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Exploring The Impact Of Customer-Focused Strategies On Boosting Innovation Performance In Enterprises

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ASTRACT

This study explores the complex connection between customer focus and business innovation performance, with a particular focus on the dynamic talents needed to effectively adapt in the digital economy. The paper presents a new conceptual model that combines dynamic capacity theory and innovation theory to address the lack of information about how external knowledge influences creativity in organizations.

The study suggests that customer orientation has an impact on innovation performance by means of two intermediary factors: digital capacity and organizational creativity. The interaction between these factors enables the renewal and reorganization of the enterprise's knowledge base, promoting a culture that encourages innovation. The suggested model is supported by empirical data obtained from a thorough survey of managers in 20 provinces and 3 municipalities in China.

The findings suggest that companies that prioritize customer satisfaction improve their capacity to use digital technology and foster creativity inside the firm, ultimately leading to more innovation. The study demonstrates a sequential mediation framework, where digital capacity enhances organizational creativity, collectively mediating the beneficial association between customer orientation and innovation performance.

The paper makes two theoretical contributions. Firstly, it provides a detailed explanation of how customer orientation affects innovation by including ordered chain mediating factors. This study builds upon prio[1]r studies that predominantly concentrated on the direct influence of client orientation on innovation. Furthermore, the study enhances comprehension of the role of dynamic skills, particularly digital capacity and organizational creativity, in facilitating the conversion of customer orientation into innovation capability.

The implications for management practice indicate that cultivating a customer-centric company mindset is essential for organizations aiming to achieve greater innovation performance. Furthermore, adopting the digital economy involves enhancing digital skills, therefore enabling digital transformation and innovative initiatives to boost organizational creativity and overall innovation performance.

***Keywords**: Enhance Enterprise Innovation Performance, Chain Mediation, digital capability and organizational creativity.*

I. INTRODUCTION

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1.1: Background of Work

Joseph Schumpeter introduced the idea of innovation in the early 20th century. According to this theory, profit-oriented companies with market dominance continually strive for technical progress. This position has gained widespread acceptance in academic circles (Schumpeter, 20th Century). Developing cutting-edge talents requires the accumulation of organizational knowledge, skills, and drive, while ensuring that inventive endeavors are in line with market demands and organizational objectives. Customer orientation, as a strategic strategy, directs organizations towards actions that provide exceptional customer value and cultivate a culture that encourages innovation (Day, 1994).

Customer orientation encompasses the processes of collecting and distributing customer information across the whole firm (Narver & Slater, 1990). Investments in customer orientation are considered to provide the most advantageous value proposition in competitive contexts (Lusch & Webster, 2010). Within the dynamic environment, the convergence of mobile internet, cloud computing, big data, artificial intelligence, and blockchain synergistically drive a fresh surge of entrepreneurial creativity. This study suggests that Digital abilities may operate as a mediator in the link between Customer orientation and innovation performance, acknowledging the significant influence of modern technologies (Han et al., 1998). Within the digital economy, the possession of digital competence is seen as a crucial element for maintaining a lasting competitive advantage (Liu Yang et al., 2021).

In today's digital age, the ability to innovate is essential for the success of a firm (Alegre & Chiva, 2008). The combination of electronic word-of-mouth, the Internet of Things, cloud computing, big data, artificial intelligence, and robots provides opportunities for effectively influencing innovation performance (Mullangi et al., 2019). This research specifically examines the impact of Customer orientation on corporate innovation performance, in contrast to prior studies that have investigated many aspects affecting innovation performance outside of the digital economy. The suggested conceptual framework establishes a connection between Customer orientation and Digital innovation capabilities, Organizational creativity, and Innovation performance. This framework provides valuable insights into the factors that drive innovation performance (Alegre & Chiva, 2008).

1.2 Structure of the research

This research report consists of five sections. Section 1 presents the primary research inquiry, highlighting the influence of Customer orientation on the success of corporate innovation. The document delineates the significance, goals, impacts, and constraints of the study, while also offering clear definitions for pivotal terminology and topics. Section 2 provides an overview of the existing research on Customer orientation, Innovation performance, Digital capacity, and Organizational creativity. This literature analysis serves as a theoretical basis for the study. The text presents a conceptual framework diagram and identifies the shortcomings of previous research. Section 3 provides a comprehensive explanation of the study technique, encompassing several aspects such as the composition of variables, their measurement, hypotheses, data collecting, analytic methodologies, and the relevance of indicators. Furthermore, it evaluates the reliability and validity of the scale. Section 4 presents the findings of descriptive and inferential statistical analysis, including the results of hypothesis testing. Section 5 provides a summary of the theoretical analysis and empirical testing, concluding the conclusions. It also discusses the contributions made and suggests options for further research.

1.2 Significance & Objectives of the Study

This study investigates the core inquiry of how Customer orientation impacts innovation performance. The study intends to develop a theoretical model that combines Customer orientation, Digital capacity, Organizational creativity, and Innovation performance. By doing so, it seeks to uncover processes and pathways, providing theoretical guidance and decision support for organizations (AtuaheneGima, 1995).

The main goal is to examine the elements that impact the correlation between Customer orientation, Digital capabilities, Organizational creativity, and enterprise Innovation performance. The specific aims of this study are to investigate the direct impact of Customer Orientation, examine the mediating function of Digital Capability and Organizational Creativity, and evaluate the chain mediating role in the link between Customer Orientation and Innovation Performance.

This research provides practical contributions by improving competitiveness in the digital economy, prioritizing customer requirements, and advising managers on developing digital skills. The paper examines how Customer orientation and Digital capabilities affect Innovation success, offering practical insights for developing digital transformation strategies.

II. LITERATURE REVIEW

The literature review part explores the conceptual development of independent and dependent variables, offering a thorough examination of innovation theories and their historical foundations.

2.1: Literature Review of Innovation Performance Studies

The conceptual history of independent and dependent variables has been extensively studied by scholars, who have examined innovation from several angles. Over time, theories have developed to incorporate multiple aspects of innovation, such as technological, product, and market innovation (Schumpeter, 1912). Schumpeter's pioneering research established the foundation for a comprehensive investigation of innovation, highlighting its significance in both economic advancement and societal improvement. The meanings of innovation have broadened to encompass the renewal of products, services, and markets, as well as the creation of novel manufacturing processes and management systems. The European Innovation Survey (EIS) provides a thorough description, defining innovation as the use of novel or greatly enhanced goods, processes, marketing techniques, or organizational strategies. This concept incorporates several manifestations of innovation, emphasizing its function as both a procedural activity and a final result (Crossan, 2011).

Studies on the performance of innovation: Innovation, from its inception in the 19th century, has been subject to ongoing investigation and inquiry. Academics like as Schumpeter highlighted the multifaceted character of innovation, which includes technological, product, and market aspects. The European Innovation Survey (EIS) provides a more specific definition of innovation as the act of implementing or carrying out new or enhanced goods, processes, marketing techniques, or organizational strategies. This concept emphasizes the significance of implementation in innovation and recognizes the various manifestations it might have. Scholars acknowledge that creativity is an essential requirement for innovation, and they differentiate between the process of generating innovative ideas and the act of putting them into practice. The focus is also on commercialization, which emphasizes the adaptation or creation of ideas to fulfill consumer demands and generate economic prosperity. The examination of innovation performance entails evaluating the efficiency of firm innovation, where the outcomes surpass the expenses as a metric of achievement (Frankle, 1990; Yoon and Grary, 1995).

The development of theories on innovation has resulted in many interpretations of its meaning. Innovation, as defined by Crossan (2011), refers to the process of creating or adopting, integrating, and employing anything that provides value. This encompasses the renewal of products, services, and markets. Creativity is seen as an essential antecedent to innovation, which involves the creation of imaginative ideas and their execution. Eurostat and OECD have redefined innovation as the creation or enhancement of a product or process that is notably distinct from its predecessors, with a particular emphasis on its crucial role in the sustainability and advancement of enterprises (Cefis and Marsili). The study takes a viewpoint that supports the dynamic process in which companies combine internal and external information to generate new knowledge and convert it into marketable goods, so achieving market value.

Definition and Evolution of Innovation Performance: As the importance of innovation in sustaining a competitive edge increases, the study of innovation performance becomes vital. Academics concentrate on the results of innovation, classifying them as relatively new developments within the company, market, and industry. The many manifestations of innovation performance encompass product and service innovation, process innovation, and business model innovation. The level of innovation is analyzed based on exploratory and utilization innovation, persistent and destructive innovation, as well as technological, institutional, knowledge, managerial, and policy innovation. Although several studies have been conducted, there is currently no universally accepted and defined definition of innovation performance. The existing definitions mostly emphasize the success of product innovation and process innovation. This paper's study specifically examines Chinese firms, with a primary emphasis on technical innovation.

Determinants Affecting Innovation Performance: The origins of academic study on the "factors influencing innovation performance" may be traced back to the 1970s. External influences encompass the inter-enterprise network structure, social networks, technology opportunities, government conduct, and legislation. The internal elements consist of R&D investment, human resource status, digitalization level, social capital, absorptive capacity, knowledge integration mechanism, technological competency, technological learning, access to information resources, corporate strategy, and size. He Yue and colleagues (2010) conducted studies that present a causal diagram demonstrating how external and internal variables interact to influence innovation performance. External impacts include factors such as the local environment, the capacity of the network, government subsidies, and tax incentives. Internal aspects encompass technical learning, R&D investment, entrepreneurial success, and digital transformation, all of which contribute to the intricate terrain of innovation performance.

Analysis of Variables Influencing Innovation Performance: Internationally, researchers have extensively studied the complex elements that impact the performance of innovation in businesses. Their varied viewpoints and thorough analysis provide a robust basis for this study. The study of the effects of digital transformation and customer focus has been conducted, but the ever-changing nature of the digital economy requires a fresh analysis of the elements that affect innovation success, both internally and outside. This study is innovative because it includes the concept of enterprise customer orientation and integrates digital capacity as elements that influence the outcome. This aligns with the current trend of digital transformation.

Evaluating the effectiveness of innovation: Accurate assessment of innovation performance relies on a detailed comprehension of the complex and diverse aspects of "performance." According to Bates and Holton (1995), the notion is multifaceted and the selection of measuring criteria produces different results. The absence of a standardized indicator system for evaluating the connotation of innovation performance has led

researchers to choose diverse indicators depending on their study requirements, sample characteristics, and data accessibility. The patent data technique and the questionnaire survey method are commonly used measuring methods. The former method offers objectivity, while the later method, particularly when using scales, is more dominant in measuring innovation effectiveness compared to rivals since it can catch tiny differences more effectively.

With the emergence of innovation theory, there has been a greater focus on the performance of enterprise innovation. The current body of research examines the impact of external macro variables, internal organizational factors, and individual-level factors on innovation success. Measurement tools, such as patent data analysis and questionnaire surveys, are crucial in determining outcomes. Various viewpoints and approaches exist, but there is a general agreement on using metrics such as inputs, patents, new products, markets, and success rates to assess the performance of corporate innovation. The current body of literature, however varied, offers a strong basis for examining the dependent variable of corporate innovation success.

2.2: Literature Review of Customer Orientation Research

Introduction to Customer Orientation: Philip Kotler emphasizes the crucial importance of customer satisfaction in all aspects of a company's operations. Theodore Levitt's proposal for client orientation promotes a shift away from conventional development paradigms. Customer orientation goes beyond comprehending the needs of the intended customers and involves consistently generating exceptional value. This entails comprehending the buyer's whole value chain and gaining insight into both current and developing requirements.

The Essence of Customer Orientation: Customer orientation involves comprehending the intended purchasers in order to consistently generate exceptional value. It is evident via attitudes and actions, covering both the principles guiding a company and its core values. According to scholars Gatignon and Xuereb (1997), customer-oriented companies prioritize identifying, analyzing, understanding, and responding to client demands in order to promote innovation. It encompasses both the market and individual levels, with a strong emphasis on consumer demand and enhancing customer value.

2.3: Digital Capability Research

The subject of study is the digital economy and enterprise. Digital Capability: The digital economy's transformational wave, which is marked by openness, lack of borders, and increased interaction, necessitates firms to engage in digital transformation (Sun Xinbo et al., 2021). Reshaping and inventing business models become necessary tactics for organizations seeking to adjust to the progress of the digital economy. The worldwide emphasis on company innovation, propelled by digital technology, highlights the utmost significance of digital capabilities. Incorporating digital technology into production and operational operations is essential for firms to overcome limitations in technology and resources (Sun Xinbo et al., 2021). Within the framework of digitalization, the widespread use of digital technology stimulates the development of new models in several areas of business. The process of creating enterprise value shifts from a model that is centralized and isolated to one that is defined by co-sharing, co-creation, and sharing.

The primary catalyst for this transformative change is the organization's digital prowess, which includes its strengths in digital manufacturing and digital service provision (Sun Xinbo et al., 2021). Digital manufacturing optimizes production processes, promoting collaborative, adaptable, and intelligent manufacturing systems. Simultaneously, the advent of digital service capabilities is transforming the fields of marketing, management, and decision-making by using the power of big data analysis. Digital capabilities provide

real-time monitoring of manufacturing processes, increased market perception, responsiveness, and resource integration efficiency by minimizing human interference in production and boosting organizational connection. This flexibility guarantees long-term competitive advantages in the market by addressing personalized requirements.

The Connotation and Dimensions of Digital Capability: The connotation of digital capability: In the era of the digital economy, organizations must prioritize innovation in order to achieve sustainable development. Gropponte, in his work "Digital Survival," highlights the increasing prevalence of "the DNA of information" as an indication of a significant change towards complete digitization in human existence. In the midst of the digital landscape, businesses prioritize their digital capabilities as a means of maintaining a competitive advantage throughout time. The concept of digital capability is not only an abstract idea; its fundamental nature is based on research into information capability and dynamic capability (Dong Zhao, 2021). Researchers, utilizing advanced digital technologies such as big data, machine learning, artificial intelligence, Internet of Things, cloud computing, and blockchain, are increasingly acknowledging the importance of digital capabilities. Within the realm of management and entrepreneurship research, digital capacity is identified as a crucial factor for firms to attain and maintain sustainable competitive advantages (Ross et al., 1996; Zhuang Caiyun et al., 2020).

A dynamic skill is seen as a critical talent that allows for the swift implementation of plans in reaction to changes in the environment. This ability is essential for the survival and growth of start-ups, as well as the transformation of established businesses (Zhu Xiumei et al., 2020; Ferreira et al., 2019; Levallet and Chan, 2018). The concept of Digital capability is not merely an abstract idea, but rather it is primarily derived from the examination of information capability and dynamic capability. Scholars have proposed various interpretations of digital capability based on their research objectives and viewpoints (Dong Zhao, 2021). The existing literature widely acknowledges that Digital capability is the primary dynamic capability in the digital era (Teece, 2007). It encompasses not only the ability to utilize digital technology, but also the capacity of enterprises to effectively integrate digital elements. This integration serves as the foundation and crucial factor for the development of enterprise digital innovation.

2.4: Literature review of research on Organizational creativity

The Implication of Organizational Creativity: Organizational creativity refers to the generation of creative, new, and beneficial ideas or issue solutions inside a complex social system. These ideas or solutions might be connected to goods, services, procedures, or processes. The generation of this innovation is a collaborative effort including individuals, teams, and organizations (Amabile, 1988). The origins of Organizational creativity study may be traced back to Guilford's influential 1950 paper on creativity, which first emphasized the role of people. Later, researchers expanded their investigation to include team and organizational aspects. According to Amabile (1983), creativity is the process of coming up with new and valuable ideas, with a focus on achieving certain outcomes. The research expanded to include other aspects such as the process of creativity, the outcomes of creativity, individuals who are creative, and the environment that fosters creativity (Harrington, 1990). According to Kirk and Spreckelmeyer (1998), organizational creativity refers to the process in which individuals work together to come up with, choose, and improve new ideas for problem-solving.

The academic analysis of Organizational creativity became more comprehensive in the late 1980s, as many viewpoints contributed more sophisticated definitions. The key frameworks that arose are the outcome perspective, process perspective, and capacity perspective. Harrington (1990) defines organizational creativity as the interacting interaction of creative processes, products, people, and surroundings, representing the result viewpoint. Woodman

et al. (1993) expand on this viewpoint by considering complex social systems, where organizational creativity is seen as the generation of significant and practical ideas through collaborative procedures. Some experts view Organizational creativity as a resource, according to Bharadwa and Menon (2000). According to Lee and Choi (2003), they perceive it as the capacity of a business to effectively develop and improve innovative ideas related to goods, services, and processes. Peng Chan et al. (2003) specifically examine problem-solving skills in different organizational activities and define Organizational creativity as the combination of enhancing and inventing at all levels. GuQinxuan and Jiang Wan (2013) employ a multilevel approach, defining organizational creativity as the capacity of an organization to produce original ideas at the individual, team, and organizational levels.

Variables that precede and result from organizational creativity: The current study on organizational creativity focuses on examining the factors at the individual, team, and organizational levels that affect its manifestation. Based on knowledge theory, research explores the influence of organizational learning and external knowledge acquisition on organizational innovation. Additional elements, such as the allocation of resources within an organization, the prevailing atmosphere or culture, the overall direction and goals of the business, the motivating factors or rewards in place, and the specific approaches to leadership employed, all have significant impacts. Organizational culture exerts a form of influence known as "soft power," which impacts organizational creativity. On the other hand, organizational systems, referred to as "hard power," have a key role in shaping creativity (Amabile et al., 1996; Elenkov et al., 2005). Antecedent factors include leadership style, corporate strategy, structure, human resource practices, and incentives.

Organizational creativity research is characterized by its experimental nature and the presence of just a few well-developed measures, in contrast to individual creativity measurement. Amabile (1996) initially presented the KEYS inventory, which was later modified by other researchers. Nevertheless, there are difficulties with the content validity of these measures, as they primarily evaluate antecedent characteristics rather than the actual level of Organizational creativity. The five-item unidimensional scale developed by Lee and Choi (2003) is extensively utilized to measure creative inspiration, environment, method, and outcomes in a systematic manner. This study use a specific scale to assess the level of organizational innovation.

1. The firm produces a multitude of innovative and valuable concepts (services/products).

2. The company creates a favorable atmosphere for the development of innovative and valuable ideas (services/products).

3. The company devotes a significant amount of effort generating innovative and valuable concepts (services/products).

4. The company regards the generation of novel and valuable ideas as a significant endeavor.

5. The company consistently generates innovative and valuable ideas.

III. METHODOLOGY

This section examines the research techniques and procedures employed in the current study. The research also covers the data collecting device, population, sampling, and statistical analysis employed.

3.1: RESEARCH DESIGN

Independent variable →Customer orientation: This study primarily examines the impact of Customer orientation on Innovation performance, akin to the investigation conducted by Xu Jianzhong (2018). Consequently, this study adopts his measuring scale for Customer orientation, which categorizes Customer orientation into Customer direct orientation and Customer indirect orientation. The corresponding measurement items may be found in Table 3.1.

Measurement content	Secondary dimension	Measurement items
Customer Orientation （CO）	Customer Direct Orientation （CDO）	● Customers share their needs and suggestions with enterprises. ● Customers directly participate in enterprise design, production and sales. ● Enterprises systematically listen to and understand the needs and preferences of different customer groups. ● Obtain customer information through investigation and interview. ● Customers pay extra time cost to help enterprises complete innovation work.
	Customer Indirect Orientation （CIO）	● Express the greetings and thanks of the enterprise to customers. ● Customers express their brand feelings and recognition to the enterprise. ● Customers maintain good relations with enterprise staff. ● Systematic measures to improve enterprise products/ services to improve customer satisfaction and loyalty. ● Continuously improve the customer service process to help customers obtain information, and conduct transactions and complaints.

Table3.1: Measurement scale of Customer orientation

Independent variable →Organizational creativity: The assessment of organizational creativity (OC) mostly relies on Lee and Choi's Organizational Creativity Scale. This scale assesses the creative drive, creative setting, creative procedure, and creative outcome of an organization, and may comprehensively depict all facets of organizational creativity, aligning closely with the essence of organizational creativity in this study. Thus, this study evaluates the utilization of organizational creativity using the scale developed by GengZiling, which has a total of five items:

1. The company has generated several innovative and valuable concepts (services/products).

2. The company has created a favorable atmosphere for creating innovative and valuable ideas (services/products).

3. The company has dedicated a significant amount of effort to generate innovative and valuable concepts (services/products).

4. The company considers it crucial to generate innovative and valuable ideas.

5. The company consistently generates innovative and practical concepts.

Independent variable → Organizational creativity: This study assesses the utilization of organizational creativity using the framework developed by GengZiling. The framework consists of a total of five components, which are as follows:

1. The company has generated several innovative and valuable concepts (services/products).

2. The company has created a favourable atmosphere for creating innovative and valuable ideas (services/products).

3. The company has dedicated a significant amount of effort to generate innovative and valuable concepts (services/products).

4. The company considers the production of innovative and valuable ideas to be a crucial activity.

5. The company consistently generates innovative and valuable ideas.

Implicit variable → Innovation performance: The study utilizes the research conducted by Chen Yufen, Guo Aifang, He Yubing, and Liang Liang to create questionnaires that assess the Innovation Performance (IP) of organizations. This assessment is based on five crucial indicators observed over the course of the previous five years.

1. Yearly assessment of the number of new items in relation to competitors.

2. Ratio of revenue generated by new product sales to overall sales, relative to industry competitors.

3. Comparative rate of innovation in developing new products.

4. Comparative success rate of innovative ventures in relation to peers.

5. Comparison of patent application numbers with those of peers.

Control variables: This study focuses on three often employed control variables in innovation research, namely enterprise age, enterprise character, and enterprise scale. The age of an organization has a significant impact on the development of its customer orientation and digital capacity.

3.2: HYPOTHESIS

Relationship between Customer Orientation and Digitalization Ability: Customer orientation significantly shapes enterprise Digital capability. Enterprises prioritizing customer needs develop digital solutions, improving adoption rates and satisfaction. Customer-oriented firms collect customer data for personalized experiences, utilizing digital tools effectively. Customer orientation encourages data-driven decisions, optimizing digital products, marketing, and operations, enhancing innovation (Li Shuman, 2021).

Hypothesis 1: Customer orientation positively impacts Digital capability.

- Assumption 1a: Customer direct orientation positively affects digitalization capability.
- Hypothesis 1b: Customer indirect orientation positively affects digitalization capability.

Relationship between Customer Orientation and Organizational Creativity: Customer-oriented enterprises foster creativity and innovation by addressing customer needs, promoting employee creativity. Actively involving customers generates

insights for creative solutions. Organizational creativity, driven by customer feedback, leads to innovative products and services, enhancing overall business performance.

Hypothesis 2: Customer orientation positively impacts Organizational creativity.

- Hypothesis 2a: Customer direct orientation positively impacts Organizational creativity.
- Hypothesis 2b: Customer indirect orientation positively impacts Organizational creativity.

Relationship between Digitalization Capability and Organizational Creativity: Digital capability enhances organizational creativity by providing tools and resources for innovation. Collaboration platforms, data-driven insights, and digital tools promote seamless collaboration, quick testing of ideas, and support for rapid prototype design. Digital capabilities significantly contribute to organizational creativity.

Hypothesis 3: Digitalization ability positively impacts Organizational creativity.

Relationship between Organizational Creativity and Innovation Performance: Organizational creativity, generating novel ideas and solutions, positively influences Innovation performance. Creativity is instrumental in designing new processes, identifying customer needs, and applying original methods or technologies. A creative organization promotes innovative products and services, positively impacting Innovation performance.

Hypothesis 4: Organizational creativity positively affects Innovation performance.

Relationship between Digitalization Capability and Innovation Performance: Digital capability, crucial for survival and competition in the digital landscape, complements business model innovation. Enhanced by digital tools, organizations gain insights, collaborate effectively, and create new value propositions. Digitalization significantly influences Innovation performance.

Hypothesis 5: Digitalization capability positively influences Innovation performance.

Relationship between Customer Orientation and Innovation Performance

Customer orientation, prioritizing customer needs, contributes to innovation. Market-oriented enterprises focus on customer information use and learning, leading to improved Innovation performance. Customer orientation positively influences innovation, fostering customer acceptance of innovative products.

Hypothesis 6: Customer orientation positively impacts Innovation performance.

- Hypothesis 6a: Customer direct orientation positively impacts Innovation performance.
- Hypothesis 6b: Customer indirect orientation positively impacts Innovation performance.

Mediating Role of Digital Capability between Customer Orientation and Innovation Performance: Digital capability mediates the positive impact of Customer orientation on Innovation performance. Customer-oriented enterprises benefit from enhanced Innovation performance through improved Digital capabilities.

Hypothesis 7: Digital capability acts as an intermediary between Customer orientation and Innovation performance.

- Hypothesis 7a: Digital capability acts as an intermediary between Customer direct orientation and Innovation performance.

- Hypothesis 7b: Digital capability acts as an intermediary between Customer indirect orientation and Innovation performance.

Mediating Role of Organizational Creativity between Customer Orientation and Innovation Performance: Organizational creativity mediates the relationship between Customer orientation and Innovation performance. Fostering a creative environment enhances the positive impact of Customer orientation on Innovation performance.

Hypothesis 8: Organizational creativity acts as an intermediary between Customer orientation and Innovation performance.

- Hypothesis 8a: Organizational creativity acts as an intermediary between Customer direct orientation and Innovation performance.

- Hypothesis 8b: Organizational creativity acts as an intermediary between Customer indirect orientation and Innovation performance.

Mediating Role of Organizational Creativity on Digitalization Ability and Innovation Performance: Organizational creativity acts as an intermediary between digital ability and Innovation performance. Creativity enhances the effectiveness of digital tools in generating innovative solutions, positively influencing overall Innovation performance.

Hypothesis 9: Organizational creativity acts as an intermediary between Digital ability and Innovation performance.

Mediating Role of Digital Capability on Customer Orientation and Organizational Creativity: Digital capability acts as an intermediary between Customer orientation and Organizational creativity. Combining digital tools and customer-centric strategies promotes a more creative organizational culture, positively influencing Organizational creativity.

Hypothesis 10: Digital capability acts as an intermediary between Customer orientation and Organizational creativity.

- Hypothesis 10a: Digital capability acts as an intermediary between Customer direct orientation and Organizational creativity.
- Hypothesis 10b: Digital capability acts as an intermediary between Customer indirect orientation and Organizational creativity.

Chain Mediating Role of Digitalization Capability and Organizational Creativity on Customer Orientation and Innovation Performance: The chain intermediary effect of Digital capability and Organizational creativity on Customer orientation and Innovation performance emphasizes their interconnected role in promoting customer-centric strategies, digital capabilities, and creative organizational cultures. The synergy of these factors enhances Innovation performance and sustainable competitive advantage.

Hypothesis 11: Digital capability and Organizational creativity act as a chain intermediary between Customer orientation and Innovation performance.

- Hypothesis 11a: Digital capability and Organizational creativity act as a chain intermediary between Customer direct orientation and Innovation performance.
- Hypothesis 11b: Digital capability and Organizational creativity act as a chain intermediary between Customer indirect orientation and Innovation performance.

3.3 Population and Sampling

This article investigates the correlation between Customer orientation, Digital capacity, Organizational creativity, and Innovation success in industrial businesses. The study specifically targets Shandong, Beijing, Jiangsu, Tianjin, Hebei, and other provinces and cities for the sake of ease and practicality. Shandong is a strategically important region because of its well-established relationships and the cost-saving advantages it offers. Data collecting utilizes a method known as convenient sampling.

3.4 Sampling & Sampling Size

The study focuses on enterprise managers and use a questionnaire to assess their levels of customer orientation, digital capabilities, organizational creativity, and innovation performance. Convenient sampling is selected based on its accessibility and practicality, making it particularly useful when more rigorous procedures are not feasible.

The analysis will utilize the structural equation model (AMOS). The required sample size exceeds 200, taking into account the number of pre-estimated parameters. A sample size less than 100 may jeopardize the stability of the correlation matrix. The objective of this study is to have a sample size of over 200, with a questionnaire consisting of 35 questions.

3.5 Data Collection & Analysis

Data collection encompasses a series of eight steps, which encompass activities such as doing a thorough assessment of existing literature, conducting preliminary experiments to test the research methodology, and distributing questionnaires to gather data. The study gathers 328 surveys from many sources, with particular emphasis on the significance of demographic information and research characteristics. The questionnaire guarantees both authenticity and validity.

SPSS and AMOS are software programs utilized for statistical analysis. Descriptive statistical analysis investigates the features of a sample. Reliability and validity study evaluates the trustworthiness of a scale. Structural equation modeling assesses the overall adequacy of a model, while the bootstrap approach calculates the intermediate effect and its associated confidence range.

3.6 Reliability and Validity Analysis of the Scale

Preliminary study guarantees the validity of the questionnaire. Reliability analysis, employing Cronbach's α, assesses the degree of consistency, with a minimum threshold of 0.5. Validity analysis encompasses four types: content validity, structural validity, convergent validity, and discriminant validity. Structural validity is assessed using exploratory factor analysis, which involves evaluating the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity.

IV. RESULTS

4.1: Reliability Analysis

The reliability test assesses the questionnaire's credibility, focusing on the consistency and stability of results. Internal reliability examines whether questions within a set measure the same concept and how well individual scale components exhibit internal consistency. Cronbach’s Alpha measures internal reliability, with higher coefficients indicating greater internal consistency. A coefficient above 0.9 suggests high internal consistency, 0.8 to 0.9 is considered good, 0.7 to 0.8 is average, and below 0.7 is considered poor, rendering the questionnaire inconvenient as a research tool.

The internal consistency of each scale in this study is evaluated using Cronbach's Alpha, with coefficients exceeding 0.7, indicating relatively high internal consistency.

Dimension	Number of terms	Cronbach Alpha
Digital capability	4	0.909
Customer Direct Orientation	5	0.900
Customer Indirect Orientation	5	0.864
Organizational creativity	5	0.889
Innovation performance	5	0.892

Table 4.1: Results of questionnaire reliability analysis

As can be seen from the above table that the questionnaire is divided into five dimensions, and Cronbach's Alpha coefficient of each dimension meets the basic standard of being greater than 0.7. Therefore, the questionnaire used in this study has good reliability.

4.2: Validity Analysis

In practical research, the validity test involves content and structural validity assessments. Content validity gauges the questionnaire items' relevance to the sampled content or behavior. This study's scale, drawn from prior literature and adjusted after pre-investigation, exhibits good content validity.

Structural validity, also known as construct validity, evaluates the extent to which analyses confirm a theoretical hypothesis. Confirmatory Factor Analysis (CFA) is employed to assess the formal survey scale's validity. AMOS24.0 software is used for this purpose, considering four aspects: absolute fitness index, value-added fitness index, simple fitness index, and internal fitness (CR and AVE). Criteria for evaluation include small $\chi 2$, RMSEA less than 0.08, GFI and AGFI above 0.8, NFI, RFI, IFI, TLI, and CFI greater than 0.9, $\chi 2/df$ between 1-3, PGFI, PNFI, and PCFI above 0.5, and CR above 0.7 with AVE above 0.5.

If individual variables' initial models fail these criteria, appropriate revisions are made, primarily based on standard parameter estimates and Modification Indices (MI). CFA, constructed using AMOS25.0, is evaluated through the maximum likelihood method. The model diagram is depicted in the figure, and the assessment results in the subsequent table indicate satisfactory fitting, affirming the model's validity.

Reference index	Evaluation criterion	Statistical values	Model adaptation judgment
x^2/df	It is more suitable between 1 and 3.	2.687	Yes
AGFI	More than 0.8, the closer to 1, the higher the fitness.	0.819	Yes
GFI	More than 0.8, the closer to 1, the higher the fitness.	0.854	Yes
TLI	More than 0.9, the closer to 1, the higher the fitness.	0.911	Yes
NFI	More than 0.9, the closer to 1, the higher the fitness.	0.882	Almost
CFI	More than 0.9, the closer to 1, the higher the fitness.	0.922	Yes
RMSEA	Less than 0.08	0.072	Yes

Table 4.2: Model Fitting Index

The table above confirms that all model fitting indices from the confirmatory factor analysis meet the prescribed criteria. Subsequently, we delve into the questionnaire's aggregation validity and discrimination validity.

For discrimination validity, the study initially examines the correlation coefficient of each variable. The results reveal a positive correlation between variables, with a significant correlation coefficient at $P < 0.001$. Finally, the square root of the Average Variance Extracted (AVE) for each latent variable is computed. If the square root value of AVE surpasses the correlation coefficient between a latent variable and others, it signifies robust discrimination validity for that variable.

4.3: Demographic Overview

Personal characteristics of the respondents: The respondents' personal characteristics, outlined in Table 4.6, provide a comprehensive snapshot of the survey sample. The gender distribution indicates a predominance of females, constituting 33.64%, while males make up 66.36%. Age-wise, the distribution is as follows: 30 and below (10.70%), 31-35 (14.37%), 36-40 (36.39%), 41-45 (20.18%), and 46 and above (18.35%).

Personal traits	Variable category	Frequency	Proportion (%)
Gender	female	110	33.64%
	male	217	66.36%
Age	30 years old and under	35	10.70%
	31-35 years old	47	14.37%
	36-40 years old	119	36.39%
	41-45 years old	66	20.18%
	46 years old and above	60	18.35%
Academic degree	Master degree or above	142	43.43%
	bachelor	109	33.33%
	College graduates	30	9.17%
	Secondary vocational college graduates or high school graduates	30	9.17%
	Junior high school graduates and below	16	4.89%

Table4.3: Distribution of gender characteristics of samples

Regarding education, a higher educational attainment prevails, with 43.43% holding a master's degree or above, 33.33% with a bachelor's degree, and 9.17% each for junior college and technical secondary school or high school degrees. Respondents with a junior high school degree or below constitute 4.89%. This diverse educational profile enhances the representativeness of the sample.

Enterprise Profile: Examining the characteristics of the enterprises under investigation, the analysis reveals a balanced distribution. In terms of enterprise age, 29.36% have been established for less than 5 years, 33.64% for 5-10 years, 26.91% for 11-20 years, 7.95% for 21-50 years, and 2.64% for 51 years or more.

Considering enterprise scale, 37.92% of enterprises have fewer than 20 employees, 20.28% have 21-50 employees, 5.81% have 51-100 employees, 6.12% have 101-500 employees, and 19.88% have more than 500 employees. This balanced distribution across enterprise age and scale contributes to the overall representativeness of the survey sample.

Basic feature	Variable category	Frequency	Proportion (%)
Enterprise age	Less than 5 years	96	29.36%
	5-10 years	110	33.64%
	11-20 years	88	26.91%
	21-50 years	26	7.95%
	51 years and above	7	2.64%
Enterprise scale	Less than 20 people	124	37.92%
	21-50 people	99	20.28%
	51-100 people	19	5.81%
	101-500 people	20	6.12%
	501 and above	65	19.88%
Enterprise nature	State-owned enterprise	84	25.69%
	Private enterprise	191	58.41%
	Joint venture enterprise	9	2.75%
	Exclusively foreign-owned enterprise	2	0.61%
	Others	41	12.54%

Table4.4: Sample distribution

4.4 Descriptive statistics of variables

Following the comprehensive reliability and validity assessment, this research scale exhibits commendable reliability and validity. Prior to testing the research hypotheses, the formal research data undergo descriptive statistical analysis to ascertain their adherence to a multivariate normal distribution, a prerequisite for subsequent data analysis.

Utilizing SPSS 22.0, the descriptive statistics encompass maximum and minimum values, mean, standard deviation, skewness, standard error, and kurtosis. The mean provides insight into the overall sample average, while the standard deviation gauges sample data dispersion. Skewness and kurtosis coefficients assess the normal distribution of the sample data, with values below 3 and 10, respectively, considered acceptable (Kline, 2005).

Table 4.5 presents the results of the descriptive statistics, revealing skewness coefficients ranging from 0.181 to 1.097 (meeting the criterion of <3) and kurtosis coefficients between 0.163 and 1.338 (fulfilling the criterion of <10). The maximum absolute values of skewness and kurtosis for each main variable in Table 4.6 are 0.922 and 1.711, respectively, affirming adherence to normal distribution. Consequently, the overall sample data adheres to normal distribution standards, satisfying the prerequisites for subsequent data testing and analysis.

Item	Min	Max	Average	Standard deviation	Skewness coefficient	Standard error	Coefficient of kurtosis	Standard error
CDO1	1	7	4.350	1.509	-0.316	0.135	-0.753	0.269
CDO2	1	7	4.240	1.533	-0.181	0.135	-0.561	0.269
CDO3	1	7	4.350	1.542	-0.311	0.135	-0.602	0.269

CDO4	1	7	4.380	1.569	-0.338	0.135	-0.580	0.269
CDO5	1	7	4.600	1.371	-0.709	0.135	0.181	0.269
CIO1	1	7	4.610	1.470	-0.387	0.135	-0.101	0.269
CIO2	1	7	5.060	1.324	-0.757	0.135	0.444	0.269
CIO3	1	7	5.050	1.321	-0.981	0.135	1.175	0.269
CIO4	1	7	4.580	1.496	-0.503	0.135	-0.337	0.269
CIO5	1	7	4.970	1.415	-0.738	0.135	0.213	0.269
DC1	1	7	5.390	1.324	-0.965	0.135	1.338	0.269
DC2	1	7	5.160	1.372	-0.834	0.135	0.940	0.269
DC3	1	7	5.310	1.366	-0.970	0.135	1.160	0.269
DC4	1	7	5.110	1.477	-0.823	0.135	0.635	0.269
OC1	1	7	5.110	1.287	-0.684	0.135	0.667	0.269
OC2	1	7	5.250	1.376	-0.956	0.135	1.082	0.269
OC3	1	7	5.170	1.323	-0.902	0.135	1.253	0.269
OC4	1	7	4.960	1.407	-0.662	0.135	0.126	0.269
OC5	1	7	5.120	1.137	-1.010	0.135	1.978	0.269
IP1	1	7	4.670	1.406	-0.298	0.135	-0.163	0.269
IP2	1	7	4.940	1.403	-0.741	0.135	0.315	0.269
IP3	1	7	5.010	1.367	-1.097	0.135	1.082	0.269
IP4	1	7	4.510	1.560	-0.487	0.135	-0.324	0.269
IP5	1	7	4.770	1.493	-0.850	0.135	0.374	0.269

Table4.5: Descriptive statistical analysis 1

Item	**Min**	**Max**	**Average**	**Standard deviation**	**Skewness coefficient**	**Coefficient of kurtosis**
Customer direct orientation	1	7	4.3859	1.2889	-0.547	-0.266
Customer indirect orientation	1.2	7	4.8532	1.189	-0.629	0.256
Digital capability	1	7	5.2431	1.16791	-0.921	1.711
Organizational creativity	1.2	7	5.1211	1.08984	-0.922	1.531
Innovation performance	1.4	6.8	4.7786	1.21004	-0.631	-0.08

Table4.6: Descriptive statistical analysis 2

4.5: Variable Correlation Analysis

This study use correlation analysis to examine the dependency between variables. It employs correlation coefficients and significance to analyze the preliminary model. The standardized correlation coefficient, which varies between -1 and 1, quantifies the magnitude of correlation. A correlation closer to 0 indicates a weaker relationship, and vice versa. A value beyond 0.7 indicates possible issues with collinearity in the model. The data presented in Table 4.7 demonstrates significant positive associations between the variables of Customer orientation and Digital capacity (0.372 and 0.466), Customer orientation and Organizational creativity (0.372 and 0.419), and Customer orientation and Innovation performance (0.430 and 0.483). Digital capacity has a good correlation with both organizational creativity (0.502) and innovation performance (0.525). Additionally, organizational creativity has a positive correlation with innovation performance (0.516). The findings are consistent with the theoretical predictions of the study. The correlation coefficients, often below 0.7, provide a strong basis for further regression modeling and hypothesis validation.

Item		1	2	3	4	5
1.	**Customer direct orientation**	1	.502**	.372**	.372**	.430**
2.	**Customer indirect orientation**	.502**	1	.466**	.419**	.483**
3.	**Digital capability**	.372**	.466**	1	.502**	.525**
4.	**Organizational creativity**	.372**	.419**	.502**	1	.516**
5.	**Innovation performance**	.430**	.483**	.525**	.516**	1

Table 4.7: Variable correlation analysis results
Note: * * At the level of 0.01 (double tail), the correlation is significant.

4.6 Structural Equation Model (SEM)

The Structural Equation Model (SEM), also termed covariance structure model, is a pivotal multivariate analysis tool relying on the covariance matrix of feature variables to assess their relationships. SEM proves particularly valuable in fields where unobservable variables, such as learning motivation and user satisfaction, pose challenges for traditional statistical methods. This model accommodates multiple dependent variables simultaneously, addressing a limitation of conventional regression models that overlook interdependencies. SEM comprises a measurement model and a structural model, evaluating the internal structure and relationships among potential variables. Model evaluation involves fitting and parameter tests.

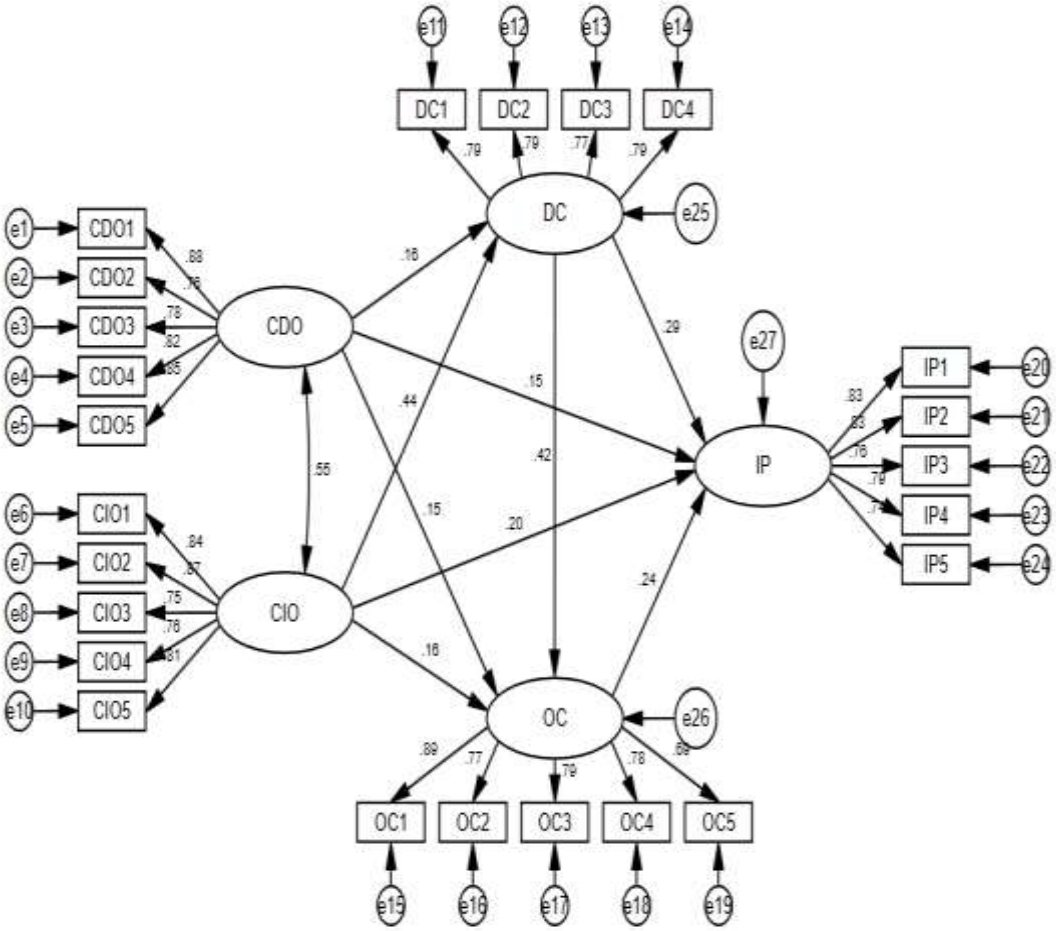

Fig4.1 First-order structural equation model diagram

Statistical Analysis Results: Based on the proposed theoretical model, this study establishes and evaluates a SEM using AMOS 25.0. The maximum likelihood method estimates model parameters. Evaluation criteria include NFI, RMSEA, CFI, and more. The obtained indicators generally meet established standards, validating the model's use for subsequent analyses.

Reference index	**x^2/df**	**AGFI**	**GFI**	**TLI**	**NFI**	**CFI**	**RMSEA**
Evaluation criterion	1—3	＞0.8	＞0.8	＞0.9	＞0.9	＞0.9	＜0.08
Statistical values	2.687	0.819	0.854	0.911	0.882	0.922	0.072
Model adaptation	Yes	Yes	Yes	Yes	Yes	Almost	Yes

Table4.8: Test results of structural equation model fitting degree

Path Analysis: The SEM incorporates independent variables (Customer direct orientation, Customer indirect orientation), intermediary variables (Digital capability, Organizational creativity), and the dependent variable (Innovation performance). A fitness test confirms

model alignment with formal survey data. Path analysis involves estimating regression coefficients, with results meeting significance criteria. Standardized path coefficients reveal positive effects:

1. Customer direct orientation on Digital capability (0.164, $p<0.05$)
2. Customer indirect orientation on Digital capability (0.437, $p<0.05$)
3. Customer direct orientation on Organizational creativity (0.152, $p<0.05$)
4. Customer indirect orientation on Organizational creativity (0.159, $p<0.05$)
5. Digital capability on Organizational creativity (0.424, $p<0.05$)
6. Customer direct orientation on Innovation performance (0.150, $p<0.05$)
7. Customer indirect orientation on Innovation performance (0.202, $p<0.05$)
8. Digital capability on Innovation performance (0.292, $p<0.05$)
9. Organizational creativity on Innovation performance (0.241, $p<0.05$). These findings support the established hypotheses and demonstrate the significant impact of variables on innovation performance.

V. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Effect of Customer Orientation on Innovation Performance: This study confirms the beneficial influence of Customer Orientation, encompassing both Customer Direct and Customer Indirect Orientation, on Innovation Performance. The study presents a refined viewpoint, differentiating between several aspects of Customer Orientation. The findings confirm that strategies focused on consumer needs improve an enterprise's comprehension of market dynamics, hence promoting innovation. Customer input serves as a catalyst for problem-solving and product development, positioning firms that prioritize customer needs for long-term success.

Mediation Role of Digitalization Capability: The role of Digital Capability is essential in bridging the gap between Customer Orientation and Innovation Performance. The orientation of customers, both direct and indirect, plays a significant role in enhancing an organization's digital capability and ensuring alignment with the ever-changing digital environment. By employing data-driven decision-making and leveraging technology, organizations may enhance their agility and effectively meet the demands of their customers. The process of digital transformation accelerates the development of businesses, strengthening their ability to utilize digital technology and thus enhancing their ability to innovate.

Mediating Role of Organizational Creativity: Organizational Creativity serves as a crucial link connecting Customer Orientation and Innovation Performance. The study affirms that both Customer Direct and Indirect Orientation have a favorable impact on Organizational Creativity. Organizations that prioritize consumer insights create an atmosphere that encourages creative thinking, leading to the development of new solutions. Collaboration and risk-taking, fostered by customer-centric initiatives, contribute to the development of a creative culture.

Chain Mediation Function of Digital Capability and Organizational Creativity: The positive correlation between Customer Orientation and Innovation Performance is influenced by the combined effects of Digital Capability and Organizational Creativity. Digital Capability improves the organization's capacity to efficiently process data, hence promoting innovation. Organizational Creativity translates the knowledge acquired from Digital Capability into concrete and inventive solutions. This sequential mediation highlights the interdependence of these components, underscoring their significance in improving Innovation Performance.

5.2 Discussion

The research may be categorized into four fundamental areas. Firstly, it highlights the substantial influence of Customer Orientation on Innovation Performance, providing valuable insights to the current body of research. Furthermore, the use of Digital Capability enhances comprehension by highlighting its intermediary function between Customer Orientation and Innovation Performance. Furthermore, the study examines the intermediary role of Organizational Creativity, elucidating its impact on firm performance. The ongoing mediation of Digital Capability and Organizational Creativity highlights the complex connection between Customer Orientation and Innovation Performance, providing a complete viewpoint for future research.

5.3 Recommendations

1. Place customer orientation as a top priority: Enterprises must acknowledge the crucial role of customer orientation in attaining greater innovation performance. It is essential to employ tactics that focus on enhancing customer engagement, actively including customers in the process of product creation, and ensuring that product development is aligned with consumer demands. Developing a corporate philosophy that prioritizes customer satisfaction, creating strategic strategies, and promoting effective communication with consumers are crucial measures. Improving Digital Capability is essential for maximizing the advantages of Customer Orientation and accelerating technical innovation.

2. When examining the Path Mechanism, it is observed that there is no evidence of a negative correlation between Customer Orientation and Innovation Performance. However, it is advised that organizations should cautiously manage the level of Customer Orientation to maintain a proper balance. The study highlights the intermediary functions of Digital Capability and Organizational Creativity following Customer Orientation. Enterprises must assess their innovation productivity, synchronize the execution of Customer Orientation with existing capabilities, and adapt strategies according to environmental circumstances and organizational creativity.

3. Prioritize Digital Capability: In the context of the digital economy, raising Innovation Performance requires a focus on building Digital Capability. Enterprises should prioritize the development of their digital capabilities, leveraging digital resources and technology to revolutionize several facets of their operations. This encompasses the alteration of perception, decision-making processes, organizational structures, marketing strategies, and business models. Focus should not just be on investing in information technology, but also on developing and leveraging IT skills to enhance practical activities, such as product creation and understanding client requirements.

5.4 Further Study

1. Enhance Theoretical Depth: Future researches are advised to strengthen the theoretical depth by investigating the implementation of integrated market orientation at various stages of enterprises. Enhancing the knowledge of the correlation between market orientation and firm performance may be achieved by introducing additional variables and control elements.

2. Broaden the Scope of Research Objectives: Enlarge the range of research objectives to include certain sectors, small and medium-sized firms, and non-profit organizations. Analyze and compare fundamental corporate data across different sectors or geographies to gain important insights. Examining a wide range of study subjects can enhance our overall comprehension.

3. Create customized measuring tools: Consider the development or improvement of measurement scales specifically designed for certain sectors. This would guarantee more precise evaluations in various circumstances. Integrating industry-specific attributes into measurement instruments will improve the dependability and accuracy of future empirical studies.

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