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## Catalyzing and Implementing Innovation Strategies in the Information Technology Industry Workforce

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# Walden University

College of Management and Technology

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Sameh Mohamed

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Walden University  
2021

Abstract

Catalyzing and Implementing Innovation Strategies in the Information Technology

Industry Workforce

by

Sameh Mohamed

MS, Wolverhampton University, 2016

BS, Tanta University, 2002

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

August 2021

## Abstract

Information technology (IT) business leaders fail to meet business goals because of a lack of innovation and strategies for catalyzing and implementing innovation. IT industry leaders understand that a lack of innovation can increase the risk of not maintaining business sustainability and competitive advantage and, potentially, business failure. Grounded in the dynamic capabilities theory, the purpose of this qualitative single case study was to explore strategies IT business leaders in the United Arab Emirates (UAE) use to catalyze and implement innovation to meet business goals through their IT workforces. The participants comprised five business leaders from an IT company located in Abu Dhabi, UAE, with at least five years of leadership experience successfully implementing innovation strategies to achieve profitability and competitive advantages. Data were collected using semistructured interviews and a review of organizational documents. Through thematic data analysis, five themes were identified: key dynamic capabilities of IT business leaders, value creation through innovation in the IT workforce, strategic organizational management and innovation, research and development in organizational innovation, and automation and adoption to promote change in the IT industry. A key recommendation is that IT business leaders increase automation to drive innovative products to maintain competitive advantages. Implications for positive social change include the potential for IT business leaders to apply innovation strategies for business sustainability, increased job opportunities, and increased profits, leading to greater prosperity in the local community and national economies.

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## Dedication

I dedicate this dissertation to my father, mother, wife, and my children, Jodi, Jasmin, and Ali Sameh. I appreciate their prayers, love, and support throughout my doctoral journey. Their encouragement augmented my intention to accomplish my studies. I thank you and love you all.

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## Section 1: Foundation of the Study

The growing uncertain business environment has increased concerns about the impact of organizational dynamic capabilities on implementing innovative strategies for improving organizational performance (Fainshmidt et al., 2016). Business leaders are encouraged to maintain businesses using the effects of external business activities. Thus, business leaders are challenged to expose how external and internal resources can enhance organizational dynamic capabilities in implementing innovative strategies to gain competitive advantages (Szalavetz, 2015). This study is focusing specifically on the information technology (IT) industry in the UAE.

### **Background of the Problem**

IT organizations face challenges due to uncertain environments and more intense competition because of economic globalization. To deal with growing uncertainties in the external environment, companies need to improve their efficiency, continuously innovate, and address significant challenges arising from complicated situations and dynamic changes by making quick adjustments in their innovation strategies (W. Wang et al., 2019). The idea of competitive advantage requires using both the organization's internal and external capabilities (Teece, 1976).

Leaders of IT companies operating in developing countries call for more research to address the gap between the dynamic capabilities and innovative strategies; in this research, I addressed the role of dynamic capabilities in catalyzing and implementing innovative strategies. The dynamic capability approach is a cohesive framework that can

integrate existing conceptual and empirical knowledge and facilitate prescription (Teece, 1976). Although the IT industry sector in the United Arab Emirates (UAE) was forecast to grow by 3.5%, the UAE IT industry is still lacking in developing innovative strategies (UAE IT Market, 2015). The main objective of this study was to explore the capabilities that IT leaders have to implement innovative strategies in IT companies to maintain competitive advantages and sustainability. This study includes exploring IT managers' views in the UAE to identify recommendations for improving IT companies' dynamic capabilities.

### **Problem Statement**

Most organizations face challenges due to intense competition and uncertain environments because of the evolution of economic globalization (Coulibaly et al., 2018). To address growing uncertainties in the external environment, organizations need to improve their capacity to innovate continuously through integrating suitable objectives in their strategic plans (W. Wang et al., 2019). The total investment made by the UAE government to develop and implement innovative strategies is approximately 14 billion AED per year; however, the UAE has opportunities to create new knowledge and commercially exploit innovations (Government.ae, 2015; UAE Department of Economic Development, 2018). The general business problem is business leaders in IT organizations have not implemented innovation, which results in decreased organizational performance and a reduction in competitiveness. The specific business

problem is that some business leaders in IT organizations lack strategies for catalyzing and implementing innovation to meet business goals through their IT workforces.

### **Purpose Statement**

The purpose of this qualitative single case study was to explore strategies that business leaders in IT organizations use to catalyze and implement innovation to meet business goals through their IT workforces. The target population selected for this study was five IT business leaders from one organization located in Abu Dhabi, UAE. The selected population is suitable for this study because these business leaders have continuously managed and operated IT companies for at least 5 years in the UAE and implemented innovative strategies that achieved profitability and competitive advantages for organizations. This study may contribute to social change by equipping leaders with information to improve their organizations' capabilities to realize innovative and diverse opportunities to manage the labor force more effectively. Furthermore, the study results could contribute to the development of the IT industry and associated industries in the country and lead to improved employment and economic growth. Effective leadership capabilities in an organization result in decreasing employee turnover and can increase profitability, which may improve the quality of life for communities through increased take-home compensation and local tax revenues.

### **Nature of the Study**

I considered quantitative, qualitative, and mixed research methodologies. I chose the qualitative methodology for this study. Selecting the appropriate method depends



upon the nature of the research project, which is either exploratory, descriptive, explanatory, or evaluative (Saunders et al., 2015). Lewis (2015) said quantitative researchers lack opportunities to develop a comprehensive understanding of phenomena in their cultural and social contexts but seek to characterize variables' characteristics or examine relationships by testing derivative hypotheses. The quantitative method was not an appropriate selection for this research. Using a mixed-methods approach, combining qualitative and quantitative designs, adds credibility to a qualitative study. However, I did not seek to examine relationships or differences between variables, so the mixed methodology was inappropriate.

I considered the ethnography, phenomenology, and case study research designs for this study. This proposed study was based on a qualitative single case study. A single-case study can provide a critical contribution to building knowledge and theory by emphasizing, challenging, or expanding theory and could help refocus future investigations. An ethnographic design is used to explore the real-life cultures of a group to understand the group's culture (Liberati et al., 2015). The focus of an ethnography design is historical, psychological, social, and cultural (Marcén et al., 2013). The ethnographic design is not appropriate for this study because the focus of this study is IT innovation, not real-life culture. Phenomenological researchers seek to explore the personal meanings involving unique human-lived experiences (Sarma, 2015). The phenomenological design is not appropriate because this study is not about the lived experiences of participants.

### **Research Question**

What strategies do business leaders in IT organizations use for catalyzing and implementing innovation to meet business goals through their IT workforce?

### **Interview Questions**

1. What are the key dynamic capabilities in your IT business that enabled catalyzing and implementing innovation strategies to meet business goals through your IT workforce?
2. How did your IT organization identify the key dynamic capabilities that enabled developing strategies to catalyze innovation for meeting its business goals through its IT workforce?
3. What key challenges did your IT organization experience in identifying and using its dynamic capabilities to catalyze and implement innovative strategies to meet its business goals through its IT workforce?
4. How did your IT organization overcome key challenges in identifying and using its dynamic capabilities for catalyzing and implementing innovative strategies to meeting its business goals through its IT workforce?
5. How does your IT organization assess the effectiveness of key dynamic capabilities for developing innovative strategies for meeting its business goals through its IT workforce?
6. What else would you like to share about your organization's identification, use, and improvement of key dynamic capabilities for catalyzing and

implementing successful innovative strategies for meeting business goals through its IT workplace?

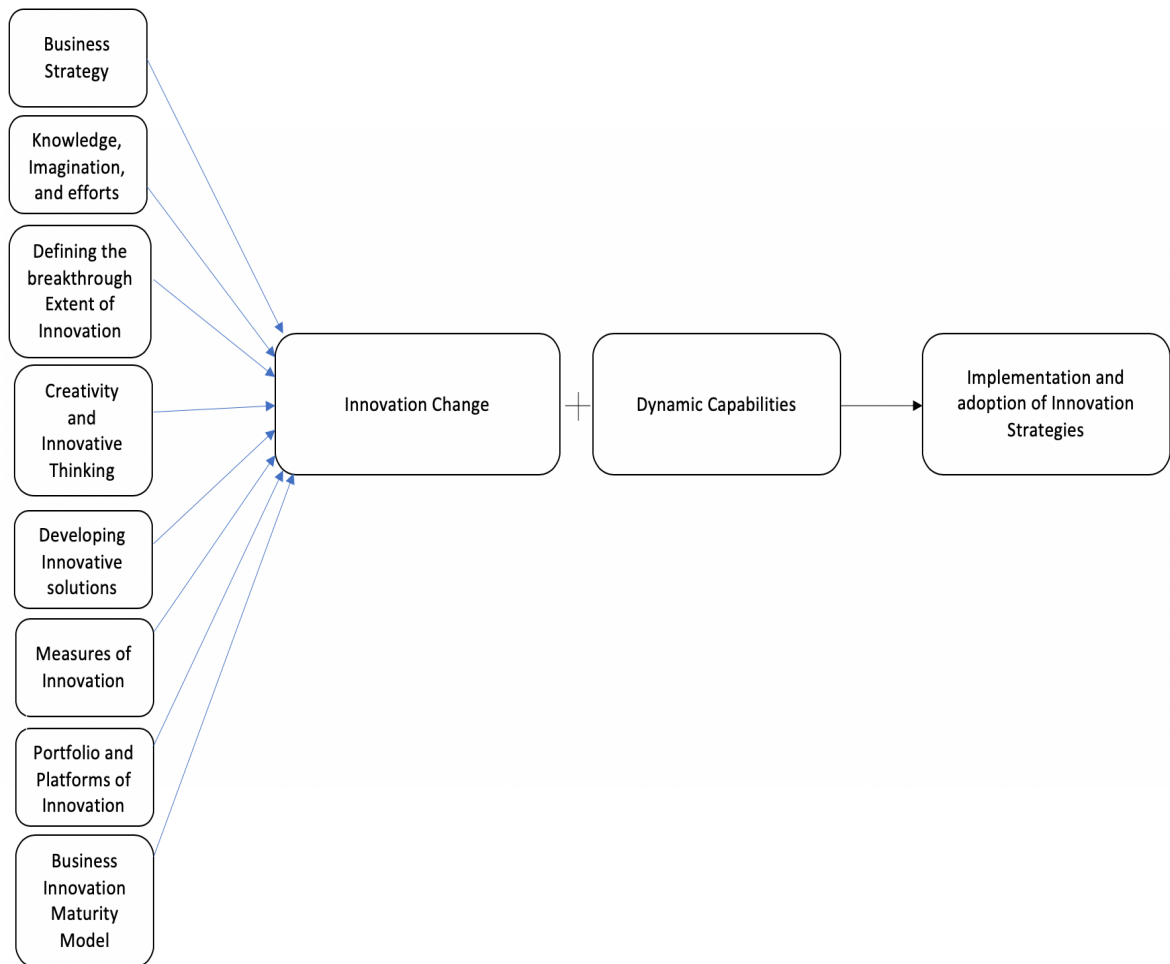
### **Conceptual Framework**

I used the dynamic capabilities framework as a lens to help explain strategies IT firms' leaders use to make better capability decisions for catalyzing innovation. Leaders can help ensure positive outcomes for their companies when they understand business processes and how these processes lead to improving dynamic capabilities (Harris et al., 2013).

The concept of dynamic capabilities is one of the main theoretical components of strategic management; Schumpeter and Opie (1934) identified competitive advantage as linked with the creative use of available resources and integrating resources into new operational capabilities. Other concepts related to dynamic capability in the literature are the basic assumption of capabilities configuration and the core competencies to build long-term competitive advantage. Teece et al. (1997) pioneered the concept of dynamic capacities for achieving competitive advantage in dynamic business environments. Teece et al. also defined dynamic capabilities as the capacity of the firm to integrate, develop, and reconfigure competencies to address changes to internal and external organizational environments.

Some leaders lack the ability to identify organizational dynamic capabilities, manage change in terms of a culture of innovation, create agile innovations, engage employees, and increase and maintain profit growth (P. Gupta, 2011). Based on Kotter's

framework for change management, P. Gupta (2011) developed a framework for innovation. P. Gupta's brinnovation (breakthrough innovation) framework (see Figure 1) reflects both the need for strategies for reconfiguring and integrating internal and external competencies and simplifies understanding the innovation process to help leaders develop and implement strategies for catalyzing innovation to meet business goals. I expected P. Gupta's brinnovation change framework to be beneficial for understanding this study's findings.

**Figure 1***Gupta's Brinnovation Change Model***Operational Definitions**

*Digital transformation:* Digital transformation is the process of enabling significant business improvements to augment the customer experience, streamlining operations, or creating new business models using new digital technologies such as artificial intelligence, cloud, blockchain, and the internet of things (IoT) technologies (Warner & Wäger, 2019).

*Dynamic capabilities:* Dynamic capabilities are the ability to reconfigure, redirect, transform, and shape existing core competencies appropriately with external resources and strategic and complementary assets to meet challenges of global competitiveness (Teece et al., 1997).

*Innovation:* According to the Organization for Economic Cooperation and Development (OECD)/Eurostat (2005), innovation is an implementation of a new or significantly improved product (services or goods) or a process, new marketing method, or new organizational method in terms of business practices, workplace organization, and external relationships (Frishammar et al., 2019).

*Organizational agility:* Organizational agility is the ability of an organization to change rapidly, continuous, and systematic evolutionary adaptation and entrepreneurial innovation directed at gaining and maintaining a competitive advantage (Baškarada & Koronios, 2018).

*Strategic innovation:* Strategic innovation is the process of strategic activities that involve a combination of radical and incremental innovation or exploration and exploitation (Kodama, 2017).

### **Assumptions, Limitations, and Delimitations**

Case study researchers need to overcome obstacles associated with inaccuracy. Researchers may make assumptions about the phenomenon under the study, which stimulates subjectivity. Factors that threaten the research's validity and create difficulty with transferability may constrain the research. However, the researcher must reveal the

limits and scope of the study and identify research boundaries within the context of a focus under the researcher's control, thereby improving reliability and validity (Yin, 2018).

### **Assumptions**

Assumptions are a researcher's beliefs about a phenomenon that may not be substantiated (Ponelis, 2015). Researchers need to take a stance regarding their perceptions of the world (ontological attitude) and perceptions of knowledge (cognitive position; Alam, 2019). The researcher's beliefs, ontology, epistemology, and methodology provide a lens through which readers or reviewers may monitor research findings or results (Moon et al., 2016). Three descriptive epistemological assumptions guided this applied research study. The first assumption was that participants' responses to the interview questions were honest and trustful. The second assumption was that the semistructured interview format allowed participants to provide rich textural data and minimize researcher bias. The third assumption was that the sample size was sufficient to answer the research question. The final assumption was that the purposive sampling method was appropriate to ensure all participants had adequate knowledge about the research problem.

### **Limitations**

The limitations in a research study are those elements of the study's design that are beyond the researcher's control that may impair replication of the study (Brutus et al., 2013). Limitations are potential weaknesses in a case study that may adversely affect

outcomes (Brutus et al., 2013). The current study's first limitation was that the interview participants' threshold as interviewees might narrow the data's depth and richness. The second limitation involved the short time to conduct the research. The third limitation was that this study's data reflect only the population sample's opinions and experiences which might keep from generalizing or expand the findings. The fourth potential weakness of this study was a lack of prior research on dynamic capabilities to catalyze and implement innovative strategies to maintain competitive advantages in IT companies in the UAE. The fifth possible limitation was that leaders tend to discreet the vital information, such as financial resources, because of confidentiality. Leaders' potential nondisclosure of financial capabilities could affect validity because dynamic capabilities are inherent in financial resources. The final limitation was the researcher's dependence on self-reported business leaders' responses to interview questions. Leaders may exaggerate their answers to show the optimum practices rather than the actual practices.

### **Delimitations**

Adesiyan (2016) identified delimitations as the scope and limits of the study set by the researcher and within the researcher's control. Accordingly, I determined the scope of this study. I collected responses from five leaders in an IT company. I used open-ended interview questions to collect information from business leaders who had at least 5 years of experience in an IT company, applying a single case study approach to analyze the implementation of innovative strategies in the IT industry. Because of the limited number of cases and targeted participants working in one geographical area, Abu



Dhabi, UAE, the findings may not be transferable to organizations outside Abu Dhabi or IT companies located in rural areas. It is up to future researchers to determine transferability to their specific cases.

### **Significance of the Study**

#### **Contribution to Business Practice**

The ability of firms to gain a competitive edge in terms of information and communications technology has long been an important subject in information systems. Industry growth, concentration, capital intensity, outsourcing, and presence in the service sector significantly affect firm-level IT value (Wimble et al., 2018). Because of economic, social, and regulatory influences, adopting strategic management practices is crucial to sustaining profitable operations. Leaders who effectively identify and develop their organizations' dynamic capabilities can support and maintain their organizations' continuous growth (Cui et al., 2015). The results of this study might provide leaders of IT firms in the UAE with an understanding of the need for developing and implementing strategies for the identification and use of dynamic capabilities to enhance operations efficiencies resulting in increased profits for achieving business sustainability through their IT workforces.

#### **Implications for Social Change**

Innovation helps IT companies solve societal problems in developing countries with increasing urbanization to improve the lives of citizens. IT can catalyze prosperity and positive change in society. Positive change can directly or indirectly be useful for the

government and public in terms of affecting social and cultural norms through innovative IT (Mohamed et al., 2019).

Findings from this study may help devise new ways to reconfigure processes and assets, which could promote operational efficiencies for enabling IT firms' growth with concomitant economic contributions to local communities. IT firms' operations can positively influence the development of rural communities, providing job stability through economic support to new or improving existing business enterprises (Jacobs et al., 2018). The results of this study may contribute to positive social change by providing findings that IT leaders may incorporate into business strategies to employ, empower, and better enable citizens. Such innovation strategies can provide technical and tacit knowledge transfer that results in increasing employment opportunities.

### **A Review of the Professional and Academic Literature**

This review of professional and academic literature contains an opening description and application to the applied business problem. The opening description includes a brief discussion of sources retrieved for the study. This qualitative single case study's primary purpose was to explore strategies that business leaders in IT organizations use to catalyze and implement innovation to meet business goals through their IT workforces. To reveal strategies for IT organizations, I explored the following themes: (a) definition of innovation, (b) innovation in strategic management, (c) theoretical background of innovation, (d) innovation and leadership, (e) dynamic capabilities, (f) conceptual framework of dynamic capabilities, (g) business innovation,

(h) management of innovations in the field of IT, (i) dynamic innovation capabilities, and (j) business innovation and open innovation. I explained the organization of the review, strategies for searching the literature, and sources retrieved. I found 110 scholarly peer-reviewed articles to support the study, and 86% of these sources were published between 2017 and 2021.

Researchers conduct literature reviews to summarize and synthesize information about a topic under study by presenting a broad overview of their knowledge to inform readers about the research topic's body of knowledge (Baker, 2016). The literature review process helps researchers identify themes, distinguish what other scholars have observed in studies, and provide new ideas to identify problems or issues.

The literature review includes peer-reviewed articles, journals, and reports relating to the dynamic capabilities framework, knowledge-based view, business innovation, innovation, and the IT industry in the UAE. The primary databases used in this literature review were ProQuest, ABI/INFORMS Global, and Walden University library databases. I searched for peer-reviewed articles, journals, and reports that included the following keywords and phrases: *background of innovation, theoretical background of innovation, dynamic capabilities, business innovation, strategic innovation, dynamic innovation capabilities, innovation and organizational performance, dynamic capabilities and leadership, organizational agility and dynamic capabilities, innovation model in the IT industry*, and *open innovation*. I reviewed 115 sources, including 110 (95%) peer-reviewed articles and 99 (86%) sources published between 2017 and 2021.

## **Background of Innovation**

### ***Definition of Innovation***

Vézina et al. (2019) said advantage could come from the company's size or its assets. However, the ability to mobilize knowledge, technology, and experience to create new products, processes, or services is increasingly important. In this context, innovation can be defined as the process by which organizations use their capabilities and resources to develop new products, services, systems (operational or production), ways of working, and technologies to serve the demands of consumers better (Kogabayev & Maziliauskas, 2017).

### ***Classification***

The four types of innovation (Knight, 1967) are all highly interrelated so that introducing an innovation of one kind is likely to cause changes in one or more of the other categories: (a) product or service innovations that concern introducing new products or services to meet customer needs and wants; (b) innovations in the production process that change in use techniques, skills, facilities, and technologies into organizations' tasks, information systems, or physical production or service operations, which represent advances in the company's technology; and (c) innovations in organizational structure which include changes in relationships of authority, work allocations, remuneration systems, communication, and formal interaction between people in organizations. Changes in production processes or service delivery tend to produce concomitant innovations in the organizational structure and innovations in

people: These relate to innovations that can change people's behavior or beliefs within the organization using techniques such as education and training.

Innovation has four characteristics: ideas, programs, order, and systems (Vézina et al., 2019). Innovation has the characteristics or elements of originality or novelty concerning work and thought (Baranskaitė & Labanauskaitė, 2020). Implementing an innovation program should be done through a planned schedule and organized processes (Anzola-Román et al., 2018). The implementation of an innovation program must have direction and strategy to achieve goals (Park, 2018).

### **Innovation in Strategic Management**

Innovation is imperative for corporate survival. However, it is not an easy task. It results from dynamic capabilities in search of organizational reputation returns and profit (Park, 2018). Understanding the concept of the dynamic capabilities of an organization is significant for successful innovation (Pundziene et al., 2019). Through this vision, the company has four core functions: development, operations, management, and sales. These four capabilities exist broadly in any company, and their configurations explain the dynamic potential of each company. When integrated, the four core functions shape the model of innovation capabilities (Pundziene et al., 2019).

R.-W. Lee et al. (2016) investigated the impact of a company's strategic orientation, exploitation, and exploration on innovation. The exploitation of existing products, resources, knowledge, and competencies and the exploration of new products, markets, and opportunities have a significant positive relationship with process and

product innovation. Data were gathered from 856 companies in Korea. Firm performance can be increased by introducing new products when marketing innovation is also used as a mediator. R.-W. Lee et al. indicated that process innovation influences organizational performance positively when organizational performance has mediated between exploitation and exploration activities. Having complicated process steps or strong intellectual property protection, or organizational structures and arrangements will hinder innovation.

### **Theoretical Background of Innovation**

The resource-based vision (RBV) theory involves the organization as a collection of tangible and intangible resources. The RBV indicates the role of organizations' resources and capacities to establish policies and strategies necessary to achieve competitive advantages, adequate returns, and maintain survival (Lütjen et al., 2019).

The dynamism of the environment is vital to achieving the adjustment and reconfiguration of resources and capacities of the organization to build long-term competitive advantage (Teece & Pisano, 1994; Teece et al., 1997). Teece et al. proposed dynamic capabilities approach to address new responses to the organization's needs to develop and maintain sustainable competitive advantages and face dynamic and complex environments, understanding dynamic capabilities as unique and idiosyncratic processes that are born from the history and evolution of the organization.

## **Innovation and Leadership**

Innovation and leadership are critical factors in terms of ensuring the success of an industry. S. M. Lee and Farh (2019) suggested a model of dynamic leadership emergence. S. M. Lee and Farh also acknowledged the supportive role of integrating the leadership emergence theory and the dynamic and contextualized aspects of teams. The emergent forms of leadership are the pillar in the early stages of the innovation cycle. Propositions of new ideas by team members through constructive contributions help in terms of dynamic leadership emergence (S. M. Lee & Farh, 2019). Team members have a significant role in the emergence of leadership by contributing to new ideas generation and innovation design challenges. Lin et al. (2016) said leadership innovation encourages change, including technological innovation, improving an organization's performance. Leaders should allow team members to contribute freely to idea generation and use top and middle management's leadership capabilities to ensure proper implementation of the idea (Riviere & Zamborsky, 2020).

Successful leaders have innovation as the common factor behind their success (Yi et al., 2019). Yi et al. assessed the relationship between paradoxical leadership and ambidextrous innovation from the perspective of organizational inaction and absorptive capacity. The results showed that paradoxical leadership has a positive link to exploratory and exploitative innovation. Knowledge sharing efficiently moderated the relationship between paradoxical leadership and exploratory and exploitative innovation. When the

knowledge sharing is high, more decisive paradoxical leadership is matched up with more ambidextrous innovation.

Business survival is now dependent on generating and implementing innovative ideas (Soto-Acosta et al., 2018). Environmental dynamism, knowledge management, and technological capabilities have a significant positive relationship with innovation ambidexterity (Petrus, 2019). The operational and dynamic capabilities have different performance effects in high dynamic and low dynamic environments (Petrus, 2019). Managers need to understand the nature of the business environment, which is crucial to successfully implementing new practices in the company. In the context of technological innovation, ambidexterity means extension between exploring innovation based on new knowledge and exploiting innovation according to the company's current path. The goal is to create an organizational context that allows the pursuit of flexibility and the search for new knowledge while enhancing efficiency and the use of existing knowledge (Petrus, 2019).

### **Dynamic Capabilities**

Dynamic capabilities are “the ability to integrate and reconstruct internal and external resources and capabilities to solve and shape a rapidly changing work environment” (Teece & Leih, 2016, p. 7). Dynamic capabilities contribute to an organization’s capacity to work, expand, adapt, and create new opportunities that address unpredictable business environments (Pundziene et al., 2019). Innovation seems to be the logical consequence of the existence of these dynamic capabilities. It is necessary to



determine what these dynamic capabilities are and how they affect the company's innovative performance. Dynamic capabilities are necessary for an organization to adapt to customer needs and identify opportunities to create change, maintain competition, and survive deep uncertainty (Wendra et al., 2019).

A dynamic capability is defined as the firm's ability to integrate, build, and reconfigure external and internal competencies in fast-changing environments (Teece & Leih, 2016). Competencies are understood as routines and processes (firm-specific), the performance of which is provided via the possession of specific assets which are difficult or impossible to imitate. Dynamics are understood as situations where there are rapid technological changes, and market forces exert feedback effects on firms (Pundziene et al., 2019).

### **Conceptual Framework of Dynamic Capabilities**

The conceptual framework of dynamic capabilities is based on the combination of conceptual elements of the resource-based view and the firm's resource-based view, which integrates the ideas of innovation dynamics proposed by Piening and Salge (2015) and the routines and competencies presented in Tushman and O'Reilly's (1996) concept of organizational ambidexterity. The strength of strategic resources and competencies in generating a competitive differential are identified. The evolution and renewal of these resources and skills through routines are also integrated. The purpose of combining conceptual elements of the resource-based view and the firm's resource-based view is to understand technological changes based on the processes that are shaped by both the

evolution of the environment and organizational design (Kumar & Rodrigues, 2020). The dynamic capabilities approach integrates the potential of the vision of resources and competencies in understanding the creation and sustaining of companies' competitive advantage (Holdford, 2018).

Definitions of dynamic capabilities involve change and innovation efforts; efforts related to the search, creation, integration, renewal, recreation, or reconfiguration; and selection and resource deployment, skills, and competencies or capabilities (Lisarelli et al., 2019). These efforts result from identifying the needs for change, idea generation, development of new products, superior services, processes over competitors, and creating dynamism in the market (Lütjen et al., 2019). Some answers and courses allow a company to enter a new business, extend its business base, be more profitable, and grow consistently.

### **Business Innovation**

Because of the volatile business environment, innovation has become imperative for companies (Mendoza-Silva, 2021; Park, 2018). In a fast-changing environment, business success does not depend on optimization of processes or scale production only, but on identifying and developing opportunities, the internal and external combination to innovate, the intra- and inter-organizational technology transfer, and business model innovation (Keller et al., 2018). The synchronization among these capabilities enables the organization to innovate and capture value to maintain superior long-term financial performance. Innovating is not enough to stand out in the market (Mendoza-Silva, 2021).

Dynamic capabilities represent a means for the organization to position itself in a particular attitude (Wendra et al., 2019).

In research focusing on business innovation, Lisarelli et al. (2019) proclaimed that the term dynamic capabilities mean the ability or power to do something using competencies and skills. A machine may have some capacity but will not have the ability to produce anything without it being operated by someone with competence and skills to do so (Piening & Salge, 2015). The word capability should not be confused with the concept of production capacity. An industry may, for example, have some installed capacity but cannot produce if there are no people with skills and competencies working in a particular context and making use of institutionalized routines in the organization (Herrera, 2016).

A business model describes how a company creates and values its customers and its mechanism to achieve that shared value. It is a viable set of components with costs, revenues, and profit streams (Cho & Linderman, 2020). As the relationship to profitability clearly shows, a company's success and the design and implementation of business models depend on the choice of technology and the use of equipment and tangible assets (Ghezzi & Cavallo, 2020). It is important to consider business models that can turn technological innovation and knowledge into profit margins using tangible and intangible assets (Pundziene et al., 2019). A company's resource-based perspective focuses on integrating assets that meet the four main criteria that define the valuable

resources and opportunities (invaluable, low, incompatible, and irreplaceable) that support competitive advantage (Teece, 2018).

In the overall functional set-up of the system, the dynamic function is easy to understand and can be considered a two-stage study (X. Zhang, 2017). There are basic operations or other routine functions, routine operations, management, and basic management. These functions allow each company to perform a specific production plan or limited functions (X. Zhang, 2017). Above are microbases and dynamic functional layers that can be divided into higher-level functions. The microbase involves adapting and restructuring the company's existing temporary capabilities and developing new capabilities. These are dynamic second-stage processes, such as the development of new products, expansion into new sales territories, the distribution of product approvals to large companies, and other activities that allow management decisions to be made in times of uncertainty. These are guidelines for a high level of dynamic skill. Similarly, a high level of dynamic skills supports the organizational process, follows the way forward, designs business models to take advantage of new or changing opportunities, and adapts to the existing structure and organizational structure to determine the optimal organization of the industry (Ferreira et al., 2018).

Another recent business innovation is social media strategies in the IT industry. Social media is fundamentally changing the way companies communicate, create, and collaborate on innovation (Mention et al., 2019). Mention et al. (2019) summarized the diversity of research and practice in an area where social networks and innovation

intersect, linking strategy to the interaction between innovation, changing capabilities (concept, involvement, and restructuring), and the level of stakeholder involvement (macro, meso, and micro). It is significant to highlight how each collaboration maintains unique synergies in the open innovation process (Park, 2018).

Mention et al. (2019) suggested an organizational framework that shows the harmonious nature of social media strategies in business innovation. The proposed framework was used to help companies use a variety of information sources, foster innovation, and provide an open and collaborative cultural environment for internal human resources and the external environment. Mention et al. concluded that there is a need to be careful because not everything is as optimistic as it sounds; this is a focused and consistent strategy to provide a unique co-ownership experience.

### **Dynamic Innovation Capabilities**

Dynamic innovation capabilities maintain the sustained competitiveness of the organization and can lead to strong strategic management (Teece et al., 2016). To show the insights of dynamic innovation capabilities, W. Wang et al. (2019) presented a demonstration of the association and mutual influence of innovation capabilities, uncertainties in the environment, and different strategies for innovation. W. Wang et al. focused on evaluating mutual influence between innovation strategies, dynamic innovation capabilities, and uncertain environments to develop an appropriate framework, which can be used to analyze innovation strategies and dynamic innovation in case of uncertainties. Considering this theoretical framework, W. Wang et al.

conducted a case study on Qihoo 360 company to evaluate its micro-innovation effectiveness on certain and free products.

Based on the analysis of micro-innovation, W. Wang et al. (2019) revealed that innovation capabilities are the source of generous support and can maintain the company's competitiveness. W. Wang et al. pointed out that the reason for which Qihoo has become the leading organization is that it has used innovation capabilities by providing an iteration mechanism for all products. W. Wang et al. offered evidence that the interrelationship of dynamic innovation capabilities and micro-innovation strategy mechanisms has a significant role in organizational processes and techniques to overcome an uncertain environment. W. Wang et al.'s study provides practical support and guidance for conducting innovation mechanisms in uncertainties.

Companies should alter their capabilities by taking advantage of innovation and acquiring dynamic capabilities that focus their efforts in particular market directions (Jiang et al., 2020). Sasmoko et al. (2019) researched dynamic innovation capabilities that can be improved in the case of leaders having market orientation and digital technology. Regarding dynamic innovation, the concept of digital leadership is considered imperative for developing dynamic capabilities and innovation based on the orientation of the market (Wasono et al., 2018). However, the significance of digital leadership concerning innovative dynamic innovative capabilities is not much discussed.

Dynamic innovation capabilities are associated with digital leadership (Wasono & Furinto, 2018). Dynamic innovation capability is directly or indirectly related to digital

leadership; however, capability development is part of innovation capability (Sasmoko et al., 2019). Digital leadership can impose a significant impact on dynamic capability development (Wasono & Furinto, 2018). Sasmoko et al. (2019) concluded that further studies should evaluate dynamic innovation capabilities.

Organization leaders could use dynamic innovation capabilities to help keep pace with change in a complex environment (Teece et al., 2016). In cases of change in the external environment, the organization's innovation strategies should be adjusted to adapt to this change, and this could be easy with organizational agility (Baškarada & Koronios, 2018). Dynamic innovation capabilities play a critical role in modifying innovation strategies (Gyemang & Emeagwali, 2020).

### **Strategic Innovation**

Kodama (2017) researched presenting strategic innovation in the firms to highlight the importance of strategic innovation. Strategic innovation is associated with strategic positioning concerning new business and product models; this is based on a dynamic strategic presentation, which can help ensure sustainable growth and strategic organizational benefits. Large corporations must act as innovators to reinforce businesses using incremental innovation, which can lead to constant destruction or renewal of existing business by innovation (Bocken & Geradts, 2020). A detailed understanding of dynamic theories associated with organizational characteristics presented that dynamic strategic capabilities are imperative to ensure the organization can achieve the dynamic capabilities required for success (Ngo et al., 2019). The theoretical model based on

strategic innovation ensures effective innovation management, providing competitive benefits (Bocken & Geradts, 2020).

### **Knowledge Management System**

Innovation management is ad hoc and incremental; the only way to change how managers work is to reinvent the processes that govern that work. While operational innovation focuses on a company's business processes, i.e., procurement, logistics, customer support, management innovation targets a company's management processes (Obeidat et al., 2021). One of the organizational capabilities used for innovation management is a knowledge management system (KMS). X. Zhang (2017) studied the relationship between knowledge management systems and job performance and argued that the effective use of the knowledge management system positively affects job performance. X. Zhang identified four contingency factors that affect the relationship between implementation of knowledge management systems and job performance; these factors include users, system capacity, task nonroutine, and leadership style. X. Zhang demonstrated that using KMS can impose a positive impact on the performance of the job and different other factors. Knowledge management is effective in helping ensure the performance of jobs (Kurniawati et al., 2019).

X. Zhang (2017) and Colnar and Dimovski (2017) evaluated the different initiatives used for assessing the benefits of knowledge management. Colnar and Dimovski highlighted the significance of managing knowledge in various public sector firms. Knowledge management is considered a crucial part of organizational management



(Zia, 2020). The global economic and financial crisis presented organizations in Slovenia with some significant challenges because of Slovenia's ineffective public sector; the primary reason behind this incapability included a lack of appropriate commitment to knowledge (Colnar & Dimovski, 2017). Knowledge management effectively provides opportunities and effective implementation of organizational resources (Wu & Hu, 2018). It is important to emphasize the competitive ranking of the company to implement adequate knowledge management strategies. Implementing knowledge management would be a source of significant improvements in organizational functions and overall success (Kurniawati et al., 2019).

Lifshitz-Assaf (2017) demonstrated the significance of knowledge management for organizational management in a longitudinal study that showed that research and development are affected by knowledge work boundaries, usually halts the recombinant innovation. Lifshitz-Assaf suggested a new model of knowledge exceeding these boundaries to generate innovation in an organization; this model is known as peer-production, open, or distributed. Lifshitz-Assaf observed that knowledge management is required for the effective management of innovation. In 2009, the director of Space Life Science Directorate (SLSD) initiated the experiment of the open innovation model, and the director and the strategy team in SLSD established this initiative to enhance the organization's capabilities through the open innovation model was focused on strengthening the capabilities of the organization through external cooperation (Lifshitz-Assaf, 2017).

Lifshitz-Assaf (2017) concluded that the open innovation model is followed at NASA to overcome the significant effects of knowledge boundaries on the research and development process. The open innovation model is an excellent fit with the current strategy of NASA, as the model is used to increase collaboration. Lifshitz-Assaf and Wu and Hu (2018) confirmed that knowledge management is effective in managing internal and external organizational processes.

### ***Effectiveness of KMS***

The effectiveness of knowledge management is a critical parameter in the process of innovation. In this regard, Elmorshidy (2018), in a survey conducted on 392 employees working in different organizations located in Kuwait, found that knowledge management is effective in the process of innovation. The structured equation model is used for presenting findings. Elmorshidy demonstrated that the system and information quality of KMS could significantly impact the mastery of using the system and its usefulness. Elmorshidy revealed that several KMS elements could help ensure innovation management at the individual and organizational levels. Elmorshidy's survey outcomes revealed a significant association of knowledge management with innovation in public and private firms.

Santoro et al. (2018) demonstrated the effectiveness of a knowledge management system for innovation and ensuring knowledge-building capacity. Considering the IoT, new technologies are now developed for managing organizational processes and new KMSs. Knowledge management is effective for enhancing internal knowledge

management to ensure the innovativeness of the firms (Zia, 2020). Santoro et al. investigated the association among open innovation, innovation capacity, and knowledge management systems. Using structural equation modeling in 298 firms, Santoro et al. indicated KMS could facilitate creating a collaborative system by developing the capacity for knowledge management, leading to an increase in the capacity to innovate. The appropriate knowledge management in the organization must be maintained for the effective flow of information and bring significant success (Wu & Hu, 2018).

Hermawati (2020) evaluated the effectiveness of knowledge management processes for internal innovation and revealed that IT is an effective approach to ensure innovation management in the knowledge management system. Del Giudice and Della Peruta (2016) used a survey approach with a sample of 187 companies from different regions of Italy from different sectors to address using tools for information management for KM to design an appropriate learning process. Using knowledge management based on the network system is effective for managing knowledge.

Del Giudice and Della Peruta (2016) evaluated the collected data using structural equation modeling; they revealed that 72% of companies mentioned that using the KMS system effectively manages knowledge and brings improvements in organizational processes. KMS is effectively implemented using an innovative approach and can significantly improve the business's overall performance (Han & Chen, 2018). The development of new opportunities for managing knowledge can ensure the company's success, and innovative practices can be implemented to improve the company's overall

performance (Gloet & Samson, 2016). The application of IT, which can provide information and help ensure an effective flow of information, is required for the configuration of innovative processes for knowledge management and improving the company's performance (Zia, 2020).

### ***Knowledge Management, Organizational Dynamics Capabilities, and Organizational Performance***

In the 21st century, organizations are focusing more on effective strategic decisions that could yield significant results; organizations need to focus increasingly on innovation to improve organizational performance (Herrera, 2016). Organizations should use all capabilities and market knowledge to develop a competitive advantage and gain an edge over their rivals; every industry faces challenges to attain a competitive edge (Holdford, 2018). Najmi et al. (2018) studied the impact of strategic leadership and knowledge management on organizational performance, assuming a model based on the KMS and strategic leadership as the independent variables while the organizational performance was the dependent variable with dynamic capability as a mediator. Najmi et al. indicated that the KMS had a significant positive impact on the performance of an organization considering the dynamic capabilities play a mediating role positively. Najmi et al. also revealed that strategic leadership positively relates to the organizational performance mediated by dynamic capabilities.

The importance of dynamic capabilities and their impact on organizational performance is inevitable. Ferreira et al. (2018) emphasized the importance of dynamic

capabilities and their impact on organizational performance. Ferreira et al. accepted the importance of market competition for companies; they devised a model that showed the impact of dynamic capabilities (DC) on organizational performance and competitiveness while innovation capabilities (IC) and marketing capabilities (MC) are the mediators. In testing the hypothesized model, Ferreira et al. collected quantitative data from the 387 participants. The collected data was used through structural equation modeling to test the theoretical model, which resulted in DC having a significant positive impact on organizational performance and competitiveness. The findings of the research also presented a significant positive impact between the DC and IC and MC. Ferreira et al. also recommended that dynamic capabilities can improve the internal performance of an organization. Gyemang and Emeagwali (2020) argued that organizations might use dynamic capabilities to perform better in the market.

Najmi et al. (2018) and Ferreira et al. (2018) confirmed that dynamic capabilities positively impact organizational performance. Knowledge management as an essential dynamic capability plays a vital role in improving organizational performance through increased learning opportunities, innovation, and quality of goods and services. To attain a competitive advantage, organization leaders should maintain and enhance the close relationship between knowledge management systems, dynamic capabilities, and organizational performance (Gloet & Samson, 2016).

### ***Innovation and Organizational Performance***

Burrus et al. (2018) emphasized the importance of innovation and assessed the influence of regional innovation on organizational performance. Burrus et al. argued that an innovative community improves the organizational performance of a company in that region. Burrus et al. noted that this is a cycle where an innovative society improves the performance of the companies, increases reinvestments, and ensures continued growth on the companies and the community, which again improves organizational performance, and the cycle keeps on running. Burrus et al. revealed that inventive activity in a region has a significant positive relationship with profitability and revenue generation.

Adamides and Karacapilidis (2020) reported that technical creativity directly correlates with net income growth and process improvement. Burrus et al. and Akçomak and Müller-Zick (2015) suggested that the companies may focus on innovation but must consider the available resources to do so, or they might fail to survive without resources no matter how innovative they want to be.

In an ever-changing business environment, companies must have the ability to change or develop new capabilities to sustain a competitive advantage (Moccia et al., 2020). Continuous improvement can be an approach to develop dynamic capabilities (Hansen & Moller, 2016). Hansen and Moller (2016) addressed the need for developing dynamic capabilities in lean production in a longitudinal in-depth case study of a Danish manufacturer of medical devices. Hansen and Moller showed that the company developed dynamic capabilities over time, with initial improvements happening as a

reaction to an event rather than through an appropriate strategic and coherent improvement system. Dynamic capabilities arose from the coherence between operational level activities and organizational improvement systems and enhanced the company's competitive advantage (Pundziene et al., 2019; Wendra et al., 2019). The effectiveness of the improvement system depends on the congruent fit of the improvement process, participants, management, organization, and technology (Young et al., 2016).

### **Competency Management as a Dynamic Strategic Capability**

The impact of strategic quality orientation on innovation capabilities may lead to sustainable organizational growth (Yuen & Thai, 2017). Khan and Naeem (2018) studied the impact of strategic quality orientation on innovation capabilities that may lead to sustainable organizational growth; they assessed the role of innovation capabilities as a mediator between strategic quality orientation and sustainable organizational growth. Four hundred forty-two participants participated in the research to provide quantitative data, which they then assessed through structural equation modeling. Khan and Naeem revealed that strategic quality orientation has a significant positive impact on sustainable organizational growth and innovation capability, which then had a similar impact on sustainable corporate development.

Digital innovation takes the lead in public safety organizations as a key success factor (Vorraber et al., 2019). Organizations seek to integrate a competitive environment with social and technical factors to yield better performance and achieve competitive advantages. Vorraber et al. (2019) agreed that companies that do not advance

technologically would fail to survive in this business era of innovation. Vorraber et al. presented a framework that was a combination of technology and use-case sensing. Vorraber et al. created innovative artifacts for companies using the provided framework. Vorraber et al. supported a bottom-up approach instead of top-down for the businesses to innovate. A use-case technology-mapping (UCTM) model suggested a combination of technology with use-case sensing to create innovation. The knowledge-sharing factor was the main component of the UCTM model. The model can be used to analyze a technology once, and then it can use its tools, functions, and information for other applications (Vorraber et al., 2019). Young et al. (2016) stressed using technological aspects for organizational development in all industrial sectors.

Companies face several social, legal, regulatory, political, economic, and technical challenges (Hashim et al., 2018). Competition among business firms increases continuously; In this regard, companies need to use business models to respond to changes that threaten industry growth (Bocken & Geradts, 2020; Pundziene et al., 2019; Wasono et al., 2018). In a highly competitive global economy, innovation is the pinnacle of success; thus, an innovative perspective reflects the possibilities for the future (Gloet & Samson, 2016). Hashim et al. (2018) noted that the pursuit of innovation and the company's performance is important and powerful. Hashim et al. concluded that the effective management of innovation opportunities leads to better company results.

Tallon et al. (2019) based their assessment on the exhaustive literature of Association for Information Systems' eight daily IT baskets, nonbasket magazine



sections, IT training shops, and information systems (IS) major international conferences to examine the association between IT and organizational flexibility, and how the literature evaluates agility, its needs and outcomes, and the application of different theoretical perspectives. Tallon et al. argued that businesses are increasingly looking for IT to respond to unexpected threats and environmental opportunities.

The companies must change according to the changing environment to survive the competition (Feng et al., 2017). Niemi and Laine (2016) presented the view of competence management as a strategic dynamic capability. Niemi and Laine collected the data from a technological consultancy firm between 2013 and 2015 with a real-life experience working in the firm. Niemi and Laine observed the organizational changes which changed from job-based human resource management completely to skill-based competence management. Niemi and Laine concluded that leaders use the concept of Level-5 leadership, which refers to the highest level in a hierarchy of executive capabilities and competence typology, to drive competence management in the service industry and to elevate organizations from mediocrity to sustained excellence.

The aim of competence management must include employee interest from the internal environment and customer demands from the external markets (Serban, 2017). Niemi and Laine concluded that competence management has a significant role in both the internal and external environment. However, the organizational leaders are more focused on implementing it in the internal environment only. Innovation measurement is not significantly associated with variables such as company and industry tenure and

function background (Chen & Sawhney, 2010); innovation measures are mainly derived from the technology-oriented view of innovation as the number of new-to-market products (NTMP), the percent sales from NTMP, and research and development (R&D) spending.

### **Dynamic Capabilities Between Management and Leadership**

Innovation and dynamic capabilities are the most influential factors on leadership that leaders use to think innovatively, developing a dynamic view of organizational development (Aslam & Azhar, 2018). Innovation for companies is important to achieve a competitive advantage and develop a sustainable business (Popadiuk et al., 2018). Popadiuk et al. (2018) suggested two different theoretical perspectives of dynamic capabilities and ambidexterity to strategic management in an organization. Popadiuk et al. discussed the influence of dynamic capabilities and ambidexterity on organizational performance. Hermawati (2020) also reported that the literature on the dynamic capabilities and ambidexterity indicated that the researchers often considered these approaches as one. Popadiuk et al. identified the convergent elements between dynamic capabilities and ambidexterity, which are the roles of top-level managers, variations in resources, management of scarce resources, organizational designs, organizational governance, and sources of information for making any decision. The context capability and structural-organizational capability help organizations to find opportunities for growth and change (Sasmoko et al., 2019).

L. Zhang et al. (2018) assessed the impact of managers' relationships on organizational performance and growth. L. Zhang et al. discussed the social capital theory that asserts that social relationships are not mere relationships in an organization. Social relationships are resources that can develop human resources and improve organizational performance (Vézina et al., 2019). L. Zhang et al. focused on finding out which type of relationship ties between a manager and team members can be productive to achieve organizational objectives. L. Zhang et al. classified these managerial ties into intra-industry and extra-industry ties to assess the impact of innovation ambidexterity on business growth. L. Zhang et al. collected data from 207 firms that indicated that intra-industry ties reduce the impact of innovation on business growth while extra-industry ties enhance the significant positive impact of innovation on business growth.

In the contemporary era, businesses are being operated in very challenging and changing, ambiguous, complex, and uncertain contexts (Schoemaker et al., 2018). Companies that work closely with traditional systems hinder their success (Wu & Hu, 2018). Company leaders should focus on developing new products and processes and on innovating business models to use their dynamic potential (Kodama, 2017). Dynamic capabilities are distinct organizational processes requiring leaders to design and operate them in a specific corporate environment (Eva et al., 2018). A company with strong dynamic capabilities can remain at the forefront of rapid innovation and distinctive business models (Bhatti et al., 2021).

Teece (2016) focused on entrepreneurial management and dynamic capabilities in large organizations. The traditional economic theory often prevents consideration of the role of managers, weakening the ability to explain the distribution and diversity of resources between firms (Feng et al., 2017). In the real world, leaders must take on business and leadership roles: identify opportunities, develop and implement potential business models, develop competencies, and lead change organizations (Serban, 2017; Yuen & Thai, 2017). Corporate governance functions are part of the company's operations, including the slowdown of established organizational processes. Understanding the possibilities of corporate governance and organization can help create a more realistic economic model and help decision-makers better understand the dynamics of innovation and innovation (Eva et al., 2018).

Sheng (2017) addressed the influence of combinative capabilities on explorative and exploitative innovation in developing a framework based on dynamic capabilities. Sheng selected organizational sensemaking as a tool for its framework; organizational sensemaking assists in developing cognitive maps of organizational environments. Further, Sheng agreed that organizational sensemaking is not able to implement exploitative and explorative product innovation completely; however, the combinative capabilities may transform knowledge resources for successful explorative and exploitative innovation.

The combinative capabilities, along with organizational sensemaking, can be considered as a very influential dynamic capability (Han & Chen, 2018). The impact of

dynamic capabilities on organizational performance has been observed as significantly positive (Bocken & Geradts, 2020). The impact of dynamic capability for organizational change and product innovation is significantly positive (Teece et al., 2016).

Organizations may use the dynamic capabilities framework, a combination of combinative capabilities and organizational sensemaking tools, for successful product innovation and organizational change (Sheng, 2017).

### **Organizational Agility and Dynamic Capabilities**

Another theme related to this study is dynamic capabilities and organizational agility, factors that can affect innovation adoption. Baškarada and Koronios (2018) demonstrated that organizational agility is a critical element to achieving competitive advantage and sustainability in the organization. Baškarada and Koronios focused on evaluating the contribution of operating organizational agility by using a framework associated with dynamic capabilities. Baškarada and Koronios pointed out that organizational agility is a pillar for innovation to gain a competitive advantage. As demonstrated by the 5S framework, there are five dynamic innovation capabilities: seizing, searching, shifting, shaping, and sensing (Verma & Jha, 2019). These aspects can be used for organizational constructs to adopt innovation.

Tsou and Cheng (2018) researched extending IT in business to business (B2B) for testing a theoretical model for mediation of organizational agility and innovation capabilities. The theoretical hypotheses were developed using a partial least square analysis of responses from a survey carried out in different service firms. Tsou and

Cheng revealed that the impact of organizational learning and IT capabilities on the performance of service innovation could be mediated by agility, which can affect the performance of service innovation under entrepreneurial alertness. The different managerial guidelines can manage different mechanisms for enhancing performance concerning innovation (Serban, 2017). Warner and Wäger (2019) argued that service innovation could improve dynamic capabilities by providing information about innovation implementation. Tsou and Cheng concluded that managers could better understand capability innovation for managing organizational processes, such as organizational learning, organizational agility, and alertness of the organization.

Jakhar and Bharadwaj (2018) evaluated the agile capabilities for imitating and innovative organizations using the framework for the mobile industry. Organizational agility is positively related to dynamic capabilities and competitive performance (Teece et al., 2016). Agility is a new aspect for this century as most organizations must work in volatile, uncertain, complex, and ambiguous environments (Millar et al., 2018). Agile capabilities are required to be developed to achieve organizational agility (Appelbaum et al., 2017). The most important aspect to consider is the evaluation of different marketing strategies and approaches, which can be used to achieve agile capabilities (Warner & Wäger, 2019).

There is an absence of research to demonstrate the association between the strategy of the firms and the agile capabilities associated with this strategy (Jakhar & Bharadwaj, 2018). Jakhar and Bharadwaj (2018) emphasized that firm strategy is a

critical factor in evaluating agile capabilities. The proposed conceptual framework identifies key capabilities of agile for two contrasting strategies at the firm's level, including imitation and innovation strategies. The conceptual framework has been proven through two secondary case studies in the mobile phone industry. Jakhar and Bharadwaj utilized the dynamic capability theory as a theoretical background in the study.

### **Organizational Transformations Through Dynamic Capabilities**

Digital transformation is based on effective technologies, including blockchain, cloud, and artificial intelligence, for enabling the process of improvement to increase the experience of customers and streamlining different operations for developing effective business models (Kretschmer & Khashabi, 2020). Warner and Wäger (2019) analyzed information about the use of dynamic capabilities for bringing digital transformation based on a qualitative approach and provided information on how incumbent firms can build their capabilities. For presenting digital transformation, it is effective to present strategic activities, which are imperative to bring strategic changes (Cennamo et al., 2020). Based on the experiences of senior executives in a different digital project, the process model is effective for making dynamic capabilities to bring digital transformation (Warner & Wäger, 2019). The digital transformation is presented as the continuous process for using new technologies in the organization; this has presented agility as a prime mechanism for bringing strategic improvements (Solberg et al., 2020).

Teece et al. (2016) presented the significance of dynamic capabilities to overcome different uncertainties and risks in the firms. Ghezzi and Cavallo (2020) mentioned that

organizational agility is an immutable quality, and the organization required a transformation approach. However, some organizations often ignore the transformation to agility because of the cost of implementation-(Baškarada & Koronios, 2018). Teece et al. summarized that agility is associated with dynamic capabilities. It is crucial for understanding uncertainties associated with the innovation economy (Bocken & Geradts, 2020; Herrera, 2016; Riviere & Zamborsky, 2020). There is a difference between uncertainty and risks, which can be associated with traditional approaches and tools (Pundziene et al., 2019). Effective dynamic capabilities are imperative to foster the organizational agility required for addressing uncertainties (Teece et al., 2016). It is crucial for generating innovation and related competition concerning dynamic capabilities (Sheng, 2017). In 2016, Teece et al. addressed the process managers can use to calibrate required agility and deliver cost-effective strategies.

Warner and Wäger (2019) examined the dynamic opportunities for digital transformation created by traditional industries. The dynamic opportunities improve customer experiences and operations or facilitate creating new business models to achieve significant business improvements (Lütjen et al., 2019). For example, IoT, cloud, artificial intelligence, mobile technologies, and digital migration. In understanding the process of digital transformation, Lukoschek et al. (2018) argued that leaders in different industries use random terminology to describe various strategic organizational activities. The scientific interest of this term as a background to the study of strategic change has been limited.



Based on the experience of business leaders in managing digital projects, Warner and Wäger (2019) suggested a 9-microcontroller-based process model to reveal common probabilistic factors that enable, implement, and block the dynamic development of digital talent. Lin et al. (2016) focused on 264 Chinese companies and found that communication skills promote perception, absorption, and coordination. These dynamic adoption management options affect all stages of the innovation process. Warner and Wäger and Lin et al. confirmed that strong dynamic capabilities are necessary to enhance the organizational agility and transformation needed to address deep uncertainty, such as those resulting from innovation and the intense competition associated with them.

### **Challenges for Organizational Agility**

To emphasize organizational agility challenges, Appelbaum et al. (2017) explored challenges associated with organizational agility. Applebaum et al. conducted a review of research studies for providing an informed example for strategic transformation for the facilitation of change by enhanced agility in the organization. The agility concept is defined and explored for presenting categories for enhancing competitive advantage (Teece et al., 2016). Applebaum et al. revealed that organizational agility could increase proactive response to different environmental changes. Agile strategies can bring changes at all levels and dynamics related to decision-making (L. Zhang et al., 2018). Applebaum et al. concluded that there is a literature gap related to agility. Most research studies considered agile organizational characteristics and focused less on developing capabilities of an agile project. Organizational agility can be viewed as the company's

ability to facilitate the work in the business environment, which results in an efficient and dynamic performance (Baškarada & Koronios, 2018). The agility capabilities must be fostered to successfully integrate agility in organizational performance (Tsou & Cheng, 2018).

### **Management of Innovations in the Field of IT**

Developing and implementing innovative strategies play significant roles in the organization's overall development (Elmorshidy, 2018). Innovation on an individual level must be translated to a collective level to properly use the creativity of each of the employees in the organization (Eva et al., 2018). The innovative leader in its industry, in general, has the same qualities that any leader needs in the modern economy (Young et al., 2016). Perhaps, the only thing that is not acceptable for the leader is an authoritarian management style (Wasono et al., 2018). One of the main goals of the innovative leader is to stimulate continuous creative search in the team, or, as they say now, creativity (Zia, 2020). This goal is achieved through various management techniques (Herrera, 2016).

Companies combine industrial production with information and communication technology because of the technological development of production. (Matthiae & Richter, 2018). Matthiae and Richter (2018) conducted a thorough systematic review of the literature, analyzed the changes introduced by Industry 4.0, and classified them according to the changing factors in the literature. In each category, they examined all aspects of a company's flexibility and explained how the company manages change. An important skill to be developed in this uncertain and turbulent environment is organizational

flexibility. Organizational flexibility is defined as the ability of an organization to detect and respond to changes in its environment (Riviere & Zamborsky, 2020). Whereas reputable consulting firms consider organizational flexibility a key feature of Industry 4.0, no official scientific evidence supports this claim (Cennamo et al., 2020).

X. Zhang (2017) supported a wide variety of ideas, including those that may not seem feasible at present as they may contain useful sprouts of innovation for the future. New or nonstandard ideas may seem almost certainly erroneous at first glance. The leader needs to take new or nonstandard ideas as a starting point for further thought and development (S. M. Lee & Farh, 2019). Immediate rejection of such an idea will kill not only it but also any further desire of employees to continue their creative search (Eva et al., 2018). Therefore, the leader must demonstrate openness to all ideas, including those that have not yet been tested in practice, formulated not quite accurately, and even seem a little strange (S. M. Lee & Farh, 2019). The key factor remains the ability of the leaders to convey the long-term strategic advantages of active, creative work, both for each employee individually and for the team as a whole (Zia, 2020).

Vézina et al. (2019) uncovered another trend of a leadership challenge. In the IT industry, the only fueling force for leaders to induce innovation is to remove the barrier that can come in between the innovation, competencies, and organizational capabilities. The leader needs to remove barriers to creativity on time (Bocken & Geradts, 2020). Some of these barriers are completely unexpected at first glance. For example,

accumulated practical experience may interfere with correctly assessing the potential of a new promising idea (Vézina et al., 2019).

Olsen, who created Digital Equipment Corporation (DEC), which at one time became the world's largest manufacturer of minicomputers, said in 1977 that was no reason ordinary citizens had their computers at home. Olsen was resistant to new trends and criticized as autocratic. At the same time, Jobs and Wozniak were assembling the first Apple personal computers in the garage. Another barrier to innovative creativity is too rigid judgments: "It will never work," "It will never be bought," and "We have already tried to do this, but to no avail." In the same way, they once said about cars - "They will never replace a horse" and about airplanes - "Only birds are allowed to fly through the air." Another barrier to creative thinking is fear of failure (Lopes Henriques et al., 2019).

Entrepreneurs should not fear failure when finding a new original answer generated by creative thinking endeavors (Park, 2018). In the end, an unsuccessful result is also a result. When a friend once told Edison that his attempts to create an electric battery failed because thousands of different materials were used to no avail, the ingenious inventor replied - on the contrary, many results were obtained; now, several thousand solutions are known that will not work.

Innovation management in IT is aimed at solving two main problems: creating innovations and introducing them into the economy (Kurniawati et al., 2019). The scope of these tasks can vary greatly, from finding solutions for individual start-ups to the

innovative strategy of an organization or even a country. Despite these differences, the basis of technological innovation is an understanding of the fundamental laws of the development of technological progress, technological forecasting, and the ability to anticipate the appearance of innovations (Wasono & Furinto, 2018). Another critical component contributing to the creation of successful innovations is an understanding of the features of entrepreneurial activity in the field of high technology, the particular risks associated with this area, as well as the specifics of the resources used, market uncertainty, the inconsistency of the competitive environment, technological uncertainty and methods to overcome these problems (Soto-Acosta et al., 2018). These features determine different approaches to implementing an innovative idea, to the choice of sources of its financing, and organizational forms of implementation (Zia, 2020).

Leaders could obtain innovation streams because the current innovative activities facilitate generating new ones, which can be used both when working on an individual project, on their own, and a project within the enterprise. Kurniawati et al. (2019). Soto-Acosta et al. (2018), and Vézina et al. (2019) emphasized that dynamic capabilities, organizational change management, organization strategy, and organizational performance should be aligned to identify the vital agile capabilities for innovation to maintain and create a competitive advantage for corporate growth and sustainability.

### ***Technology Forecasting***

Technology forecast (TF) and technology assessment (TA) are utilized to support various industries' technology. TF and TA could help identify the best methodologies of

technological change, especially development, improvement, selection, use, and support (Haleem et al., 2019). There are different technical assistance methods, and so far, no attempt has been made to choose the right or successful innovative methods or technologies (Ravichandran, 2018). Haleem et al. (2019) explored technology forecasting in the management of innovations in the IT field. Haleem et al. summarized TF's broad areas along with development, operation, applications, and technologies; they and provided a comprehensive overview of the use and development of TF and TA methods, enabling users to select the appropriate TF and TA methods for specific situations.

Haleem et al. (2019) found that the search for an assessment strategy was a misunderstanding because this ignores the concept of technology forecasting and assessment, which required the different forecasting and assessment methods to be integrated appropriately into TF and TA from a variety of fields. Researchers and specialists must be innovative, aware, and unprogrammed when choosing TF and TA systems. Adamides and Karacapilidis (2020) observed that technology seems to be the foremost engine of global growth. Some technologies have far-reaching consequences, so the managers need to understand these issues with their predictions and assessments. In some cases, determining appropriate procedures may affect the accuracy and reliability of forecasts and predictions (Erzurumlu & Pachamanova, 2020).

Ravichandran (2018) reported that technological forecasting is a supportive strategy for innovation, leaders, and managers in the IT industry. The word "forecast" is defined as predicting the development and outcome of many events and phenomena

based on available data (Vézina et al., 2019). It is important to note that a forecast is a probabilistic statement or description of the future with a relatively high degree of reliability (Farrukh & Holgado, 2020). A description of the future may include situations, events, and views (Niemi & Laine, 2016).

Technological forecasting is defined as a process during which the change in consumer properties of products, technological processes, and equipment, as well as adequate changes in production costs, are determined for the future (R.-W. Lee et al., 2016). Technology forecasting has a significant impact on the acceleration of the innovation process, the complexity of interconnections in the socioeconomic system, and the development of the economy, politics, and human life (Tsou & Cheng, 2018).

Technology forecasting is one of the important tools for achieving leadership in innovative development (Tsou & Cheng, 2018). Interest in technology forecasting increased because of the rapid development of engineering and IT in the second half of the 20th century and their increasing influence on economic development (Farrukh & Holgado, 2020). In companies that are technological leaders in the IT industry and seek further growth, technology forecasting can be used to prepare research and development strategies, focusing on specific technologies (Tsou & Cheng, 2018).

Many forecasting methods are used to build short-term, medium-term, and long-term technology forecasts (Elmorshidy, 2018). Short-term forecasts are developed for a period of 1-5 years, medium-term forecasts for 5-10 years, and long-term forecasts for

15-20 years. Separate studies are conducted to develop long-term forecasts of more than 20 years and operationally for forecasts of less than a year.

Kopaygorodsky (2019) highlighted the significance of technology forecasting. Over the last decade, smart systems and methods have been actively developed to support decision-making in planning and managing innovative growth (Moccia et al., 2020). The application of data science methods in high-tech industries can significantly increase the efficiency of management decisions (Wu & Hu, 2018). Comparable management methods at different levels in different organizations are often called data-driven management (R.-W. Lee et al., 2016). When making decisions, it is key to analyze data collected from various sources to identify current and emerging trends, reduce the time it takes to respond to these trends, reduce losses, increase profits, and maintain business growth (Farrukh & Holgado, 2020). The promising scientific and technological results of various industries' development paid great attention to promising research, saving time and money.

Intelligent Information Environments for Energy Innovation and Development (IIEIDF) has been developed to support research in the field of energy development forecasting at Energy Systems Institute, Siberian Branch, Russian Academy of Sciences (Kopaygorodsky, 2019). IS can collect processes, categorize information, store comments in repositories, and publish analytical reports (Farrukh & Holgado, 2020). The IIEIDF also provides an environment that supports the work of research environments.

Kopaygorodsky (2019) stated that clear and large data are used as sources of information



to predict scientific and technological developments. Information is gathered from scientific publications and advanced structured databases, and common internet resources. In the first stage, the textual data are taken from the document to be analyzed, then a distinct set of keywords must be consistent with the ontology concepts and prepare it for the analysis. In the last stage, the researchers examine the document based on agreed data and numerical indicators to enrich the knowledge base. The IIEIDF uses an ontology to create a unique conceptual basis for integrating expertise and the results of scientific and technical activities (Kopaygorodsky, 2019).

### ***Innovation Model in the IT Industry***

The IT industry has features that affect innovation policy: The IT industry's dynamism and its implications to the products and services offered, in addition to the rapid growth of the information services market, utilizing cutting-edge IT technology provides strategic business benefits (Bhatti et al., 2021). All the above applies primarily to companies that create information products and provide IS (Teece et al., 2016). Because of the peculiarities of business in the IT and IS markets, companies' attention to innovations is significantly greater than in other sectors (Tsou & Cheng, 2018). IT leaders need to be sure that the current high-tech manager will not lose the solid ground of innovation, and the firm will not be hindered by outdated technology (Yi et al., 2019). Top companies that gain a foothold are sometimes inclined to avoid consciously cardinal changes in technology as much as possible. Examples include the indifferent attitude of IBM towards the emergence of personal computers (PCs), the negative attitude of DEC

towards reduced-instruction-set computing processors, and Microsoft not take seriously and “missing” the emergence of the internet.

Corporate customers typically focus on pricing technology and software components (Kurniawati et al., 2019). Nevertheless, it is equally important to analyze manufacturers' plans regarding the modernization of their products, considering the emergence of new IT technologies (Feng et al., 2017). Rapid turnover growth, significant research, and development costs are far from always translating into new IT technologies. If a manufacturer currently produces products that consumers need, this is good only at first glance (Ferreira et al., 2018). User orientation leads to underestimating promising technologies that are unfamiliar or fascinate to the user (Bocken & Geradts, 2020).

Developed empirical techniques can reveal the readiness of the leader engaged in information products and information services companies to innovate. One of the empirical techniques is to provide the employees with resources to develop their ideas and innovation and turn them into prototypes (Riviere & Zamborsky, 2020). Leaders use this development model to identify the employee's innovative capabilities practically and boost employee motivation (Aslam & Azhar, 2018). Employee innovative capabilities can help the leader to improve the product and services gradually through prototypes. This model is also called a bottom-up approach to motivate employees to innovate and develop ideas through prototypes (Muafi, 2020). The prototype method is more adaptive: the developer quickly creates a prototype and then improves it. In the IT field, where things are changing rapidly, a prototype-based development model looks more

appropriate (Kurniawati et al., 2019). Some institutions that work in the world of the internet prefer this particular model. For example, Microsoft uses a prototype approach for the research and development of Office applications. Despite the advantages of prototype development, corporate IS executives consider the model less cost-effective (Vézina et al., 2019).

Many IT organizations leaders would rather see a working prototype-based development model, which takes less than a month to create. This model contributes to getting a product entirely different from the original product or services based on the prototypes' development (Vézina et al., 2019). These procedures can also help the leaders and managers put their innovation into the application phase and further translate employee prototypes into a successful product or service (Millar et al., 2018).

### ***Innovation Policy***

Innovation policies play a crucial part in the management of IT operations (Bogers, Chesbrough, & Moedas, 2018). Innovation policies involve some challenges exacerbated by the global challenges of creating a successful business and living space, setting priorities for the future, and addressing uncertainty and growing risks. Carayannis et al. (2017) examined various aspects of science, technology, and innovation; clustering, smart research, and experience; and underground policy concepts, such as open innovation and vision, that interest researchers and leaders. Carayannis et al. examined the dynamics and synergies of intellectual clusters, research, and innovation of smart

experiential strategies. Carayannis et al. focused on open innovation and vision networks, especially in the business and innovation ecosystem.

The benefits and potential risks of innovation and open vision were highlighted from different perspectives on innovation ecosystems and intellectual experience, highlighting the latest trends that are changing the priorities of the social and technological sectors to create professional groups and regions (Lütjen et al., 2019). Lütjen et al. (2019) indicated that the close link between cluster knowledge, open innovation knowledge, and innovation policy ensures that these decisions are possible simultaneously at all stages of the innovation process (Munkongsujarit, 2019). The analysis of forms of innovation cooperation has shown that the shared vision of open innovators and the practice of innovation policy can become important information in strategic creation and implementation in IT (Bogers, Chesbrough, et al., 2018).

Fagerberg (2018) highlighted the importance of innovation policies by addressing the transition to much-needed sustainability, and the role innovation can play in accelerating this change. Fagerberg found that existing theories and knowledge bases in the field of innovation research are not relevant to this task, and therefore a completely new approach is required. This approach is based on available research on the concept of innovation and the proposed policies which influence innovation and sustainable change. The development and implementation of transformative innovation policy are significant in IT operations (Munkongsujarit, 2019; K. H. Zhang, 2020). Fagerberg concluded that

innovative research principles and knowledge bases are important for the environment and for sustainability change in the IT industry.

Innovation policy is a part of the socioeconomic policy that defines the goals and priorities of the innovation strategy and the mechanism for its implementation by the organization authorities, both upper and lower management (X. Zhang, 2017). The company innovation policy should target increasing the current product and services of the organization through the development of fundamentally new types of products and technologies, expanding the markets for the products, works, and services produced (Lisarelli et al., 2019). Innovation policy involves displacing obsolete technologies, increasing the competitiveness of products (Bogers, Chesbrough, et al., 2018).

The leaders' decision-making regarding innovation is to find rational strategies and priorities for the development of the innovation sphere when implementing critical technologies and innovative projects in an organization that have a decisive influence on improving production efficiency and product competitiveness (Jiang et al., 2020). The IT industry's innovation policy should focus on preserving and developing production and technological potential. Innovation policy should aim to maintain the current technical level and the transition to higher technologies (Vézina et al., 2019). The manager should make sure that the innovative policy aids in creating a system of training and retraining of personnel in the field of innovative entrepreneurship (Christensen et al., 2016).

Depending on the existing organizational capabilities and innovation, it is crucial to the organizations to develop a policy that supports and stimulates innovation and extensively

utilizes the integration processes to ensure access to new markets for domestic and internationally competitive products (Christensen et al., 2016). Organizations could create joint ventures for subsequent access to international markets to develop institutional mechanisms that promote resource-saving, environmentally friendly modern technologies (Lopes Henriques et al., 2019).

Managers and leaders must implement small and quick payback innovative plans in the department with the participation of subordinates to promote resource-saving, environmentally friendly modern technologies (Riviere & Zamborsky, 2020). Wendra et al. (2019) supported this strategy, stating that innovative activity and providing the necessary organizational, technical, and economic conditions for a company to reach new frontiers is an important form of entrepreneurship in different market conditions. In turn, the market creates real opportunities for the development of scientific and technical progress. In these conditions, the strategic aspect of innovation is, first of all, in its orientation to consumer needs. Solving the company's innovative internal tasks as a manufacturer is subordinate. An essential component of the innovation policy of any enterprise is an innovation strategy (Christensen et al., 2016). The innovation strategy depends on the organization's business leaders, who determine the direction and content of innovations that are adequate to the needs and changes of the external environment and set the organization's future course (Wendra et al., 2019).

## **Open Innovation**

### ***Fourth Industrial Revolution***

The fourth industrial revolution is characterized by precarious technology that controls the physical, digital, and biological realms (Robert et al., 2017). The technical projects of the fourth industrial revolution are based on a combination of market, technology, community, and innovation needs. Technology development projects are often based on programs involving and collaborating with large-scale technologies, markets and universities, community and government officials, and innovating and discussing large-scale technology development projects (R.-W. Lee et al., 2016). One example is smart-plant platforms that have performance self-monitoring systems with extensive data integration and feedback functions. Smart cities are also based on open innovation platforms or open business models to support entrepreneurs—finally, the distribution and utilization of large data systems and intelligent financial systems in the blockchain (Robert et al., 2017).

The fourth industrial revolution established a clear link between technology and the market, meaning that it extended open innovation and IT to the first, second, and third sectors, creating a new combination of technology, market, and society (Bogers et al., 2019). In response to this change, creating organizational agility is crucial in the organization's response to the fourth industrial revolution (Matthiae & Richter, 2018).

First, organizations need to improve the liquidity of funds. Schumpeter and Opie (1934) focused on new business portfolios and capital inflows that could stimulate the

growth of this business portfolio and complete the second industrial revolution successfully. There is also a requirement to increase the depth and scope of cofinancing (Park, 2018). Entrepreneurs have a constructive contribution to the development of the economy and entrepreneurship. Innovations and outbursts of economic activity are entirely because of the entrepreneurial endeavors in providing the required reliance to enhance the innovation (Cennamo et al., 2020). Second, systems such as establishing and strengthening public investment banks need to be provided to significantly strengthen the functioning of national governments (Emami-Langroodi, 2017). Public entrepreneurs have saved or changed the trigger for personal entrepreneurship, big business, and social closures, which is not certain enough in the market.

R.-W. Lee et al. (2016) emphasized that renewable energy requires the institutionalization of the company's situation and operation, which requires significant direct investment in areas of high social value, such as social innovation, prosperity, risk, and environmental solutions, differences in age, area, and class. Third, there is a need to raise wages by reducing working hours and allocating resources to economic and social activities. R.-W. Lee et al. believed that the second industrial revolution was the invention of the finished internal combustion engine, which increased working hours by 8 hours and increased wages. In the fourth industrial revolution, combining technology and innovation in the market will significantly improve performance (Sasmoko et al., 2019). To continue the fourth industrial revolution, the development of production must be fully shared between workers and employers.



Public investment in the tax-based economy has increased significantly. From an economic point of view, there are social values outside the market area, such as aging, renewable energy, and environmental sources, i.e., the social economy (Dangelico et al., 2016). By strengthening the presentation of innovation results in the fourth sector, investments based on the contribution of large companies will increase people's incomes and become the engine of new sustainable growth. Fourth, the tax system must undergo significant changes (R.-W. Lee et al., 2016). The fourth industrial revolution will inevitably accelerate investment in big business and capital (Sasmoko et al., 2019) because the network's economic impact and the platform's economic impact predict the capital density index.

R.-W. Lee et al. (2016) suggested that countries should seek to redistribute revenues by significantly raising corporate and property taxes by 50% to reduce widespread inequalities, reduce household consumption expenditure, and maintain economic activity. The fourth industrial revolution was characterized by the fusion of the digital, biological, and physical worlds (Matthiae & Richter, 2018). It is a coalition of advancements in the IoT, robotics, artificial intelligence, 3D printing, and other technologies (Bogers, Chesbrough, et al., 2018). As a result of these technologies, the fourth industrial revolution paves the way for rapid transformative changes in every business sector (Sasmoko et al., 2019).

IT leaders show the development of a virtual environment that can work with external representatives and improve open innovation processes. Crowdsourcing is an

example of this new environment that uses collaboration to improve operations and relationships and accelerate innovation (de Mattos et al., 2018). Businesses are still looking for better ways to use crowdsourcing funds to create value for internal processes.

### ***Business Innovation and Open Innovation***

Hecker and Ganter (2016) distinguished between three types of business innovation: business information management, business innovation, and external relations in the workplace, and their impact on the functioning of business technology innovation. It is significant to pay special attention to the openness and externality of the company's research and development, as this factor limits the relationship between the organization and technological innovation (Bogers et al., 2019). The fourth wave of the German chapter of the Social Innovation Survey (SIS - IV) showed that organizational innovation is an important factor in developing new products (Hecker & Ganter, 2016). Organizational innovation has proven to complement external sources of information and open innovation strategies, but this may change in some cases (Wu & Hu, 2018).

### ***Implementation of Open Innovation***

Traditionally, there is no complete understanding of how to implement open innovation. There are no obstacles to implementing drivers and open innovation in the literature (Bogers et al., 2019). de Oliveira et al. (2018) identified the critical success factors (CSFs) for implementing open innovation at the enterprise level. de Oliveira et al. performed a systematic literature review to identify CSFs activation. A total of 2,894 articles were analyzed, of which 156 authors were analyzed independently. The following

topics were discussed: research strategies, methods (experience or theory), and objectives; methodological procedure; theoretical conditions; and contributions to literature and main findings.

de Oliveira et al. (2018) analyzed other aspects, including a description of the actual implementation of open innovation: career or purpose, commercial properties, successful open innovation application, and reports on open innovation tools and technologies. Further, de Oliveira et al. proposed a comprehensive framework for the six thematic types of CSF: governance, opportunities for internal innovation, networks and relationships, culture, technology management, and strategy. A total of 22 CSFs were defined for the functioning of open innovation in these categories, which can provide a basis for further research into the functions and dimensions of these parameters.

### ***Openness at the Company Level***

In the open innovation literature, the use of external knowledge, i.e., explicit internal or external innovation, has attracted the attention of innovation researchers (Robert et al., 2017). However, the human nature of open innovation is not fully understood. Bogers, Foss, et al. (2018) analyzed the role of employee characteristics in predicting openness at the company level. Using the literature on human capital, learning, and creativity, Bogers, Foss, et al. indicated that employee diversity is positively related to recognizing and absorbing external information. This information is related to improving openness at the organizational level.

Based on the combination of three data sources, e.g., two surveys and a daily data source, Bogers, Foss, et al. (2018) found that the literature on human capital, learning, and creativity supported the following hypothesis: the diversity of staff academic qualifications was positively related to the openness at the institutional level to facilitate knowledge transfer for innovation. Bogers, Foss, et al. discovered no direct link between the diversity of employees' work experience and the firm-level openness and utilizing the external knowledge sources for innovation. Serban (2017) summarized that managers seeking to increase external knowledge use should be cautious in combining educational diversity and work history diversity. Based on the direct positive correlation between educational diversity and openness, Pundziene et al. (2019) suggested that managers should cultivate academic diversity as part of their open innovation strategy. The managers must be balanced with other types of diversity and openness.

### **Transition**

The purpose of this qualitative case study was to explore the dynamic capabilities for implementing successful innovation strategies in the IT industry. I focused on one IT company in the Abu Dhabi Emirate. The participants uncovered their experiences of the phenomenon by answering questions. The need is to bring participants' experiences to find the phenomenon (Finlay & Elander, 2016). I used a sampling of 5 participants for the interviews. After the third or fourth interview, if I had heard the same comments from the participants and no new themes emerged, I could have declared data saturation had been achieved. I interviewed all 5 participants.

There are direct and indirect positive impacts of dynamic capabilities on competitive advantage and performance variables and a direct impact on marketing capabilities and innovation capabilities (Ferreira et al., 2018). The structural, organizational, and contextual capabilities are configured as critical aspects to allow organizations to promote movements for change; take advantage of opportunities; and enable continuous growth, alignment, and reorganization of assets and resources over time (Popadiuk et al., 2018). Dynamic innovation capabilities can be employed to assist an enterprise in coping with the change in a complex environment (W. Wang et al., 2019). For the study's conceptual framework, the approach I used was the dynamic capabilities theory by Teece et al. (1997). I used this approach to build a conceptual framework for dynamic capabilities to determine the organizational skills that help to create unique and challenging advantages.

Section 2 includes the purpose of the study, the role of the researcher, the participants, the research design, the research method, population and sampling, ethical research, the data collection instruments, the data collection technique, the data organization techniques, and reliability and validity. Section 3 contains the presentation of findings, the application to professional practice, implications for social change, recommendations for action, recommendations for further research, reflections, and conclusion.

## Section 2: The Project

In Section 2, I describe in detail the design of the chosen qualitative case study. In this section, I also restate the purpose statement, discuss the role of the researcher, participants, research method and design, population and sampling, ethical research, data collection instruments, data collection technique, data organization technique, data analysis, and reliability and validity of the study. I conclude Section 2 with discussions regarding credibility, dependability, transferability, and confirmability of findings.

### **Purpose Statement**

The purpose of this qualitative single case study was to explore strategies that business leaders in IT organizations use to catalyze and implement innovation to meet business goals through their IT workforces. The target population selected for this study consisted of IT business leaders from one organization located in Abu Dhabi, UAE. The selected population was suitable for this study as these business leaders have continuously managed and operated the IT company for at least 5 years in the UAE and implemented innovative strategies that achieved profitability and competitive advantages for the organization. Results from this research may contribute to social change by equipping leaders with information for improving their organizations' capabilities for realizing innovative and diverse opportunities to manage the labor force more effectively. Furthermore, the study results could contribute to the development of the IT industry and associated industries in the country and lead to improved employment and economic growth. Effective leadership capabilities in the organization result in decreasing

employee turnover and increasing profitability, which might improve the quality of life for communities through increased take-home compensation and local tax revenues.

### **Role of the Researcher**

Qualitative research requires the researcher's participation, and the researcher must understand different types of biases that can affect research outcomes (Clark & Vealé, 2018). I ensured that my personal opinions did not affect interviews, and in this context, I maintained neutral conversations with participants. In order to minimize bias, I developed and followed an interview protocol (see Appendix A).

In qualitative research, data collection involves conducting interviews, analyzing outcomes, and reporting findings (Gammelgaard, 2017). This integrative approach enables researchers to better understand organizational processes and results, thus supporting data credibility (Baškarada, 2014; De Massis & Kotlar, 2014).

My participation in this research involved collecting and organizing information, identification of themes, and deriving outcomes. I addressed validity checks during the collection of data. Validity checks are useful for verifying and measuring data for assuring factual analysis and maintaining research quality. Theoretical saturation involves consistency and accuracy of findings relevant to the research themes (Saunders et al., 2015). Data saturation is crucial for quality and integrity assurance, as the concept of data saturation addresses whether the study is based on a sufficient sample to validate the content (Heale & Twycross, 2015). I used data saturation to maintain the quality and integrity of this research.

Researchers must act ethically and help ensure the ethical integrity of research (Yin, 2018). When interviewing potential participants, the researcher must have proper knowledge and make interview schedules according to participants' and not researchers' availability (Phillippi & Lauderdale, 2018). I ensured that I had enough understanding about the topic under study. I actively set schedules for interviews followed the interview protocol. I thoroughly reviewed information related to ways I conducted qualitative interviews to assure that proper protocols were followed (see Appendix A).

Researchers must have no prior relationship with study participants as this can cause conflicts of interest during data collection and analysis (Heale & Twycross, 2015). Qualitative researchers have a critical role during the data collection process; researchers should fully understand participants' thoughts and ideas to interpret their responses into meaningful research (Chowdhury, 2015). I used an interview protocol for guidance during interviews to mitigate bias.

At the start of the interviews, I provided an introduction and research purpose and gave details regarding the interview process and consent for recording interviews. I also took notes during interviews. To reduce personal bias, I did not impose my views on research participants and conducted neutral conversations. The use of the interview protocol further reduced personal bias. I used interview notes to help ensure information validity.

I also ensured that I followed ethical behavior and created a beneficent environment. According to The Belmont Report, respect must be guaranteed to research



participants, and their decisions must be respected. I did not disrespect participants verbally or nonverbally. I also treated participants fairly and did not show any bias in terms of behaviors or responses of participants. There must be a professional relationship between researchers and participants, and confidentiality of participants must be maintained (Yin, 2018). Before interviews, the researcher should provide informed consent forms to participants and highlight any issues that can occur during research. Because of the COVID-19 pandemic, I provided the informed consent form via email. I had prospective participants respond in an email with the words “I consent” to confirm that consent was given. Different protocols and ethical principles highlighted in *The Belmont Report* must be followed to maintain research integrity. In conducting my research, I committed to following the three principles of *The Belmont Report*, namely (a) respect for persons, (b) beneficence, and (c) justice. Therefore, I developed an interview protocol, obtained informed consent, and treated research participants reasonably to ensure that the quality of research was maintained.

### **Participants**

Eligible participants for this study were business leaders who worked full-time in an IT organization in the UAE who catalyzed and implemented successful strategies reflecting innovation. Qualitative researchers should select only those participants who can adequately answer research questions and fully understand phenomena (Kornbluh, 2015). Participants must meet eligibility criteria. I notified business leaders that

participants I selected should have had a minimum of 5 years of experience in the IT industry who had successfully implemented innovative strategies in their organization.

To collect helpful information for the study, the researcher must initiate communication with targeted organizations. I contacted the leader of the selected study organization using a letter of cooperation from a research partner (see Appendix D) to get permission to reach out to qualified IT business leaders to participate in the study. Further, I described the research purpose and asked the manager to identify individuals who met participant criteria. Also, I asked the organizational leader to provide the contact information of chosen participants. Each participant had an interest in the overarching research question and a solid working knowledge of the subject.

Qualitative researchers should explain the purpose of the study to participants and recognize types of required access to the supportive company's documents to collect the data (Saunders et al., 2015). After the organization manager identified individuals who met participant criteria, I informed them of the purpose of the study and the importance of participant engagement. Developing relationships between researchers and participants is crucial in eliminating participants' concerns about the research topic and data collection process. Researchers seek to enhance relationships with the participants to facilitate the interview process, follow up on questions, and conduct member checking (Kirilova & Karcher, 2017). I developed the interview protocol to mitigate bias throughout interviews (see Appendix A).

The researcher should perform member checking or transcript reviews to help remove personal bias, which can affect the study, and get accurate participants' responses (Kornbluh, 2015). When individuals understand that their contribution can bring significant changes to organizations, they may respond positively and provide accurate information, which helps the researcher to explore a phenomenon (Kristensen & Ravn, 2015). Developing relationships plays a vital role in engaging participants in research and can improve the study results. This can also increase the motivation of participants who have issues related to the interview process.

## **Research Method and Design**

### **Research Method**

Researchers can use the qualitative methodology to analyze the research problem in-depth (Lancaster, 2017). This study involves using the qualitative research method. Participants were fully allowed to express their vision and opinions in response to interview questions.

The commonly used research types are qualitative, quantitative, and mixed methods studies (Saunders et al., 2015). The qualitative method is more suitable for the purpose of this research. The qualitative methodology involves conducting an in-depth analysis of the research problem by exploring underlying evidence and perceptions of the target population or research issues (Lancaster, 2017). I used the qualitative method and collected primary data from interviews to attain participants' direct ideas and perceptions. The qualitative method involves an in-depth study of a wide range of phenomena, taking

into account target participants' behaviors and perceptions concerning a particular topic (Kallio et al., 2016).

Researchers can use a wide range of tools for data collection to understand a phenomenon. These include investigative questions involving the *why*, *what*, or *how* to explore phenomena, which can be used to interrogate participants and obtain in-depth information about the topic. The qualitative research method involves in-depth investigations of contemporary phenomena within real-life contexts (Roger et al., 2018). Qualitative research can include focus groups, in-depth interviews, and observations to collect and enhance data.

Other research instruments such as questionnaires may be based on close-ended questions, which do not allow participants to express their opinions about research questions. Questionnaires are beneficial in obtaining the data involving the quantitative method, as the questionnaire limits the bias due to the questionnaire structure and its administration (Lewis, 2015). The quantitative method has multiple approaches to conduct the research; these approaches typically consist of experimental research design and nonexperimental research design (Kallio et al., 2016). A quantitative design is used when testing hypotheses, and this study was not based on testing hypotheses. Thus, the quantitative method was not used.

The mixed methodology is based on collecting and analyzing qualitative and quantitative data (Saunders et al., 2015). Researchers use mixed methods by combining quantitative and qualitative research. Depending on the research project's purpose, one

method can play an important role, and the other a supporting role (Sanders, 2018). My purpose was to explore the implementation of innovation strategies in the IT industry workforce. Therefore, quantitative or mixed methodological approaches were not appropriate for this study.

### **Research Design**

The various qualitative designs include narrative, case study, ethnography, and phenomenology (Polit & Beck, 2014). The case study design is an essential strategy for qualitative research to analyze different practical issues in-depth. There are two types of case studies: single case and multiple cases. A single case study is preferable to multiple cases because a single case study produces a different and better theory (Yin, 2018). Single-case researchers can fit their theory exactly to the many details of a particular case. Using a single case study, the researcher can examine old theoretical relationships and explore new ones. Conducting a single case study helps the researcher attain an in-depth understanding of the subject. The considerable advantage of multiple case studies is generalization, which is because researchers collect evidence from many sources. A single case may be considered idiosyncratic. Multiple case studies can be expensive and time-consuming to implement. The researcher can choose to make a single case study with embedded units. The data analysis in a single case study enables the researcher to focus more on subunits located within a larger case to understand the phenomenon (Yin, 2018). I used a single case study design to explore a business issue and understand a phenomenon in-depth. I did not use the multiple case study design because I did not seek

to understand the differences and similarities between cases. Other techniques, such as ethnography, phenomenology, and narrative research, were unsuitable for this study.

The narrative design is used for presenting the time-sequenced experiences of research participants (Saunders et al., 2015). Therefore, the narrative design did not suit this research as I would not describe the practical experiences of research participants. Phenomenology design is used for exploring experiences and perspectives of any phenomenon to present cultural and social issues. Phenomenology design is presented as the form of subjective research design, which considers the emotions and experiences of participants (Finlay & Elander, 2016). Thus, phenomenology was not suitable for the current study. Ethnography design relies on using the cultural context and theoretical demonstrations (Saunders et al., 2015). I would not access any cultural context; therefore, ethnography was unsuitable for this research study.

The descriptive single case study is presented as the research design, detailed and focused on collecting high quality and real data about the phenomenon without focusing on its causes (De Massis & Kotlar, 2014). Qualitative researchers can use case study design to analyze theory and support research aim (Yin, 2018). Researchers use case studies to explore the nature of the phenomenon and establish open-ended investigative questions and achieve data saturation. Saturation could be confirmed when the data analysis process discontinues revealing any new information relevant to the research topic (Saunders et al., 2015).

I achieved data saturation in the process of analyzing and collecting the data from participants. The case study approach was a good option for the study because I gathered the information through the interview as part of qualitative research strictly associated with the concept and quality standard of data saturation. Data saturation was attained when no information, themes, and codes were generated from the data sources (Fusch & Ness, 2015). In a qualitative study, the researcher needs to select a sufficient number of participants for the data collection and analysis process to achieve data saturation and enhance the research's quality and validity (Colombo et al., 2016). I interviewed five IT business leaders, and once I had no new information appeared during the interviews, I confirmed the achievement of the data saturation. I achieved data saturation by taking notes, creating different themes from the interview, and performing member checking. After the third interview, I heard the same comments from the participants, and no new themes emerged, I had to continue collecting the data to ensure that data saturation has been achieved.

### **Population and Sampling**

The research population was business leaders in IT companies in Abu Dhabi who had successfully catalyzed and implemented innovation strategies to meet business goals through their IT workforce. I used a nonrandom sampling approach, and, in this context, the technique was purposive sampling. Nonrandom purposive sampling is an effective method in saving time and cost and is particularly useful for qualitative research, as researchers use nonrandom sampling to collect the primary data (Mmari et al., 2017).

Purposive sampling is an effective technique when the researcher intends to identify different attributes and characteristics of research participants (Chandani et al., 2017). Another name of purposive sampling is judgment sampling, which relies on the researcher's judgment for selecting research participants (Etikan et al., 2016). The purposive sampling technique can evolve a deeper understanding of the phenomenon and concentrate on the selected participants' characteristics, which helps the researcher get the answer to the research questions (Serra et al., 2018).

I selected five IT business leaders who had successfully catalyzed and implemented innovation strategies to meet business goals through their IT workforce in an organization in Abu Dhabi Emirate to conduct the research. Fusch and Ness (2015) noted that there is no one-size-fits-all method to reach data saturation because research designs are not universal. However, researchers agree on general principles and concepts to reach data saturation, such as no new data and emerging themes. Further, the researcher should focus on obtaining rich and thick data rather than the size of the sample; rich is quality, and thick is the quantity (Fusch & Ness, 2015). The selection of an appropriate sample size is effective for assisting the researcher in gaining data saturation (Yin, 2018). For a nonprobabilistic sample, the size may range from 5 to 25 participants (Saunders et al., 2015). The data saturation approach assures the consistency and accuracy of the research findings (Saunders & Townsend, 2016). I used a data saturation approach to maintain the quality and integrity of this research.



I achieved data saturation when the participants' responses provided no new information for my research. I monitored the participant responses during all phases of the interviews. The researcher should realize that themes and codes' consistency are the prime factors for achieving data saturation (Saunders et al., 2015). I ensured that the consistency of themes and codes during the data analysis process achieves data saturation. If a researcher fails to achieve data saturation, the findings and final quality of research would be affected (Fusch & Ness, 2015).

I explained the interview content to participants, which aided in providing participant comfort, and noted that the participants should feel free to select a location that has fewer distractions (Regalla, 2016). Because of the Covid-19 pandemic, I conducted the interviews using the Zoom videoconference application. Researchers should be sensitive about the participants' needs because it could affect research output (Roberts, 2015). Qualitative interviews may involve face-to-face interaction between researcher and interviewee (Saunders & Townsend, 2016). The selection of the environment would significantly affect the outcomes (Dawson et al., 2017).

The researcher may face different challenges in gaining access to participants. The researcher must select the based-on knowledge approaches; the researcher should select the participants knowledgeable about the research topic (Roberts, 2015). Participants' willingness must also be considered for the engagement of participants and assure the proper collection of information and quality of research (Lancaster, 2017). Researchers should also know about unconscious bias to avoid misinterpretation

(Chamberlain, 2016). Therefore, I ceased from any contribution, compulsion, or suggestive body language towards the participants.

### **Ethical Research**

The ethical researcher seeks informed consent from the selected participants; informed consent is imperative to maintain research integrity. Informed consent is an agreement between research participants and the researcher (Rainsford & Phillips, 2019). The informed consent must be in simple language, and participants must provide consent without facing any pressure. I mentioned to the participants that the information provided in the interview would be kept private and confidential. I also informed participants that their participation in the research is voluntary. They have the right to withdraw from the research at any time by notifying me via email or telephone. This informed consent process was based on participant protection and building trust. This consent comprised information about confidentiality, privacy, and rights (Petrescu & Lauer, 2017). Informed consent was also comprised of knowledge about participant freedom and the study's nature. Privacy has been presented as controlling access to records and personal information sharing (Green & Thorogood, 2018). Before the interview, participants were asked to affirm their consent. I also explained that their research participation is voluntary, and no incentive or reward was provided to them.

Ethics plays a primary role in conducting primary research (Green & Thorogood, 2018). The ethical considerations ascertain the confidentiality and privacy of the participants included in the research (Carter et al., 2015). The confidentiality of any

points of view expressed must be respected. Participants must be guaranteed the confidentiality of everything, including their opinions and expressions (Smalley et al., 2015). To maintain confidentiality, the identity of participants should be kept confidential (Petrescu & Lauer, 2017).

Further, participants' confidentiality and collected data will be secured for at least 3 to 5 years. I also explained to the participants how their data would be used. I considered the convenience of participants for collecting data, and the interview was conducted remotely with the participants because of the Covid-19 pandemic.

After providing some formal introduction, I informed the participants about confidentiality protocols and consent. I also requested permission to audio record their interview, which I kept safe for at least 5 years. I also kept confidentiality, as well as the privacy of the participants throughout the research. The participants were given codes as "P1, P2, P3, P4, and P5" to protect their identities. I reviewed the requirements provided by an Institutional Review Board (IRB) and adhered to these requirements. The informed consent form was provided to participants before the interview and included (a) the voluntary study nature, (b) interview details, (c) confidentiality assurance, and (d) consent statement. All these documents were reviewed and approved by the IRB (approval number, # 02-10-21-0742068). Other documents such as the interview protocol and interview procedure with the script are also provided in the appendices.

### **Data Collection Instruments**

For developing an understanding of the research purpose, researchers interact with participants. I was the primary instrument for data collection. The primary data collection instrument in the qualitative study includes research participants. The different data collection methods in qualitative research include interviews, archival records, direct observation, focus groups, physical artifacts, and documents (Lune & Berg, 2016). All these provide evidence for conducting qualitative research.

Qualitative researchers use multiple sources to conduct triangulation and increase confidence in the validity of the research results (Yin, 2018). I collected data from semistructured interviews and publicly available documents like those available on the organization's website. To use the data collection instrument effectively, I followed the Walden University guidelines. Because of the Covid-19 pandemic, I gained consent from participants by email and then shared the interview protocol (see Appendix A) with the participants to explain that all information would be kept confidential. Further, the semistructured interview also was conducted remotely with the participants because of Covid-19 pandemic. The length of the interview was approximately 45 to 60 minutes for each participant. At the start of the interview, I provided my introduction and explained the research aims. While conducting the interview, I refrained from any research bias and asked follow-up questions where appropriate. I informed the participants that they could cease the interview anytime, as this is voluntary participation. At the end of the interview, I thanked participants for their involvement and scheduled a follow-up meeting to

perform the member checking. I conducted the interview using open-ended questions (see Appendix C). The interviewees' responses were also recorded by using a voice recording option available on the Zoom videoconference application. Five participants were interviewed, and I also performed member checking for verifying information accuracy. Member checking is useful for validating information interpretation (Brennen, 2017).

Member checking was useful for the verifying information and maintaining research analysis accuracy. During the interview, I asked followup questions to verify what the participant stated. After the interview, I provided participants with a summary of my interpretations of their responses for review and approval. The trustworthiness, integrity, and rigor are secured by using the process of member checking to assure the interpretation of findings is correct (Yin, 2018). The process of member checking assists in confirming data accuracy and outcomes, which was effective for managing subjective bias (Birt et al., 2016). Member checking is useful for assuring reliability as participants are also engaged to review the researcher's work (Pandey & Chawla, 2016).

### **Data Collection Technique**

The focus of qualitative research is the demonstration of the topic discussed during the interview (Marks et al., 2017). The interview is described as an effective technique for conducting the qualitative study and is a key source utilized in the case study design because of the involvement of human participants in the study (Yin, 2018). The semistructured interview method was used to collect information, and this approach is used to make the interview method comfortable and less rigid for research participants

(Yin, 2018). The interview was based on guiding questions to keep the interview on track. The use of interviews can assist in getting more information and ensuring the development of a trust relationship between the researcher and participants (Potter, 2018). This method is beneficial for understanding participants' experiences, knowledge, and perceptions (Mishra, 2016).

I used a semistructured interview as the source of data collection from business leaders in an IT company. Interviews increase the quality of information collected for this study (Pandey & Chawla, 2016). Researchers must scan and compile information by following an appropriate methodological approach systematically (Lowe et al., 2018). The researcher must use a systematic method to sort and compile the data (Yin, 2018). I recorded the responses and listened to the answers in the interview. For this purpose, I identified and categorized different themes. I reviewed interview files and notes to find a connection between different identified themes for tabulation and re-examination of these themes. I transcribed the complete data provided by the research participants and wrote the outcomes of the research. I mitigated any kind of influence, personal opinion, and bias in the collected data.

There are several disadvantages associated with the semistructured interview, as it can lead to research bias. Researcher bias can occur because of nonverbal behavior and tone and affect how a response is provided (Saunders et al., 2015). Researcher error can take place as the perception of the researcher can lead to bias by response misinterpretation. The information collection, arrangement, and analysis process are

time-consuming (Lune & Berg, 2016). For the reduction of bias, I used a member checking process as previously described. Further, the electronic recording of the participants' responses during the interview has facilitated presenting more details and in-depth information, I obtained consent from participants to record the interview.

Brennen (2017) stated that adherence to the interview protocol minimizes shortcomings. I minimized the shortcomings during the interview by adherence to the interview protocol (see Appendix A). The interviews were conducted after obtaining approval from the IRB, and at the beginning of the research phase, I provided my introduction and explained that participation is voluntary. I explained about taking notes and confirmed the participant's agreement for the interview to be audio recorded. After completing the interviews and transcriptions, I performed the member checking to help the participants review my interpretations of their responses to the interview questions for review, correct, and add as appropriate. This technique was used to enhance result credibility. A qualitative researcher should ensure the research method's appropriateness and validation technique to confirm that the analysis findings are authentic (Lune & Berg, 2016). In qualitative research, the researcher's responsibility is to utilize supportive theoretical data and ethical guidelines throughout the data analysis process. I also reflected on my data analysis process. The qualitative researcher must engage in interpretive and reflective thinking to assess the research phenomenon accurately (Clark & Vealé, 2018).

### **Data Organization Technique**

I organized the data according to key themes generated from the scholars' professional definitions, academic literature, and the conceptual framework. Also, I searched for new studies published while writing this proposal. Woods et al. (2016) suggested that the researcher use qualitative data analysis software tools such as ATLAS.ti and NVivo to manage data collected from interviews, focus groups, documents, field observations, or open-end survey questions. I used NVivo software to import and code all interview transcripts. I utilized NVivo to generate new themes. The researcher can use NVivo to link and classify the interview data according to the key themes, produce significant correlations between participants' responses, and seek new themes (Lowe et al., 2018). Malagon-Maldonado (2014) confirmed that managing the data collected for a case study keeps the study structured and the researcher organized throughout the entire process through audio devices and transcribed notes. I used a qualitative data analysis software program to store and manage the data collected during the interviews and placed it on a Universal Serial Bus (USB) storage drive. I transcribed all the notes from each participant's interviews and placed them on a thumb drive.

Once I transcribed handwritten notes into my electronic data management system, I destroyed all handwritten notes to protect all participants' privacy in the study. I categorized and marked all audio recordings and notes with the code related to each participant. Zyskind and Nathan (2015) stressed that third-party users should not be trusted to handle sensitive data that includes participants' personal information because of



exposure to attacks and misuse. I will keep the data acquired during the interviews on a USB device, marked (day, month, and year), and secured in a locked safe in my home for 5 years. I will destroy the USB device and voice recordings after 5 years.

### **Data Analysis**

Data interpretation has significant importance in qualitative research as the researchers can influence research outcomes (Mayer, 2015). My approach to enhance the quality of my study was triangulation. Triangulation is the use of multiple strategies for the research investigation to make the findings of research valid and reliable (Mayer, 2015). Mayer (2015) stated that for qualitative research, triangulation is the most appropriate strategy to evaluate validity by gathering information from multiple sources for a broader understanding of phenomena. Triangulation can be used for the multiple-perspective examination and the understanding of new and in-depth researching dimensions (Abdalla et al., 2018).

Triangulation limits the biases of people and methods and enhances the accuracy of the data findings (Abdalla et al., 2018). The use of validity checks, for instance, triangulation, replication, and consistency, are beneficial in decreasing the risk of false inferences and systematic bias (Lewis, 2015). These biases can be reduced by using rigorous approaches, which improve data trustworthiness (Maher et al., 2018).

Yin (2018) stated four triangulation types as methodological, data, investigator, and theory triangulation. For my study, I used methodological triangulation. This type of triangulation has multiple techniques for data collection to answer the research question

through comprehensive information (Kihn & Ihantola, 2015). I used two sources for the study: interviews and publicly available documents like those available on the organizations' websites. The quality of the case study increases through the evidence from multiple sources that complement each other (Yin, 2018). The results can help to perform validation and triangulation through a selection variety of data (Kihn & Ihantola, 2015).

Qualitative researchers need to disclose their beliefs and assumption to reduce the chances of bias while collecting, processing, and finalizing the data (McKnight et al., 2017). The term code is used for the presentation of the transitional process occurring between information collection and analysis (Clark & Vealé, 2018). In qualitative research, the use of thematic analysis assists the researcher in identifying the patterns of themes in the interview data while conducting data analysis (Nowell et al., 2017). Thematic analysis is based on the observation of knowledge, coding, and pattern recording (Castleberry & Nolen, 2018).

### **Reliability and Validity**

The adequate information provision by the qualitative researcher is necessary for the design and quality assessment of the academic study (De Massis & Kotlar, 2014). The evaluation criteria of research quality come with the reliability, confirmability, dependability, credibility, and transferability evaluations of the research (Moon et al., 2016). The instruments must possess adequate validity, and I used transferability, credibility, and confirmability for assessing research validity. The reliability determines

research quality, and it is presented as the reliability of research methods and analytical processes. To mitigate the biases and ambiguity, I reviewed the interview questions. I evaluated the consistency in the research instrument, and I transcribed all interviews to ensure data quality.

### **Reliability**

For the confirmation of a qualitative study, the researchers use reliability (Yin, 2018). The influential methods and procedures for the research findings are made consistent through reliability. Research studies must have repeatable findings (Noble & Smith, 2015). For ensuring reliability, I used triangulation of the data collected from the semistructured interviews with respondents and publicly available documents like those available on the organization's website. Through the consistency of the result measuring instrument, I achieved my goal of reliability in the study. Member checking and transcribing all the interviews were done for quality assurance of the data for the analysis (Rosenthal, 2016). NVivo software used for further data analysis and management of data from the interviews.

### ***Dependability***

The researchers gain dependability through data consistency and reliability with the documentation of research findings and processes (Morse & Coulehan, 2015). Dependability is the results' stability over time, supported by the interpretations and evaluations of the participants (Korstjens & Moser, 2018). Accordingly, I addressed the dependability of data interpretation by conducting member checking. To minimize

potential and influential bias in the study, reflexivity helps the researcher in self-reflective practice (Cypress, 2017). Through the member-checking process with the participants, I enhanced the dependability and reliability of the study.

### **Validity**

Validity in scientific research refers to the researchers have using an accurate and correct instrument to measure study data (Cypress, 2017). Morse and Coulehan (2015) explained validity as the accurate degree of measurement in the study with theoretical literature's support. Validity is a potential information source of the parameters influencing the effectiveness of an interview. For this purpose, the researcher must be truthful and transparent. The rigor or trustworthiness is presented as the extent of data confidence and interpretation (Yin, 2018). Researchers can use peer-reviewed research articles to enhance validity (Joslin & Müller, 2016). I applied triangulation and peer-reviewed literature to enhance validity. I used the phenomenon of content validity by providing a comparison of perspectives offered by different theorists.

### ***Credibility***

Researchers can confirm the credibility using methodological triangulation, multiple data sources, and member checking to ensure that the research findings reflect the participants' experience (Liao & Hitchcock, 2018). I used methodological triangulation, member-check interviews, and notes to ensure credibility. The researcher can use triangulation as a validation strategy for enhancing the study's credibility (Yin, 2018).

### ***Transferability***

Transferability is based on the transferring level of the research finding from the study sample (Moon et al., 2016). The transfer extent of qualitative research to other contexts is called transferability (Korstjens & Moser, 2018). I presented a detailed description of the background, selection of participants' data, and their characteristics that include essential information and their role in the organization. I enhanced the transferability of my study to enable future researchers to determine the applicability of this study to future research studies.

### ***Confirmability***

Confirmability is demonstrated by the researchers when the research outcomes are consistent and can be replicated (Morse & Coulehan, 2015). Confirmability is defined as the degree to which others corroborate or agree with the study findings. Qualitative researchers can have detailed information about analysis and decision-making for achieving confirmability (Connelly, 2016). I assured confirmability by using interview notes and member checking. I presented detailed information about the research methodology and measures of the audit trail for ensuring confirmability. I discussed the measures of triangulation and provided an audit trail to ensure confirmability.

### ***Data Saturation***

Qualitative researchers rely on data saturation to increase the credibility of their research. Researchers achieve data saturation when no additional information or new insights emerge (Saunders et al., 2015). The data saturation concept was used to support

the outcomes of the research study. To achieve data saturation, I interviewed a sample of five participants. After the third interview, I found repeated information and no new information emerges, I continue to interview the fourth and fifth participants to ensure and confirm the data saturation. I used the interview protocol and performed member checks. Based on the type of research study, there is a risk of variation in data saturation (Fusch & Ness, 2015). As I did not receive any new themes or information from the participants, I concluded that I had achieved data saturation. The concept of data saturation was used to enhance the reliability and validity of the research study and improve the quality of the research (Fusch & Ness, 2015).

### **Transition and Summary**

In Section 2, I restated the purpose of the research from Section 1 and outlined the role of the researcher in the study. I described the study participants and explained the selected research methods and design, research population and sampling, and ethical considerations. The research question and conceptual framework formed the foundation for data procedures in Section 2. I presented the data collection instruments, organization technique, and analysis and the rationale for using NVivo software in data organization and analysis. At the end of Section 2, I discussed how I would achieve the reliability and validity of my research findings.

In Section 3, I present the results from the gathered information and the analysis of data. I will identify the application to professional practice and implications for social change based on the findings of my study. I provide recommendations for actions and

further research. Finally, I incorporate my reflections and the conclusion for the case study.

### Section 3: Application to Professional Practice and Implications for Change

#### **Introduction**

The purpose of this qualitative single case study was to explore strategies that business leaders in IT organizations use to catalyze and implement innovation to meet business goals through their IT workforces. Innovation involves implementing a new or significantly improved product (services or goods) or process, new marketing methods, or new organizational methods in business practices, workplace organization, and external relationships (Frishammar et al., 2019). To explore strategies that business leaders in IT organizations use to catalyze and implement innovation, video conference semistructured interviews were conducted, and interviews included six open-ended questions (see Appendix C). I used interview questions to gather the data from five respondents. Interviews were conducted with managers in an IT organization located in Abu Dhabi, UAE.

Findings indicated that to catalyze and implement innovation to meet business goals, business leaders in IT organizations used their key capabilities, created value through IT innovations, and used R&D activities to explore new markets, technologies, and IT infrastructure. Automation and adoption are some of the key strategies to catalyze and implement innovations.

#### **Presentation of Findings**

The overarching research question for the study was: What strategies do business leaders in IT organizations use for catalyzing and implementing innovation to meet



business goals through their IT workforce? I used a qualitative research method and a single case study design. For data collection, I conducted semistructured interviews via Zoom with five IT managers. Participants were selected using a nonrandom purposive sampling technique. All participants were employed in decision-making roles and knew strategies for catalyzing and implementing IT business innovations. I interviewed the five managers to confirm and ensure reaching data saturation. The ages of participants ranged from 33 to 47 years old, and the average age of participants was 40. Participants answered the interview questions. I conducted interviews using open-ended questions that allowed managers to share their experiences and knowledge involving catalysing and implementing innovation and meeting business goals through the IT workforce.

### **Overview of Participants**

Eligible participants in this study were business leaders who had a minimum of 5 years of experience and worked full-time jobs in an IT organization in the UAE and had catalyzed and implemented successful strategies reflecting innovation. Eligible participants were also business leaders who could adequately answer the study's research question and fully understand the research phenomenon. All interviews were conducted remotely via Zoom because of COVID-19. Participants were free to participate in interviews from any location of their choice. I told participants to feel free to change interviews according to their schedules. By providing flexibility, participants did not feel inconvenienced during interview sessions. Before starting interviews with each participant, I collected written informed consent forms by email from each respondent,

and I reminded them that they were not bound to answer questions they did not want to answer. I told them the purpose of the interviews and the benefits of this study. I also stated that the study would not cause harm to them, and data would be kept confidential. I assured participants that their identities would not be disclosed to anyone and data collected would be kept secure after completing research.

After data collection, I transcribed each interview into a Word document. Using interview transcripts and my handwritten notes, I interpreted each participant's responses to questions and drafted a summary of responses. I conducted followup videoconferences with each participant for member checking using Zoom. I reviewed company documents that were related to the study. I used methodological triangulation to analyze collected data, company documents, and relevant existing literature. In addition to taking notes, I provide a brief overview of participants based on field notes and observations in the following section.

P1 was a 47-year-old director in an IT organization. Working in the IT industry, P1 was aware of innovation concepts and had a good knowledge of business strategies used to implement innovations within IT organizations, and was keen to address new ideas. P1 participated in their interview from an office. P1 said that they love to work on different concepts. They emphasized sensing, seizing, and transforming in terms of the development of new ideas.

P2 was a 40-year-old customer relations manager in an IT organization. They have a high level of education. P2 participated in their interview from a restroom. They

talked about their knowledge and expertise. They emphasized the transformation of existing assets and developing new assets and technologies.

P3 was a 44-year-old business development manager in an IT organization who claimed to handle IT teams working on different tasks. P3 participated in the interview from his office and was in professional attire. He was not comfortable during his interview compared to other participants, as he was busy with calls and had to stop many times. P3 apologized for interruptions and answered all questions properly despite disturbances. They emphasized diversity, building, deploying, and configuring resources for innovations within the IT industry.

P4 was a 33-year-old female and marketing manager in an IT organization with significant experience in the field. They handled a team of IT professionals and successfully improved organizational processes related to the marketing department to speed up those processes and exploit the opportunities in the IT market in the UAE. P4 attended the interview meeting from their dining room. They were calm and confident.

P5 was a 45-year-old and senior account manager in an IT organization who worked in the organization for 15 years. P5 participated in the interview from his library. P5 was experienced and managed a team of IT professionals working on diverse projects in their organization. He was confident and had a good knowledge of skills and information needed to address ideas and find innovation opportunities. P5 emphasized reconfiguring existing assets and competencies and learning about customers by introducing new IT and technology products.

## **Themes Development**

After collecting data via Zoom videoconferencing interviews, I interpreted the responses of each participant and drafted response summaries. During the second interview, I conducted member checking to ensure I correctly interpreted and understood participants' responses to questions during the first interview. Data were entered into NVivo 12, which I used for thematic analysis. I transformed data into themes and subthemes. Identified themes included (a) dynamic capabilities of IT leaders, (b) value creation through innovation in the IT workforce, (c) strategic organizational management and innovation, (d) the role of research and development in organizational innovation, and (e) automation and adaptation to promote change in the IT industry. Once I had completed the initial coding stage, I reviewed identified coding groups, searching for themes and patterns within those groups. I reviewed data through the lens of the dynamic capabilities theory to identify what strategies IT firm leaders use to make better capability decisions involving catalyzing innovation which results in positive outcomes for their companies.

Before developing themes, I read each transcript carefully to familiarize myself with available data, which included noticing repeated words. After gaining familiarity with data, I started initial inductive coding and applied codes to themes. The initial round of coding enabled me to organize data or classify themes and subthemes. Elements of the dynamic capabilities; building, deploying, and configuring resources, customer needs, and foresight strategies were identified as dynamic capabilities of IT firms. Once I was

done with coding, I started building themes that represented codes. After identifying themes, I reviewed codes and themes to ensure responses aligned (see Table 1).

**Table 1**

*Summary of Themes and Participant Acknowledgement*

Theme	Occurrence
Theme 1. Key dynamic capabilities of IT leaders	P1, P2, P3, P4, P5
Subtheme: Building, deploying, and configuring resources	
Subtheme: Identifying customer needs	
Subtheme: Applying foresighting strategy	
Theme 2. Value creation through innovation in IT workforce	P1, P2, P3, P4, P5
Subtheme: Use of new strategic management tools in IT workforce	
Subtheme: New operating routines of workforce	
Subtheme: Measuring routines performance	
Subtheme: Workforce diversity	
Theme 3. Strategic organizational management and innovation	P1, P2, P3, P4, P5
Subtheme: Innovative IT business model	
Subtheme: Financial and nonfinancial planning	
Subtheme: Reconfiguring existing assets and competence	
Subtheme: Sustaining competitive advantage in IT industry	
Theme 4. Role of research and development in organizational innovation	P1, P2, P3, P4, P5
Subtheme: Exploring new markets	
Subtheme: Expenditure on IT infrastructure	
Subtheme: Implementation of new technologies	
Theme 5. Automation and adaptation to promote change in IT Industry	P1, P2, P3, P4, P5
Subtheme: Adaptation of new procedures and techniques	
Subtheme: Transforming the work environment to automation	
Subtheme: Introducing innovative products through automation	

### Theme 1: Key Dynamic Capabilities of IT Leaders

The research included interviews with IT managers working in an IT organization. These managers knew the topic and pursued key capabilities that helped them catalyze and implement innovative strategies to meet business goals. Resource building, implementation, and configuration are some key dynamic capabilities of IT leaders. P2's organizational dynamic capabilities included transforming existing assets, developing new assets, technologies, and learning. P2 said:

In my opinion, there are three essential skills to building a dynamic capability – sensing, seizing, and transforming. Of these, it is the transformational skill – continuous renewal - that is most valuable and difficult to build because it requires the metaprocess of asset orchestration to build, deploy, and reconfigure resources.

Table 2 shows emergent subthemes within theme 1.

**Table 2**

*Emergent Subthemes in Theme 1*

Theme	Number of Participants Noting the Subtheme ( $N = 5$ )	References
Building, deploying, and configuring resources	1	3
Identifying customer needs	2	2
Applying foresighting strategy	4	7

### ***Building, Deploying, and Configuring Resources***

P2 highlighted the importance of resource use as a dynamic capability. P2 said creative and effective use of resources and their integration into new organizational capabilities is linked with generating competitive advantage. P3 said adapting new technologies, transforming existing resources, and continuous learning are key to innovations. Sensing, seizing, and transforming existing products and services encourage innovations involving automation, data, artificial intelligence and software technologies, and end-to-end business solutions. P2 and P3 agreed regarding the importance of building, deploying, and configuring resources as key capabilities of IT leaders to bring innovations and generate competitive advantage and business goals. The use of dynamic capabilities of building and deploying resources enables managers in terms of generating competitive advantage.

### ***Identifying Customer Needs***

P1's organization's key dynamic capabilities are sensing and seizing. P1 said, "through seizing, we have mobilized our resources for capturing value from those opportunities and ultimately result in continuous renewal." P1 highlighted that organizations put their efforts into identifying the needs of their customers. P1 pointed out that the capability of IT managers to identify the opportunities from the external environment is a key to bring innovation within the business and gain a competitive advantage to achieve organizational goals. P4 stated,

An organization's dynamic capabilities comprise sensing changes happening in the technology market and seizing these opportunities by reconfiguring existing assets and competencies. P4's organization dynamic capabilities emphasize building, integrating, and reconfiguring the internal and external competencies to address the rapidly market environment that is always dynamic and volatile.

P4 supported the knowledge that addressing the rapidly changing market refers to the changing demands and needs of the customer, specifically during the crisis of COVID-19 (Y. Wang et al., 2020). P4 confirmed the literature that market research and understanding the customers' needs are core to businesses' success and ensuring organizational innovation. P5 commented that one of their significant dynamic capabilities is being responsive to addressing the environment's changes to address customer needs. P5 stated, "being dynamic is crucial for being responsive." P5 emphasized that firms must use their core competencies to modify their competitive advantage and transform their short-term benefits into long-term.

Dynamic capabilities about integrating and reconstructing external and internal capabilities to respond to customer needs is a finding that is supported by Stalmokaitė and Hassler (2020). The data collection disclosed that IT managers were aware that identifying and meeting the customers' needs is pivotal for success and comes as dynamic capabilities of firms. The statements show the understanding of the target audience and their knowledge of identifying customers' needs as dynamic capabilities. Customers have always been a priority of businesses, and their needs come under the external



environment (Heider et al., 2020). Business leaders tend to identify the opportunities in the business environment and transform their products accordingly to meet customers' needs (Buccieri et al., 2020).

### *Applying Foresight Strategy*

P2 also represented his perspective by stating the example of IBM. P2 noted that IBM had undergone a remarkable transformation from a struggling seller of hardware to a successful broad range solutions provider. Underlying this change is a story of foresighted strategy and disciplined execution—of connecting knowledge to doing. P2 indicated that IBM's model considers the organization, sensing changes in the market, and identifying opportunities. P2 also stated that through the organization's dynamic capabilities, the company harness the power of automation, robotics, cognitive computing, and analytics for helping the organization transform.

P2 emphasized the importance of the application of foresight strategy. P2 pointed out that leaders must have an eye to see the future and make decisions accordingly. Some ideas may not look feasible at present, but they have significant benefits for the future. P2 noted that new ideas and innovations might not look good initially, but later they may start showing positive outcomes. Hence, managers must have key capabilities to apply foresight strategy.

Leaders must demonstrate openness to all ideas, including those that have not yet been tested in practice, formulated not quite accurately, and even seem a little strange (Heider et al., 2020). Stalmokaitė and Hassler (2020) also supported that managers must

have the ability to convey long-term strategic advantages, not only to employees but to the firm as a whole. Vrontis et al. (2020) also emphasized the capabilities of managers to innovate and set the strategies for a future organizational course. The application of foresight strategies is one of the critical aspects of the dynamic capabilities of managers, and the target audience of the study understands this dilemma. All five participants know that they can gain a competitive advantage by the application of foresight strategies. The data unveiled that sensing changes and identifying opportunities is a part of the foresight strategy. Leaders must have the ability to maintain a coherent, high quality, functional forward view and insights that arise in a useful organizational manner (Heider et al., 2020).

### **Theme 2: Value Creation Through Innovation in IT Workforce**

The organizations need to identify the key dynamic capabilities by conducting external environmental analysis using strategic management tools such as SWOT analysis and Porter's five force analysis (Shatilo, 2020). P1's organizational business model also enables the company to identify the key dynamic capabilities. P1 stated, "the important functions of our *business model* [emphasis added] are identifying unmet customer needs, identifying the technology and organization addressing them, and capturing value from the activities." Table 3 shows the emergent subthemes within theme 2.

**Table 3***Subthemes Within Theme 2*

Theme	Number of participants noting the theme (N=5)	References
Use of new strategic management tools in IT workforce	1	5
New operating routines of workforce	2	6
Measuring routines performance	1	3
Workforce diversity	4	8

*Use of New Strategic Management Tools in the IT Workforce*

When respondents were asked how to identify key capabilities for making innovations, P1 stated the company is aware of the challenges involved in managing and harnessing this operational and strategic organizational asset. P1 notably remarked, in alignment with Ciampi et al. (2021), managers use strategic management tools defined in theories to identify the capabilities. The SWOT analysis tool could enable organizations to evaluate their internal capabilities and match the external environment to bring appropriate innovations in the business that deliver results. P2's organization identifies dynamic capabilities through the business model. P2's business model describes the design or architecture of the value creation, delivery, and capture mechanisms a firm employs. The essence of a business model is in defining how we deliver value to customers, entices customers to pay for value, and convert those payments to profit.

A business model is another strategic management tool that identifies the firms' capabilities to achieve organizational goals through innovations (A. K. Gupta, 2021). The utilization of tools enables managers to determine the workforce's capabilities and overall

organization by managing information (Shatilo, 2020). The findings that strategic management tools help businesses or managers identify the key capabilities in firms using information have been supported by Mousavi et al. (2019) and Linde et al. (2021). Strategic management tools are supportive measures that are used to give a quick look at the environment. Strategic management tools are environmental scanning measures used to make an informed decision and support managers in their intelligent decision-making (Best et al., 2021). Companies use diverse strategic management tools to create value through innovation and use these tools for identifying dynamic capabilities. Strategic management tools and techniques are some of the best aspects that can be used to identify capabilities (Mitręga, 2019).

#### ***New Operating Routines of Workforce***

P4 said,

After learning about our customers, we seize the opportunity by introducing new IT and technology products such as analytics and robotics. Moreover, we identify our dynamic capabilities by pioneering a new operating routine. When a business becomes first with an imitable business model, the customers learn about the company's unique value proposition, which contributes to secure the edge in the market.

P4 declared new operating routines to identify the firm's innovation capabilities to achieve business goals, contributing to existing literature. P5 having a good knowledge of the firm's operation, P5 commented, "we identify our dynamic capabilities through

sensing and seizing. Seizing is our reaction to market needs to increase firm value. It comprises designing innovative business models and getting access to capital and resources." The firm can measure its dynamic capabilities through the ability to innovate and introduce new processes and products (Stalmokaitė & Hassler, 2020). Firms that are unable to respond to market needs may not contain any capability.

New business operating routines are evidence that the company has capabilities to respond to customer needs (Xing et al., 2020). Tushman and O'Reilly (1996) also accepted that routines are the elements that help identify employees' capabilities. The firm may have a capacity, but if employees do not have a capability or are not competent, they cannot bring innovation to the business; hence, realizing the employee level of capabilities is necessary. To enhance the dynamic capabilities of employees, the company should examine the routines of employees (Stalmokaitė & Hassler, 2020).

The key capabilities or core competencies are perceived as a set of processes and routines that are firm-specific. New operation routines are the factors that enable businesses to have innovation in their firms to achieve organizational goals. New operation routines are the measures that employees are capable of innovation (Mitreğa, 2019).

### ***Measuring Routine Performance***

Measuring routine performance is an effective way of identifying dynamic capabilities. Innovation related to humans or technology does not define firms' dynamic capabilities (Mitreğa, 2019). Rather, the firms' routine or continuous actions of

introducing new products and their research and development spending define their dynamic capabilities. P2 stated,

Without the right balance between creation, delivery, and capture, the business model will not be in operation very long, at least not by for-profit enterprises. In short, the business model outlines the [industrial] logic by which customers are served, and money is made.

P2 concluded that creating a business model required the balance between capturing, creating, and delivering; this must be a part of the routine performance. If organizations cannot measure routine performance, they do not have the capabilities to provide value to customers and achieve organizational goals. The findings that measuring routine performance is a way to evaluate dynamic capabilities is a fact that has been supported by (Chen & Sawhney, 2010). Rotjanakorn et al. (2020) the dynamic capability of firms could be measured by their routine performance of innovation, market orientation, and new product development. A. K. Gupta (2021) recognized that the company could measure dynamic capabilities through its competitive performance. Organizational agility is a routine practice of companies that firms use to measure the performance of dynamic capabilities (Mitreğa, 2019).

### ***Workforce Diversity***

Diversity is perceived as a means of innovation and enhances firms' capabilities to innovate and gain organizational goals productively. P3 stated,

We are struggling to bring innovation and finding new ideas. One of our managers suggested that we must include all employees in the decision-making process. All are from different backgrounds, and their diversity and experience may deliver us new ideas. We did the same and succeeded in our mission to introduce a new process of doing things better than before.

P3 noted that diversity is a crucial element to success and can be used to measure performance. Diversity communicates the dynamic capabilities of firms because firms bring diversity in their firms with purpose. When discussing diversity, P3 stated,

We believe in inclusion and diversity because this is our key to success.

Whenever we conduct any meeting, we ask our employees to show their presence and allow us to have their views on the problem of that time, and we always come up with better solutions to our problems.

P3 emphasized that diversity is a measure of a firm's dynamic capabilities. Diversity encourages collaboration and openness that helps to realize the benefits.

Liedtka (2020) highlighted the positive association between employee diversity and innovation. Employee diversity enables companies to absorb and recognize external information. Workforce diversity enhances openness that leads firms to innovation. It is the best measure of the dynamic capabilities of firms. Firms know the benefits of diversity and, therefore, purposefully hire people from different backgrounds. The findings are also backed by Farhana and Swietlicki (2020) by emphasizing the importance of diversity for organizational performance. Firms having variety in their

businesses have an opportunity to get new ideas and come up with new things that deliver the best to companies (Liedtka, 2020).

### **Theme 3: Strategic Organizational Management and Innovation**

Challenges are part of every organization that can be internal and external.

Overcoming these challenges is a complex task for which businesses develop diverse strategies. The function of gaining a competitive advantage through reconfiguring existing competence and assets is a dynamic capability of firms to deal with challenges (Mikalef et al., 2019). The ability to reconfigure the competencies help businesses in addressing internal and external environmental factors (Vrontis et al., 2020).

Reconfiguration simplifies the understanding of the innovation process. Reconfiguration is a dynamic capability of firms to meet environmental challenges. These findings are supported by Liedtka (2020). Table 4 shows the emergent subthemes within theme 3.

**Table 4**

*Emergent Subthemes Within Theme 3*

Theme	Number of participants noting the theme (N=5)	References
Innovative IT business model	3	3
Financial and nonfinancial planning	2	5
Reconfiguring existing assets and competence	4	9
Sustaining competitive advantage in IT industry	5	3



### ***Innovative IT Business Model***

P1 and P2 stated that three of the biggest challenges that businesses face include erosion, substitution, and learning about higher-order capabilities over time. However, to overcome these challenges, IT managers develop diverse strategies. While discussing the challenges and developing strategies, P5 stated,

The major challenges we have faced include other similar products in the market and the development of high order dynamic capabilities. High order capabilities are those, which the top management must consider. These capabilities are especially relevant for the innovation of selecting business models which address issues and opportunities in the market.

P5 mentioned the importance of an innovative business model to overcome the challenges the businesses face. Strategic organizational management enables companies to have innovative business models in the workplace. These innovations in models lead firms to generate a competitive advantage. Strategic organizational management serves as a pillar for innovation. Strategies enable the business to use few resources while generating significant results (Best et al., 2021).

### ***Financial and Nonfinancial Planning***

P1 stated,

Financial planning is a mandatory part of dealing with challenges because when companies attempt to plan strategies, they often plan to change the processes and

innovate products that demand finances. Therefore, financial planning is crucial for dealing with challenges.'

P1 claimed that financial planning is pivotal in dealing with challenges. Conversely, P2 elaborated that the company does not need to have a financial plan. Sometimes, business challenges influence employee performance, and these challenges do not necessarily demand financial planning. For example, the adoption of lean processes by reducing extra activities does not require any financial plan. Lack of employee satisfaction and engagement may reduce productivity, and employees can be motivated using nonfinancial measures.

Companies do not need to deal with challenges plan for financial measures or strategies that demand financial strength. It is also possible that nonfinancial measures are taken to deal with challenges. The dynamic capabilities enable companies to make innovations in processes. Change in processes to deal with challenges is a nonfinancial plan, while product innovation demands that companies have financial planning (Xing et al., 2020).

Guertler and Sick (2021) pointed out that managers failing to keep their employees engaged is challenging. Managers need to simplify the strategies and motivate employees and leaders to develop innovations. Motivational strategies help firms reconfiguring external and internal competencies to understand the method adopted by innovators. Farhana and Swietlicki (2020) acknowledged that financial planning is a

measure to deal with external challenges, as it helps businesses enhance knowledge and bring IT advancements to organizations.

### ***Reconfiguring Existing Assets and Competence***

P5 pointed out that "the common challenges we faced while identifying dynamic capabilities are the threat of substitution and erosion." P3 stated,

The company is much concerned that substitute products or services in the market might displace our products. The danger is relatively serious when rival firms offer more attractive and low-cost products. When the substitution of our products or services becomes an easy and low cost, then our power can be weakened, and our profitability can be reduced.

P3 found that another challenge the company face is an erosion of capabilities with time. Because of erosion, the company starts losing its already established capabilities. P3 recognized the importance of reconfiguring existing assets and competence, as due to erosion, the existing capabilities of firms do not remain the same. To deal with prevailing challenges, integrating and reconfiguring the external and internal competencies is mandatory. Simplifying the understanding of the innovation process for supporting the development and implementing strategies for catalyzing innovation for meeting the organizational goals are crucial elements to deal with competition.

P4 stated that dynamic capabilities aim to identify opportunities for an organization early, foster the learning of appropriate responses, and drive the reconfiguration of operating routines. P4 said, "If we do not continuously exercise

sensing, learning, and reconfiguring activities, we might be more prone to overlook opportunities or identify significant changes too late, and may therefore not react, or at least not adequately, to these changes." P4 mentioned that reconfiguring activities are essential and can play a role in dealing with challenges. Omitting to seize the opportunities and reconfigure internal and external resources can set the firms behind the competition, and firms may not respond to the customer needs quickly.

Challenges are diverse and not similar; companies to deal with such challenges adopt different strategies from which the one is reconfiguring existing assets and competence (Liedtka, 2020). The business world is full of surprises, and changes are frequent, most specifically in the IT industry. Remaining stagnant is not an option for IT firms. The IT organization must continuously change the competencies and existing assets to be more innovative and respond to market dynamics (Ciampi et al., 2021). Reconfiguring strategies and competencies are vital to gain a competitive advantage. Competition is one of the biggest challenges for IT companies, and differentiation from rivals is necessary for businesses (Rotjanakorn et al., 2020).

### ***Sustaining Competitive Advantage in the IT industry***

P5 discussed overcoming challenges by identifying new markets for our IT products, resources, and customers. P5 stated, "the more we do this, the more competitive we become." As an outcome, an IT firm does not have to possess dynamic capabilities, but these capabilities should be better than the other competitors in the market should.

For dynamic capabilities to be valuable and rare, it should be an extraordinary one that only one firm can possess.

P5 also mentioned that sustainable competitive advantage is a solution to challenges, and this can be created and developed by identifying new markets for existing products and resources. P4 stated,

The company overcomes the challenges in identifying dynamic capabilities by clearly identifying unique needs, resources, and combinations. The more we do this, the more we come into competition with other markets with their capabilities. Ironically, as the dynamic capability opens additional opportunities for use, one of the main attractions of such capabilities, the set of competitors to whom we should be superior, also expands.

P4 and P5 unveiled that to overcome the challenges, managers tend to find new markets for the products, and the focus to deal with challenges is to generate competitive advantage. P4 and P5 disclosed that the more managers tend to enter the new markets with their products, the more they are exposed to the challenges; this means that making efforts to gain competitive advantage is a dynamic capability of companies to open additional opportunities for use. One of the participants noted that generating a competitive advantage keeps firms separate from the competition.

P3 also stated, "we fought those challenges by struggling to find new markets for our products and increase our resources. As we started identifying and entering new markets, we overcame the challenges of erosion and substitution." The results

communicated that entering new markets is one of the most effective strategies to generate a competitive advantage that companies use to overcome challenges. The results show that entering new markets is a dynamic capability of businesses and a way to deal with challenges. Schmidt and Scaringella (2020) stated that companies develop partnerships and make joint ventures to access new markets for driving innovations and promote competitive advantage. Creating and developing a competitive advantage is one of the critical aspects of overcoming challenges. Companies need to utilize different tactics to generate competitive advantage (Schmidt & Scaringella, 2020).

#### **Theme 4: Role of Research and Development in Organizational Innovation**

All participants recognized the positive role of R&D in gaining a competitive advantage and gaining access to the new markets. All participants emphasized that R&D is necessary for making changes that may result in improved business strategies and deliver companies with strategies that can better serve companies to enter the new markets. The role of R&D activities cannot be underestimated in the process of expanding business operations to other markets (Heij et al., 2020). P1 and P2 stated that when companies enter new markets, they have to learn their dynamics and external environment. P3 and P5 claimed that R&D is vital to have information about the external environment of new markets that can significantly influence the business and its operations. The R&D is crucial in expanding to new markets and taking advantage of product demands in the new market (Guertler & Sick, 2021). Table 5 shows the emergent subthemes within theme 4.

**Table 5***Subthemes Within Theme 4*

Theme	Number of participants noting the theme (N=5)	References
Exploring new markets	3	8
Expenditure on IT infrastructure	2	11
Implementation of new technologies	5	3

*Exploring New Markets*

R&D is an essential factor that contributes to the success of companies. In the IT industry, leaders hunt for innovation and seek opportunities to grow the business (León et al., 2020). R&D offer firms the chance to have improved knowledge about the internal and external environment of firms. The improved information helps firms find new options for business growth, which can include expanding the business to new markets (Vendrell-Herrero et al., 2021).

All participants pointed out that for every firm that succeeds in growing through transformation, many more cannot adapt. Their failure to thrive may result from a lack of specific capabilities that allow them to adapt to and promote change, such as R&D or the ability to acquire other firms. These are the dynamic capabilities, and in 2021 of rapid technological change, they are critical to a firm's long-term success.

Research and Development plays a significant role in developing IT infrastructure. The R&D activities translate information into new IT technologies. R&D enables companies to know technologies they are not familiar with before. R&D plays a

significant role in knowing user orientation and leaders to the technologies that fulfill customers' needs. Companies do not use R&D activities for innovations and technology development and develop business in their IT infrastructure development (Guertler & Sick, 2021).

### ***Expenditure on IT Infrastructure***

P3's organization has mastered itself in marketing technologically based products to consumers and developing features that people value. Dynamic capabilities of an organization can only be valuable when they meet VRIN (valuable, rare, imitable, and nonsubstitutable) for a sustainable competitive edge.

P3 disclosed that companies developing competitive advantage have to build the rarer, valuable, inimitable, and nonsubstitutable. Only by having rarity and uniqueness can one gain a sustainable competitive advantage. IT infrastructure in the firms plays a crucial role in developing a competitive edge, and the development of IT infrastructure is dependent on R&D activities.

Infrastructure systems are critical to the quality of products and developing organizational competitiveness. However, many daunting challenges exist in developing a capable infrastructure system (Vendrell-Herrero et al., 2021). An effective R&D system is a core to developing innovative strategies that can help firms establish infrastructure-related problem solutions (Lian et al., 2021). Using R&D enables the re-examination of the firm's existing strategy and its infrastructure for improving organizational performance. P3 stated that "R&D activities unveil multiple benefits for firms; hence,



encourage firms to have expenditures on infrastructure development. "P3 noted that the spending on infrastructure development provides companies with a range of potential strategies for improving organizational effectiveness and efficiency.

Heij et al. (2020) emphasized that R&D activities enable firms to develop adequate IT infrastructure. R&D activities are core in improving the organizational infrastructure and encourage firms to enhance their expenditure on infrastructure development by disclosing the various benefits (Frazier, 2010).

### ***Implementation of New Technologies***

P2 observed that the company is dynamically competent and technologically advanced; dynamic capabilities have enabled and empowered it to grow and evolve with dynamic change in the market facing the competition head one and generating high levels of profits plus retaining the loyal base of customers. P2 pointed out that implementing new technologies is necessary to keep businesses ahead of the competition. Dynamic capabilities (R&D activities) empower such firms to grow faster and take advantage of dynamic changes. P1 and P2 agreed that new technologies do not occur in isolation; many R&D activities are behind them. The R&D team uses the available firm resources and information to generate ideas and successfully create innovative technology. The next step is implementing the new technology. A successful application is not possible without researching a suitable method that can be used in the performance of the research. P1 and P2 disclosed that information plays an essential role in applying new

technologies, and the application is not possible without knowing how to implement the technology.

All the participants indicated that R&D is one of the critical aspects contributing to companies' success and helps them explore new markets, encourages expanding IT infrastructure, and helps implement new technologies. Heij et al. (2020) stated that open innovation is an outcome of R&D activities because innovation is of interest to researchers. Lian et al. (2021) also claimed that the externality of R&D and openness are two significant factors in creating an association between the organization and technological innovation. R&D activities support the implementation of new and advanced technologies that improve organizational performance and competitive advantage. R&D is a knowledge increment source that creates opportunities for innovations by suggesting different initiatives. R&D is a source of open innovation and encourages firms to have an excellent fit in their organizations. Diversity of research enables businesses to develop new technologies and, therefore, their practical implementation (Lian et al., 2021).

#### **Theme 5: Automation and Adaptation to Promote Change in IT Industry**

All participants recognized that automation is an essential factor and has a significant role in product innovation and generating a competitive advantage. Seizing market opportunities and gaining a competitive edge are substantial aspects that encourage businesses to transform the work environment into an automated workplace. Intelligent automation enables detecting the clients' concerns and speeds up product

introduction because it replaces human efforts (Ciampi et al., 2021). Table 6 shows the emergent subthemes within theme 5.

**Table 6**

*Subthemes Within Theme 5*

Theme	Number of participants noting the theme (N=5)	References
Adaptation of new procedures and techniques	5	3
Transforming the work environment to automation	4	11
Introducing innovative products through automation	4	13

*Adaptation of New Procedures and Techniques*

P1 and P3 noted that an organization faces a common challenge: not identifying changes earlier and substituting products in the market. P1 and P3 noted the difficulty of IT organizations adapting changes and tinted the importance of promptly adapting techniques and procedures. Timely decisions are vital to the success of businesses.

P2 stated that the effectiveness of dynamic capabilities is evident because it enhances the functional and adaptive efficiency of working routines. Moreover, the efficacy of dynamic capabilities is observed by the change in our company resource base. These changes eventually result in effective organizational performance. P2 discussed the importance of adopting new techniques and procedures. P2 recognized that adapting the efficiency of working routines is critical to change and ultimately leads to improved

organizational performance. New techniques and strategies are best to deal with the changes in the market and gain a competitive advantage.

P1 and P3 disclosed that the systematic and evolutionary adaption of new technologies and procedures aims to maintain and gain a competitive advantage. The adaption capability of firms helps businesses in addressing an unpredictable business environment. The adaption capabilities enable companies to change their existing practices and take advantage of opportunities to maintain competition, create transformation, and survive deep uncertainty. P1 and P3 noted that changes in the external environment demand businesses to support the adaption of new processes.

Adoption of new procedures and techniques enables companies to generate a competitive advantage (Y. Wang et al., 2020). Adopting new techniques and practices is a crucial technique that should be considered while people attempt to make changes. Recognizing the value of timely adaption of processes is one of the significant factors for changing the organization (Ciampi et al., 2021).

### ***Transforming the Work Environment to Automation***

P4 identified automation in the workplace as transforming how we are doing business and communicating with each other. P4 stated that "automation was not an easy strategy to bring into the workplace; it required cultural changes and building an environment that simultaneously encourages the working of humans and machines." P4 assumed that automation is innovation and does not come easily. Automation is applying

technology to produce and deliver services or products with less human involvement to perform tasks quickly.

P5's organization transformation illustrates the ideas behind dynamic capabilities, showing how the organization has sense changes in the marketplace and seizes these opportunities by reconfiguring existing assets and competencies. From P5's point of view, every great company builds excellent capabilities and gains a competitive advantage from the things it does exceptionally well. For example, Nokia missed the smartphone revolution because the company was not well equipped for sensing, especially with Apple, which was embedded in the milieu that was breeding the next generation of smartphones. P5 stated, "with the help of our dynamic capabilities, and we implement innovative solutions such as automation, robotics, cognitive computing, and analytics to meet our business objectives."

P4 and P5 agreed that businesses perceive automation as a dynamic capability to innovate things and bring a competitive advantage to businesses. P4 and P5 stated that automation is perceived as a dynamic capability because it enables the company to shape competition, predicting the disruptive future, and be concerned with the sustainability and competitiveness of organizations. P4 and P5 pointed out that automation successfully achieves business goals and transforms the organizational processes, products, and structure.

Transforming the work environment into automation is an innovation strategy for business organizations. Automation is changing the ways of doing business and making

the work easier (Rotjanakorn et al., 2020). Automation includes pivotal systems, functions, and elements that provide businesses with virtual benefits. Automation is a promotion of change and helps firms generate a competitive advantage. Automation is a dynamic capability of firms that enables them to sense, create, reconfigure, and renew the core capabilities for achieving and maintaining a competitive advantage in a fast-changing environment (Irfan et al., 2019). Automation is about creating a collaborative and flexible culture (Ciampi et al., 2021).

### ***Introducing Innovative Products through Automation***

P1's organization identifies key dynamic capabilities through sensing, seizing, and transforming. Sensing describes the assessment of the opportunities and consumer needs existing outside of the organization. P1's organization had realized latent demand for business intelligence and content management. This action demands that management have a pulse on the market. P2 stated, "seizing is our IT organization's reaction to market needs to increase firm value; this involves designing innovative business models and securing access to capital and resources."

P2's innovative business model comprises robotic process automation, cognitive automation, digital workforce analytics, intelligent chatbot, and fax automation. P2 emphasized the positive role of automation in product innovation. Organizations' seizing is a reaction of businesses to the market changes, which comes with the support of automation and digitalization.

P3 identified that automation is core to practical product innovation because it allows us to understand customers' demands. P3 stated, "automation enables the integration of the machine into the self-governing organizational system that can lead to accomplishing a process without human assistance and speed up the process of innovation." P3 discussed that bringing ideas into reality is not an easy task and demands massive efforts because automation makes the process easy by reducing human efforts. These facts disclosed the importance of automation in product innovation and its positive role in generating a competitive advantage for businesses. Automation facilitates innovation and supports companies in introducing new products and services (Y. Wang et al., 2020).

### **Application to Professional Practice**

This subsection provides a comprehensive discussion of how and why the research findings are relevant to successfully implementing innovation strategies. This study aimed to explore the strategy that IT organizations' business leaders used to catalyze and implement innovation to meet business goals through the IT workforce. This study may benefit other business leaders in the public and private sectors seeking to implement strategies, maintain competitive advantages, grow businesses, and improve the change process by discovering strategies some business leaders used to implement innovation strategies successfully. Nguyen and Phan (2020) stated that when leaders in an industry explored what makes some leaders' strategies successful, the lessons learned

could stimulate other business leaders to shape their plans. The study findings include five themes that follow.

Theme 1 contributed to the key dynamic capabilities of IT firms that they used to gain a competitive advantage. The theme disclosed how building, deploying, and reconfiguring resources can help the business grow and the importance of identifying customer needs and applying foresight strategy. Theme 2 was beneficial in achieving insights into how using new strategic management tools, operating routines of the workforce, measuring routine performance, and workforce diversity enable businesses to create value for customers and enhance their successful implementation of innovation goals. Theme 3 discussed the way strategic management could allow firms to bring innovations. Theme 3 also discussed dynamic capabilities with strategic organizational management to enable businesses to innovate, create business models. It emphasized the role of financial and nonfinancial planning as strategic management options that lead companies to enhanced business growth, reconfiguring assets mandatory for sustainability. The significance is that sustainable competitive advantage in the IT industry is the key to success.

Theme 4 was beneficial in identifying the role of R&D in organizational performance. The results disclosed that IT managers must adopt the strategy of R&D because it supported the managers to explore new markets that support competitive advantage. R&D encouraged the expenditure on IT infrastructure, and it keeps implementing the new technologies within organizations. Finally, theme 5 reflected the



importance of automation and adaption as an innovation strategy that helped implement change to meet the organizational goals. The findings of this study contribute to the existing literature on the successful implementation of innovation strategies.

Understanding the organization's strategy is vital; employees are more confident and willing to support the culture and adopt the organizational innovation (Berraies & El Abidine, 2019).

While researching the implementation of the successful innovation strategies, I found that automation and adoption could lead businesses to adapt to new techniques and procedures; the adoption of automation makes the workplace an automated place that contributes to boosting or speeding innovation. Automation is key to introduce innovative products. Research and development also allowed the business leaders to develop an innovative business model that satisfied stakeholders. Leaders of other IT companies who are willing to have a high success rate of implementing innovative strategies should follow the example set by the business leaders in this study.

### **Implications for Social Change**

It is crucial to understand the innovation strategies that IT business leaders used to catalyze and implement innovations to meet business goals. Implementing successful innovation strategies depends on capitalizing on IT resources capabilities to determine market trends, minimize the risk of uncertainty, and increase organizational agility (Irfan et al., 2019). Businesses that have stability could help individuals, communities, organizations, institutions, and cultures develop local and national growth, increase

profitability, improve the standard of living, increase employment opportunities, and improve living conditions for everyone in the local community (Sayyadi, 2019).

The study's results may positively impact social change by allowing business leaders to contribute more money to their communities, increase productivity, and decrease financial losses. This study's implications could reinforce employment stability, which could improve the communities' local economies. Successful implementation of innovation strategies could sustain a business, become more competitive and attractive, decrease poverty, and improve living standards for people in communities. Successful implementation of innovation strategies could also positively increase employees' involvement and contribution to community participation.

### **Recommendations for Action**

The study's findings may help IT companies' current and future business leaders use strategies to implement innovation successfully. My recommendations are for the public sector, the private sector, employees, and community members. My specific recommendations for current and future business leaders are to develop their dynamic capabilities to improve their internal operational performance and generate a competitive advantage leading to better understanding. Business leaders need to evaluate the internal and external dynamic capabilities to identify the most appropriate business model for innovation.

The first recommendation for action is IT business leaders can catalyze innovation in the IT business by educating employees and individuals of innovation

strategies in the IT industry. The second recommendation is for IT business leaders to consider workforce diversity in IT companies. Workforce diversity would enable business leaders in the IT business to find many ideas from different perspectives, which leads to catalyzing the organization's innovation culture. The third recommendation is for business leaders in IT organizations to integrate innovative strategies into their processes. The final recommendation is to sustain the competitive advantage in the IT business. Business leaders' sustainability of competitive advantage in IT businesses would contribute to increased awareness of new trends or innovation changes in IT organizations.

I will use various techniques to disseminate the results of the study. I will share the brief of the study's findings with professionals who can assert their comprehension of IT business leaders' use in business practice to maintain competitive advantage and achieve success. The results of the study may support professionals, leaders, and project managers in IT businesses. Also, I will publish the study through the ProQuest dissertation database to help future researchers who are seeking to explore the phenomenon. Eventually, I plan to present the study at academic and professional conferences and publish similar research in peer-reviewed journals.

### **Recommendations for Further Research**

This research contained some limitations that future research may overcome. A limitation was that the interview participants' threshold might narrow the data's depth and richness. I recommend conducting further research considering interview participants'

threshold knowledge of innovation strategies. The study's findings contain innovation strategies that business leaders in IT businesses use to meet the business goals in the UAE. The geographical location of the study was the emirate of Abu Dhabi. Future researchers should consider conducting further research outside the emirate of Abu Dhabi based on the geographic location limitation.

I recommend further exploring the innovative strategies that IT business leaders use to achieve business goals. I used qualitative research with a single case study design to conduct the study. Future researchers can use alternative research methods to research further how to implement and catalyze innovation strategies to meet business goals through the IT workforce. Future researchers can consider a quantitative research method to understand better the relationship between innovation strategies and business goals. Researchers who choose to continue with qualitative research should consider a broader scope of participation and select a sample size greater than five managers or utilize a different research design; a greater sample size would enable the researcher to get a broader scope of experience. The research included IT leaders' perspectives so that future researchers can consider the perspectives of employees. Further, the research was based on an IT firm that limits the scope to a specific industry. The researcher for future research can consider multiple industries to enhance the applicability or results' generalization.

## Reflections

The doctoral journey comes with some challenges. Most of the challenges were time management and family and work commitments, balancing study and life without any side effects. When I started with this research, I was scared about the data collection and its completion, but it became easier for me to understand the concepts as I progressed. The research provided me with a comprehensive understanding of innovation strategies. I interviewed IT managers to explore the strategies those managers use to catalyze and implement innovation in the IT industry. This research improved my collaborative capabilities. I came to know the diverse aspects of dynamic capabilities in which firms are lacking and need improvement.

The role of R&D in innovation was a well-known topic to me. However, this research disclosed a completely new direction of R&D activities and reflected how these strategies could help to generate competitive advantage. Automation itself is an innovation strategy, but its other role in product and process innovation was a refreshing concept for me. The research allowed me to build my research capabilities and improve my ability to have an analytical view of things.

This research has been a beneficial experience for me because it enabled me to understand the already known concepts in more detail and keep myself aware of the themes and theories. This research provided me with the skills to conduct interviews, gather and analyze data, enhance my analytical capabilities, and apply concepts to real-world organizations. I realized the ways IT organizations can contribute to society. The

study revealed that innovation strategies are key to the growth and success of IT businesses.

I am a qualified instructor in business administration, so after completing this study, I will share and transfer the knowledge and skills I have gained throughout my doctoral study with professionals and learners.

### **Conclusion**

This qualitative single case study was aimed to explore strategies that business leaders in IT organizations use to catalyze and implement innovation to meet business goals through their IT workforces. The study contains information that may benefit IT business leaders seeking to implement and catalyze innovation to maintain a competitive advantage and grow the business. The study addressed the importance of building, deploying, and configuring resources as key dynamic capabilities of firms. The study indicated that businesses gain a competitive advantage by identifying customer needs and apply the foresight strategy. Innovation in an IT workforce is necessary for value creation and the use of new strategic management tools to help evaluate the internal and external environment. Value creation for customers can be done through new operating routines of the workforce, measuring performance, and bringing workforce diversity within the workplace. Companies need to successfully manage and shape their internal and external capabilities and incorporate them into their innovation strategy.

Some common initiatives that represent strategic business management include introducing an innovative IT business model, financial and nonfinancial planning,

reconfiguring existing assets and competence, and sustaining competitive advantage in the IT industry. The study concludes that R&D is pivotal for exploring new markets, having expenditure on IT infrastructure, and implementing new technologies. This is not it; the research highlights the importance of automation for adopting new techniques and procedures. The study concludes that the transformation of the work environment to automation is a key to success as it helps reduce effort and speed up the innovation process. Automation enables companies to introduce new and innovative products.

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## Appendix A: Interview Protocol

Participant (Professional Name): \_\_\_\_\_

Participants Code: \_\_\_\_\_

Date of Interview: \_\_\_\_\_

Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_

Section	Action
1. Welcome the participant	Hello and Welcome
2. Ice breaker: What do you enjoy the most about working in the information technology industry?	To create a comfortable atmosphere for successful communication
3. Introduce the interview session with greetings and introduce myself.	<p>I would like to thank you for accepting to participate in this study as a key to information.</p> <p>My name is Sameh Mohamed, and I am a doctoral student at Walden University.</p> <p>The primary purpose of this interview is to explore strategies that business leaders, like yourself, use to catalyze and implement innovation in the information technology industry workforce. The interview should not take longer one hour of your time. During this one hour, I will ask you a series of questions that will allow me to gain a deeper understanding of business strategies you use to catalyze and implement innovation in the information technology industry workforce.</p>
<p>4. Turn on the recorder.</p> <p>5. Introduce the participant with the coded identification and note that date and time in the journal.</p> <p>6. Start the interview with question 1 and sequentially ask the questions.</p> <p>7. In the interview and during the discussion, observe non-verbal cues,</p>	<p>1. What are the key dynamic capabilities in your IT business that enabled catalyzing and implementing innovation strategies to meet business goals through your IT workforce?</p> <p>2. How did your IT organization identify the key dynamic capabilities that enabled developing strategies to catalyze</p>



<p>paraphrase as needed, and ask follow-up questions.</p>	<p>innovation for meeting its business goals through its IT workforce?</p> <p>3. What key challenges did your IT organization experience in identifying and utilizing its dynamic capabilities to catalyze and implement innovative strategies to meet its business goals through its IT workforce?</p> <p>4. How did your IT organization overcome the key challenges in identifying and utilizing its dynamic capabilities for, catalyzing and implementing innovative strategies to meeting its business goals through its IT workforce?</p> <p>5. How does your IT organization assess the effectiveness of key dynamic capabilities for developing innovative strategies for solving meeting its business goals through its IT workforce?</p> <p>6. What else would you like to share about your organization's identification, use, and improvement of its key dynamic capabilities for catalyzing and implementing successful innovative strategies for meeting business goals through its IT workplace?</p>
<p>8. Warp up interview</p> <p>9. Discuss member checking with the participant.</p> <p>10. Thanks the participant for taking part in the interview. Give contact details to participants for follow up questions and concerns of need be.</p> <p>11. Turn off the recorder.</p>	<p>I appreciate your participation in this research study, and I would like to confirm you once again that your identity is entirely confidential and will not be disclosed in this or any other future research.</p> <p>As part of the data analysis, I would like to schedule a member checking interview. During this interview, I will ask you to read a report of my interpretation of your responses to the interview questions to confirm that I have accurately captured your responses. Also, you will have the opportunity to confirm or correct any of my interpretations of the data from the data you provided.</p>

## Appendix B: Email Invitation to Participants

Dear (Participant),

My name is Sameh Mohamed. I am a doctoral candidate at Walden University. I am writing to invite you to participate in my research study. The purpose of my study is to explore strategies that business leaders in IT organizations use to catalyze and implement innovation to meet business goals through their IT workforces. My plan is to interview at least five business leaders or managers in an information technology company in this single case study.

Please read the Informed Consent Form attached if you are willing to participate in the study. You can reply to [sameh.mohamed@waldenu.edu](mailto:sameh.mohamed@waldenu.edu), and for any concerns or questions that may arise from this invitation, call my United Arab Emirates number (+971505177202), or contact me by Skype (samehadawy1981). The first five volunteer business leaders or managers will be accepted for the study as potential study participants. If I receive more business leaders or managers volunteers for the study than the required number or have collected a sufficient amount of data, I will notify you by email of your status as a research participant. Thank you for considering my invitation.

Yours sincerely

Sameh Mohamed

Doctoral Candidate

Doctor of Business Administration: Innovation Strategy

## Appendix C: Data Collection Instruments for Interview

### Interview Questions

1. What are the key dynamic capabilities in your IT business that enabled catalyzing and implementing innovation strategies to meet business goals through your IT workforce?
2. How did your IT organization identify the key dynamic capabilities that enabled developing strategies to catalyze innovation for meeting its business goals through its IT workforce?
3. What key challenges did your IT organization experience in identifying and utilizing its dynamic capabilities to catalyze and implement innovative strategies to meet its business goals through its IT workforce?
4. How did your IT organization overcome the key challenges in identifying and utilizing its dynamic capabilities for, catalyzing and implementing innovative strategies to meeting its business goals through its IT workforce?
5. How does your IT organization assess the effectiveness of key dynamic capabilities for developing innovative strategies for solving meeting its business goals through its IT workforce?
6. What else would you like to share about your organization's identification, use, and improvement of its key dynamic capabilities for catalyzing and implementing successful innovative strategies for meeting business goals through its IT workplace?

## Appendix D: Letter of Cooperation from a Research Partner

/ / 2021

Dear Sameh Mohamed,

Based on my review of your research proposal, I give permission for you to conduct the study entitled *Catalysing and Implementing Innovation Strategies in the Information Technology Industry Workforce within the Emirates of Abu Dhabi* using participants from my company. As part of this study, I authorize you to interview the participants remotely via videoconference or telephone, in rooms specially equipped for this purpose (in their office), or temporarily adapted rooms. It is allowed to recruit a sufficient number of participants. The company authorizes selected employees to be included in this research. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include arranging a discussion comfortable room, if needed and appropriate. We reserve the right to withdraw from the study at any time if our circumstances change.

I understand that the student researcher will not be naming our organization in the doctoral project report that is published in Proquest.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,