

IO=Innovation Orientation, DC=Dynamic Capabilities, DSC=Digital Supply Chain, SE=Standard Error.
*Path coefficient significant at level P<0.05***

4.5.1. Indirect effect of mediating role

The graph below (Fig. 4) depicts dynamic capabilities (sensing, seizing, reconfiguring) partially mediates the relationship between innovation orientation and digital supply chain.

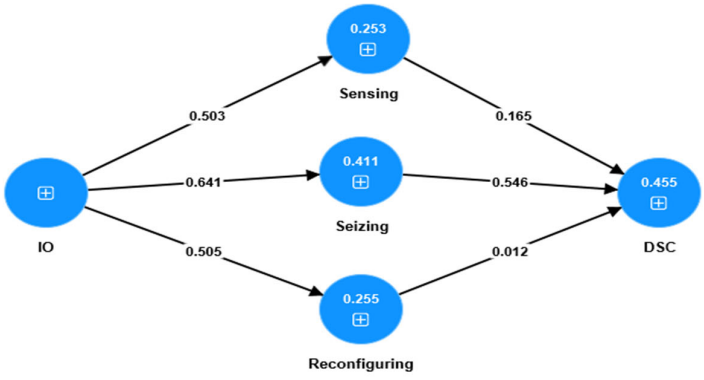

Fig. 4. Mediating Effect using PLS-SEM

5. Discussion of the Results

The proposed research model places a strong emphasis on the digital supply chain and its significance for organizational growth. The results of the empirical analysis, which demonstrate that H1 is acceptable. The relationship between innovation orientation and dynamic capabilities is positively correlated with B=0.19, t=2.41, p=0.000 that indicate a positive influence and support to our proposed hypothesis. The statistical analysis has provided the H2 results that show a positive significant relationship between innovation orientation and digital supply chain with B=0.93, t=6.59, p=0.000 that has predicted a significant relationship supporting the second hypothesis of our model.

The assessment of the third hypothesis revealed the significant relationship between dynamic capabilities and digital supply chain that is exposed by B=-0.07, t=2.76, p=0.00 indicating a support to H3 of the model. Based on the values that we have observed, a significant relationship presents between the variable's innovative orientation, digital supply chain, and dynamic capabilities of the organization. The findings indicated that innovative orientation could positively influence how the dynamic capabilities of any organization play out and how they can manage their digital supply chain as SMEs in UAE transition towards that paradigm. The findings significantly present that any organization to improve its effectiveness when managing its resources and meeting the demands of their customers, need to work on innovative practices to further facilitate their suppliers, customers, or marketing initiatives as the shift in demand changes their priorities on managing their e-inventories.

Additionally, the proposed research model, which represents a partial mediation between innovation orientation and digital supply chain, measures the mediating impact of dynamic capabilities, the statistical findings showed by B=0.32, t=16.92, p=0.002 that illustrate a positive significant relationship. Hence H4 is supported. It can be argued that the digital supply chain is highly influential when implementing innovative ideas and dynamic capabilities to the organizational operations to increase efficiency. Although it appears that blockchain and artificial intelligence can be utilised to automate procedures and produce more relevant insights, there are deeper cultural changes that need to be acknowledged between a company's trading and supply chain execution arms.

6. Conclusion

The initial finding that emanates from this research touches on the role that innovative orientation plays in determining the successful implementation of the digital supply chain. SMEs in the UAE, the mediating role of dynamic capabilities is diverse since elements of innovation orientation determine the operational practice of the digital supply chain. The common trend that emerges in the correlation between innovative orientation and dynamic capabilities depicts creativity and resource-based strategies in implementing a digital supply chain. The results show that the continued growing reliance on the e-supply chain depicts the extent to which SMEs in the UAE are adopting a digital supply chain through various integration of technologies. All these rely on improving control in time, agility, just-in-time principles, and supplier relationships.

The findings show that using enterprise resource planning to help SMEs in the UAE improve operational operations within closely related enterprises will determine the mechanism of the digital supply chain. Therefore, the study has shown that decisions based on innovation orientation and dynamic skills can increase effectiveness in SME's in the UAE within the context of the digital supply chain. Thus, the overall findings in automation allow organizations to ensure that their operations are efficient.

7. Recommendations/Limitations

It is anchored on both academic and policy dimensions. In terms of policy, the research implies that policymakers should establish a pedestal of harmonizing industry regulation, environmental constraints, and governmental legislation. Business theorists argue that in a bid to sustain competitive advantage, businesses can implement sustainability within the pathway of achieving economic benefits and at the same time reducing environmental impact. In terms of academic justifications, the study's findings and recommendations will contribute to the body of knowledge on the issues of a circular economy.

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