KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF MARKETING

EFFECT OF IT CAPABILITY ON PERFORMANCE OF SMEs, THE MEDIATING ROLE OF BUSINESS PROCESS AGILITY AND THE MODERATING ROLE OF MARKET DYNAMISM

A Thesis submitted to the Department

Of the requirement of the award of the degree of

MASTERS OF BUSINESS ADMINISTRATION

(Strategic Management and Consulting)

SEPTEMBER 2023

DECLARATION

I hereby declare that this thesis entitled, "EFFECT OF IT CAPABILITIES ON SME'S PERFORMANCE, THE MEDIATING ROLE OF BUSINESS PROCESS AGILITY AND THE MODERATING ROLE OF MARKET DYNAMISM" is a true outcome of my own research under efficient and effective academic supervision. It contains no material previously published by another person nor material which has been accepted for the award of any degree in the university, except for the references that have been duly acknowledged.

Paa Kow Quansah …… ……

(**PG 3960920**) Signature Date

Certified by:

Ahmed Agyapong, PhD …… ……...

Supervisor Signature Date

ABSTRACT

This study develops and tests arguments that the relationship between IT capability and SMEs performance is channeled through Business Process Agility, and that the indirect effect of IT on performance, via Business Process Agility, is conditional upon levels of market dynamism. The proposed relationships are tested on a sample of 205 small- and medium-sized enterprises (SMEs) within the Kumasi Metropolis. Findings from the study indicate IT capability indirectly affects performance by improving the agility of their business processes. Findings from our study indicates, while the statistical analysis did not find a significant direct moderating influence of market dynamism on the link between IT capability and BPA, it is important to note that the significance of market responsiveness should not be disregarded. Instead, it highlights the need of SMEs adopting a proactive approach in adapting their strategies and procedures to anticipate market developments. This research is a valuable contribution to the existing body of academic literature and has practical implications for managers of small and medium-sized enterprises (SMEs) as well as policymakers. By acknowledging the deep relationship between information technology capabilities, the agility of business processes, and the dynamic nature of the market, small and medium-sized enterprises (SMEs) may get a comprehensive understanding of how to effectively traverse the difficult and multifaceted terrain of contemporary business and cultivate long-term success.

CONTENTS

ACKNOWLEDGMENTS

This research was supervised by Professor Ahmed Agyapong from the KNUST School of Business. The author extends appreciation to the Editor, Jonathan Yirenkyi and reviewers; Emmanuel Opoku, Barima Okyere Anim both from KNUST School of Business and Michael Adjaklo for their many helpful reviews, comments and suggestions.

DEDICATION

I dedicate this work to God Almighty who by His providence helped me through this research period.

I also dedicate this work to my family, friends and loved ones for their continual support in several ways to help me throughout this period.

And finally, to my academic supervisor, amidst all his very busy schedules, finding time to assist me on this project is highly not taken lightly.

CHAPTER ONE

1.0 INTRODUCTION

Background to the Study

Over the course of the last twenty years, there has been a notable increase in the examination of innovation among many groups, including academics, scholars in the field of business sciences, legislators, and those involved in both private and public business endeavors (Purcarea et al., 2013). The best way for businesses to improve their working efficiency and general performance is to use the latest information technology. Even small and medium-sized businesses (SMEs) are affected by this. (Benitez et al., 2018) say that the success of businesses depends on how well they use IT advances. The importance of information technology (IT) in the small and medium-sized businesses (SMEs) field is well-known in the modern, technologically advanced world we live in. IT is like air in that it is a critical resource that is important to the life, performance improvement, and competitive edge of these companies (Neirotti & Raguseo, 2017).

Information Technology (IT) Capability is an organization's ability to make money by using its IT assets and skills to make money. IT skills are the different kinds of IT resources that allow companies to run their business operations more smoothly by using and applying these IT resources. Nevo and Wade (2010) say that this makes many of the organization's success measures better. Bharadwaj (2000) defines an organization's IT capabilities as its ability to use and leverage IT resources in combination with other resources and capabilities to improve the organization's key performance indicators. Karimi et al. (2007) say that IT capability, also called information technology capability, is an organization's ability to find IT solutions that meet its business needs, implement these solutions to improve business processes while keeping costs low, and make sure

that IT-based systems are always maintained and supported. The information technology area of a business is often credited with being able to do this. Being able to use different information technology tools to get vague benefits.

Previous studies have looked at the idea of IT capabilities from a variety of perspectives, including economics (Chesbrough & Schwartz, 2007), organization theory (Karimi, Somers & Gupta, 2000), and strategic management (Brynjolfsson & Hitt, 2000). Nabeel-Rehman and Nazri (2019) say that IT alignment and IT integration are two new types of IT skills. IT skills include both the inside and outside processes of a company. IT integration makes it easier to use IT systems in different areas, and it also helps with other business tasks (Zhu & Kraemer, 2005). In a similar way, (Pérez-López & Alegre, 2012) it has been seen that these organizations do well when their most important internal IT resources, such as physical IT infrastructure components, technical IT skills, and knowledge assets, are in sync with their overall business strategy.

IT integration is the degree to which an organization connects its information technology systems with those of its business partners (Chen et al., 2015; Shook et al., 2004). This can be done by making collaborative connections that make it easier to share information and communicate (Chen et al., 2015). (Shook et al., 2004) says that the power of information technology (IT) to combine makes it easier for a business to take advantage of market possibilities and integrate business processes. When a business uses a combined application, it is easier to collect and analyze the information it needs. This improves the speed of the process and lets the business evaluate market risks and needs.

IT business alignment (Huang, 2007) refers to how well IT and business processes match up in terms of their goals and how well they work together. The idea of IT alignment is about making sure that a company's IT strategy fits with its general business plan. This connection is very

important because it helps the company reach its goals for innovation (Huang, 2007). Aydiner, Tatoglu, Bayraktar, and Zaim (2019) say that firms may be able to increase their profits and gain a competitive edge by optimizing the fit between IT plans and business strategies. If a company doesn't connect its IT goals with its business goals, Ravishankar, Pan, and Leidner (2011) say that the company could lose money and waste resources.

1.2 Problem Statement

The study of information technology's (IT) effect on business success has produced conflicting results. Information technology (IT) use, according to several studies, has a positive impact on corporate performance (Stratopoulos and Dehning, 2000; Umphress, 2005). Additionally, examples from the literature (Andersen et al., 2001; Schubert et al., 2007) demonstrate the benefits and value creation brought about by the use of IT, which in turn increases competitiveness. According to some academics (Qiao, 2003; Jin, B., 2006), the impact of this phenomena is negligible, while others (Brynjolfsson and Hitt 2000; Chi, 2007), contend that it may even be harmful. Although a conclusive and widespread knowledge has not been formed, several researchers have done studies to study the numerous factors that influence or determine this specific response (Dehning, 2002; Mahmood, 2005).

Furthermore, small and medium-sized businesses have received far less attention than large-scale firms when it comes to the investigation of the influence of IT skills (Ling et al., 2017). Small and medium-sized businesses (SMEs) are essential for promoting economic growth in the modern technological era. This is largely because SMEs have a good impact on the economy as a whole, creating job opportunities, raising living standards, and eliminating unfair income distribution. These variables work together to provide a strong basis for national economic success. The effect of IT skills on the success of small and medium-sized firms (SMEs) is, however, the subject of

few study. Although little study has been conducted on IT adoption in SMEs, much of it has concentrated on affluent nations' SMEs or massive MNCs. As a result, there is a dearth of research that examines the phenomenon of information technology (IT) and small and medium-sized firms (SMEs) via the lens of IT skills in developing countries.

Additionally, the corpus of existing research on IT skills offers proof in favor of the idea that IT capabilities positively affect firms' performance (Rehman, 2020). Despite the substantial corpus of research studying the relationship between information technology (IT) skills and business success, a thorough knowledge of the precise mechanisms through which IT capabilities influence business performance is lacking. Understanding this process would make it possible to predict the circumstances in which IT proficiency affects small- and medium-sized businesses' performance in an indirect way (Bordeleau, 2020). Small and medium-sized businesses (SMEs) that operate in developing countries would greatly benefit from this since they deal with a variety of contextual challenges that negatively affect their operational performance. To better understand the mechanisms by which IT skills have an influence on the performance of small and medium-sized businesses (SMEs), we now study the intermediate role of business process agility. Business process agility is the ability of an organization to successfully compete and grow in the digital era by quick response to market changes and the identification of new opportunities, accomplished through the use of creative business solutions that make use of digital technology. All parties involved with the execution of options, including business and technology leaders, developers, IT operations, legal, marketing, finance, support, compliance, security, and other pertinent parties, must use Learn and Agile practices in order to achieve business process agility. This group effort attempts to constantly deliver cutting-edge, superior goods and services at a quicker rate than rivals.

The concept of business process agility is implemented as a mechanism in order to provide people, teams, and enterprises with the ability to engage in innovation, meet the evolving demands and aspirations of consumers, and promptly adjust to changes in the market.

Furthermore, the concept of Market Dynamism pertains to the level of unpredictability in market and industry circumstances, including factors such as technological advancements and overall economic performance. The concept of high market dynamism refers to an environment characterized by frequent changes, where the specific direction and resulting outcomes are uncertain. The emergence of a dynamic market is characterized by the recognition of the significance of changes in the behavior of market participants for a corporation. Dynamic settings are distinguished by the presence of technological advancements, shifts in client preferences, and fluctuations in the demand for products or the availability of resources (Jansen et al., 2009). According to Rauch et al. (2009), a greater level of dynamism promotes the adoption of entrepreneurial orientation as a means to enhance efficiency and effectiveness in identifying and capitalizing on new possibilities. Hence, due to the presence of environmental dynamism, organizations are compelled to make strategic choices and engage in activities while acknowledging the inherent uncertainty surrounding their outcomes, so exposing themselves to elevated levels of risk.

1.3 Objectives of the Study

1. To examine the relationship between IT capability and Performance
2. To examine the mediating role of Business Process Agility in relationship between IT capability and Performance
3. To examine the moderating role of Market Dynamism on the relationship between IT capability and Performance through BPA.

1.4 Research Questions

1. How does the relationship between IT capability and performance improve small medium enterprise?

2. How does the mediating role of Business Process Agility in small medium enterprise influence the relationship between IT capability and performance?

3. How does the moderating role of Market Dynamism in small medium enterprise influence the relationship between IT capability and Performance through Business Process Agility?

1.5 Scope of the Study

The scope of this study is limited to Small and Medium-sized Enterprises in the Kumasi metropolis in Ghana. We include marketing managers and other top-level managers in the SME setting to collect the relevant data needed for the study. This is a cross-sectional study that collects data within a specific time period, that is, May to June 2023.

1.6 Significance or Contribution of the study

This study contributes to the literature on IT capability and business performance by providing channels through which IT capability influences business performance. We therefore build on the literature by introducing Market Dynamism and Business Process Agility as possible channels, a phenomenon that is missing in the literature.

We also make significant contributions to industry practitioners. The evidence from this study will provide great insights into the channels through which IT capabilities influence business performance among SMEs. This will help to shape business strategy among SMEs in their bid to enhance business performance. Our study therefore provides relevant information to managers of SMEs to shape strategy and increase business performance.

1.7 Methodology

A questionnaire was developed and afterwards assessed in a pilot study before being administered to domestic companies as part of this research endeavor. The population of this project comprises domestic firms engaged in various companies or industries. Each participant is required to complete the questionnaire under the supervision and instruction of the researcher. A pilot study is done before to the main survey, whereby a preliminary questionnaire is administered to 205 respondents in order to evaluate the validity of the survey questions. The study use structural equation modeling to examine the data. The questionnaire utilizes a five-point Likert scale, spanning from 1 (strongly disagree) to 5 (strongly agree), in order to measure the dependent and independent variables.

The participants are categorized into two groups based on the number of employees in their respective firms: small and medium companies (SMEs) with around 50 workers, and large organizations with approximately 150 employees.

The authors (Ruekert, Walker, and Roering, 1985; Varadarajan, 2010) propose a three-dimensional framework for conceptualizing performance, which comprises effectiveness, efficiency, and adaptiveness. The measurement of development was predicated upon the concept put forward by Ruekert et al. (1985). Effectiveness pertains to the extent to which organizational objectives are achieved, whereas efficiency examines the correlation between organizational outputs and the inputs necessary to get those outputs. Adaptiveness, on the other hand, encompasses the organization's capacity to adjust and respond to changes in its surrounding environment. The idea of market-related dynamism is defined as the frequency at which significant changes occur in the market (Kornrich, 2013). The concept is derived from the data obtained from the survey answers provided by the marketing managers.

1.8 Limitations of the Study

Like any research endeavor, this study is not exempt from some constraints. One aspect to consider is the limited sample size, which may have hindered the capacity to gather a more diverse range of data. However, it is important to note that this limitation does not undermine the internal and external validity of the acquired findings. Another constraint is to the choice of examples, which was not based on an objective criterion, but rather on convenience. In addition to addressing the aforementioned limitations, it would be pertinent to undertake a prospective investigation of the business community segmented by business sector, such as small and medium-sized enterprises (SMEs). The objective of this study would be to ascertain the strengths, weaknesses, opportunities, and threats encountered by these enterprises in the present pandemic context (Rodrigues et al., 2021).

1.9 Organization of the Study

The present study is organized into five distinct chapters.

The first chapter serves as an introductory section, including several components such as the Background of the study, the Problem Statement, the research goals and Questions associated with them, the scope of the investigation, the importance, and introduction of the methodology, the limits, and the structure of the study.

Chapter two talks about the Literature review, which highlights more on the introduction of the work, the conceptual review, the IT Capabilities in SMEs, the benefits of IT capabilities, business process agility, the mediator of the relationship between IT Capabilities and SMEs performance, Market Dynamism which is a moderator of the study, then the Theoretical Review and the Conceptual framework and Hypothesis Development.

Chapter 3 is the Methodology. This explains the type of research, the population of the study, the data collection and then Analysis of the Data.

Chapter holds the results and a discussion on what has been found. Basically, looks at the Sample profile, the Data Presentation Analysis and the discussion of the Research findings.

Chapter 5 is the final chapter which looks at the Summary of the study, the conclusion and the Recommendation.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.0. Introduction

This chapter offers a thorough evaluation of the current body of research about the influence of IT Capability on the performance of Small and Medium Enterprises (SMEs). The chapter is organized into four main components. Section 2.1 offers a comprehensive examination of the current corpus of information, with particular emphasis on prominent issues such IT competencies, adaptability of business processes, market volatility, and the success of small and medium-sized firms (SMEs) within the context of Ghana. Section 2.2 presents a thorough analysis of the Resource Based View, which serves as the principal theoretical foundation behind the study. This component entails a comprehensive analysis of the current empirical literature, which is then followed by the development of research hypotheses. The presentation of the conceptual framework may be found in Section 2.4.

The user's content lacks sufficient information to be rephrased in an academic style. This paper aims to provide a thorough analysis of the fundamental ideas and theoretical framework that underpin a certain topic or sector.

2.1.1 IT Capabilities

According to Wade & Hulland (2004), information technology competence (ITC) refers to an organization's ability to acquire, use, incorporate and modify IT assets in order to gain a competitive advantage. The ability to link IT with the business, the capacity of IT infrastructure, and proactive IT competence are three important IT competencies identified by Lu & Ramamurthy (2011) as being of considerable significance. The phrase "IT infrastructure capabilities" refers to

a company's basic tools and infrastructure that it uses to facilitate information processing and interchange. Weill & Ross (2004) claim that this infrastructure consists of a variety of human and technological resources that have been planned and assigned by management to enable the efficient running of the company. The aforementioned capability makes it easier to recognize and develop important firm applications, disseminate information about products and services across numerous locations, carry out transactions, and take advantage of synergistic opportunities within business lines (Bharadwaj, 2000; Lioukas et al., 2016). The ability to integrate a company's IT department with other functional departments and the alignment of IT strategic planning are examples of the ability to align a company's IT and business activities. This alignment makes it easier to see and use IT resources with the intention of helping the firm achieve its strategic objectives. By carefully planning, supervising, and putting into practice technical frameworks and concepts that are in line with the organization's current and potential future challenges, this goal may be accomplished (Bharadwaj, 2000; Wade and Hulland, 2004; Chen and Tsou, 2012). Studies frequently describe proactive IT competence as a company's organizational capacity to use its technological resources strategically and effectively in order to grab and capitalize on business opportunities that present themselves in the market. Weill and Ross (2004) claim that this competence enables the business to successfully take advantage of the opportunities given by emerging technologies and adapt pro-actively to emerging global trends brought on by technological breakthroughs. Additionally, adopting a proactive IT approach enables the organization to quickly reconfigure and restructure the business-critical processes and applications that support the firm's operations (Lu and Ramamurthy, 2011; Agarwal and Sambamurthy, 2020).

A company's capacity to effectively use and deploy resources with an information technology foundation, either in conjunction with or alongside other resources and capabilities, is referred to

as having an IT capability (Bharadwaj, 2000,). The body of scholarly literature now in existence explores a number of information technology competence aspects. For instance, a research on the capacity of infrastructure services and information technology (IT) infrastructure was conducted by Weill and Vitale (2002) as well as Weill et al. (2002). This examination spans a number of areas, including communication, data management, application infrastructure, IT facility management, security and risk management, and IT design and standards. Bharadwaj (2000) focuses on the analysis of intangible assets that are supported by IT, as well as IT infrastructure and human IT resources. Fink and Neumann's 2007 study examines the infrastructure used by information technology (IT) professionals as well as their skills. Last but not least, the research done by Wang et al. (2012) looks at the strategic process and efficient use of information technology. The corpus of research that is now accessible provides empirical proof underscoring the significance of information technology (IT) skills in enabling organizational successes.

According to a number of academic studies, information technology (IT) has fundamental effects that manifest at the process level and have the potential to build up at the firm level (Barua et al., 1995; Melville et al., 2004; Mithas et al., 2011; Setia et al., 2008; Tallon 2008). This shows that understanding the relationship between information technology (IT) capabilities and organizational success depends significantly on the influence of IT on the operational level. Ray et al. (2005) and Setia et al. (2013) have demonstrated the impact of IT skills on the effectiveness of business processes. The research by Fink and Neumann (2007), Lu and Ramamurthy (2011), and Chen et al. (2014) has demonstrated that having IT skills improves process agility, which in turn affects firm performance (Chen et al., 2014; Tallon and Pinsonneault 2011). Pavlou and El Sawy (2011) analyze the effects of IT capabilities on the new product development process in line with the claim that the main results of information technology (IT) are obvious in the arena of

processes. The findings show that the presence of dynamic capabilities offered by information technology and functional skills is necessary to acquire a competitive edge in the development of new goods. Understanding the performance effects connected with information technology (IT) depends greatly on the research of this particular sector. Information technology (IT) functional competencies have been the subject of extensive investigation in a number of studies (Bharadwaj, 2000; Chen et al., 2014; Fink and Neumann, 2007; Wang et al., 2012; Weill et al., 2002). Researching dynamic IT-enabled skills that explicitly support differentiation strategies has, however, received comparatively little attention (Koch et al., 2010; Pavlou and El Sawy, 2011; Roberts and Grover, 2012). There is a paucity of scholarly knowledge about how dynamic capabilities afforded by IT affect results at the process level, especially in the context of business process agility.

It has been demonstrated in several studies (Aydiner et al., 2017, Benitez et al., 2018, Oh et al., 2014) that information technology (IT) abilities have a considerable impact on the enhancement of firm performance. By utilizing the various and connected IT resources at their disposal, businesses are able to efficiently coordinate business processes, enabling the mobilization and deployment of these technology-based assets. Nevo and Wade (2010) claim that as a result, improvements may be evident in a number of firm performance measures. The current corpus of work has mostly focused on analyzing the value of IT skills inside large organizations, while failing to investigate small and medium-sized businesses (SMEs) (Ling, 2017). Researchers have noticed that, despite the useful insights offered by the Resources Base View (RBV) framework in illuminating the relationship between IT capabilities and company performance, the potential impact of IT skills in the evolving business environment is often overlooked.

Aydiner et al (2019) study found a substantial correlation between a firm's success and its information technology (IT) skills. It is important to recognize that each aspect of IT capability affects business performance differently. IT infrastructure, IT business experience, IT relationship resources, and IT human resources are the elements that make up this framework. The installation of business applications inside of organizations is greatly aided by the IT infrastructure. It includes a number of elements, including servers, networks, laptops, client data, and help desk support. IT business experience refers to the idea of matching a company's IT strategy with its business plan. An organization's capacity to successfully integrate IT operations across its many business divisions and leverage IT resources to achieve the best outcomes is referred to as IT relationship resources. The primary and essential component of the portfolio of IT assets is generally regarded to be the human resources within the field of information technology (IT). Strategic resources play a critical role in how businesses operate and greatly enhance their total capacity. As a result, the widespread usage of Information Technology (IT) has been seen as a significant technical advancement in the field of supply chain management. Businesses must allocate resources to the adoption of information technology (IT) practices with the goal of expanding and enhancing their IT capabilities if they are to adapt to the dynamic business environment. Enterprises must skillfully manage and coordinate a variety of factors, including IT infrastructure, IT business knowledge, IT relationship assets, and IT people resources, in order to develop their own proficiency in information technology (IT). By properly allocating resources to invest in and develop information technology (IT) capabilities, businesses have the opportunity to increase their productivity and competitiveness. According to Aydiner, Tatoglu, Bayraktar, and Zaim (2019), firms may experience higher profitability and a competitive advantage if their IT strategies are in line with their business strategy. Businesses risk negative financial repercussions and inefficient resource

utilization if they don't connect their IT and business objectives (Ravishankar, Pan, & Leidner, 2011).

The impact of IT skills on an organization's performance has been the subject of much research in the field of information systems. According to Bharadwaj (2000), businesses with excellent IT capabilities often outperform their rivals in terms of a number of profitability and cost-related performance metrics. Additionally, a growing body of evidence points out that achieving a competitive edge frequently depends on how well a firm utilizes its information technology (IT) skills (Bhatt & Grover, 2005). Numerous studies in the field of academic research (Rai & Tang, 2010) focus on investigating the competitive advantage connected to particular information technology (IT) capabilities, such as IT management. Given that; this narrow focus may not, however, adequately capture the full scope of the commercial value that may be obtained from information technology.

When talking about IT capabilities, there are two important things to keep in mind. First, Bharadwaj (2000) contend that these abilities frequently produce a temporary competitive advantage. Second, Lu and Ramamurthy (2011) warn against ignoring the similarities and connections between these distinct IT competencies. As a result, this study adopts a broad perspective of IT capability, taking into account the similarities and potential synergies between the various IT assets and resources of firms (Bharadwaj, 2000; Bhatt & Grover, 2005; Zhang & Sarker, 2008; Lu & Ramamurthy, 2011). As a result, according to the authors of this study, IT capacity is a second-order construct with six dimensions, including IT infrastructure, IT business partnerships, business IT strategic thinking, IT business process integration, IT management, and external IT linkage (Bharadwaj, 2000). Previous research (Pavlou & El Sawy, 2010; Rai & Tang, 2010; Kim et al., 2011) have mostly focused on examining the underlying process through which

information technology (IT) aptitude leads to reaching exceptional performance. One example of a thesis is that IT expertise may have a secondary effect by affecting other organizational resources or competences (Kohli & Grover, 2008). According to Ravichandran and Lertwongsatien (2005), the variation in company success may be explained by how much IT capabilities are employed to support and supplement fundamental talents. Similar to this, Radhakrishnan et al. (2008) show that the economic value of information technology (IT) capability lies in its power to harness the value of other resources and talents available inside a company, such as management capabilities and operational skills. According to the majority of academics, information technology (IT) cannot produce business value on its own; rather, it must interact and be integrated with organizational factors, with a focus on business process agility, in order to have an effect on performance (Dehning & Richardson, 2002; Melville et al, 2004; Wade & Hulland, 2004; Radhakrishnan et al, 2008; Nevo & Wade, 2010). However, there is a dearth of empirical studies that have looked at possible connections between IT proficiency, business process agility, and firm success.

To better understand how information technology (IT) capacity affects business performance, a relationship between IT and the agility of certain business processes must be made. Through this connection, practitioners may also get useful advice for choosing the best course of action for IT development, acquisition, and implementation. Further study on the function of business process agility as a mediator in the link between IT capabilities and performance is therefore predicted to yield insightful results. The existing body of research in the field of information systems indicates that some external variables may have a moderating effect when examining the factors that explain the relationship between IT competence and company performance (Ray et al., 2005; Stoel & Muhanna, 2009). The alignment of internal organizational systems with external factors determines a firm's success (Sundbo, J., 2001). In order to successfully use their organizational

resources, capitalize on business opportunities, and mitigate dangers coming from the external environment, organizations must thus establish several levels of strategies (Pollack, 2010). According to this line of thinking, Stoel and Muhanna (2009) found that the influence of IT skills on business success depends on how well they are matched to the particular needs of the sector in which the company works. The body of research that is currently available offers empirical proof that the influence of information technology (IT) competence on business performance depends on factors such as turbulence (Pavlou & El Sawy, 2006), dynamism (Sila, 2010), and unpredictability (Davis-Sramek et al., 2010). When a company's IT capabilities and the demands of the external environment are strongly aligned, it is expected that performance would be improved. On the other hand, a lack of alignment hurts the company's ability to compete. This study thoroughly examines the possible mediating influence of business process agility and the moderating impact of market dynamism in an effort to close the knowledge gaps in the commercial value of IT capabilities. Our goal was to offer a more comprehensive perspective on the ways in which information technology creates value for a company operating in an unpredictable environment.

2.1.2 Current Developments in IT Capabilities

Numerous small- and mid-sized enterprises have formed as a result of ongoing technology advancements and successful start-ups, while facing challenges related to limited scale and resources in comparison to medium-sized corporations or conglomerates within highly competitive markets. The capacity to acquire, choose, and apply source technology for the purpose of enhancing a company's competitiveness is known as technological development capability. This competence serves as a competitive advantage and a crucial factor in achieving uniqueness.

This study examines the favorable effects of information technology capabilities on process innovation performance and digital transformation, as well as the beneficial outcomes of digital transformation on both process innovation performance and product innovation performance. Digital transformation has a distinct role in partially mediating the relationship between IT capabilities and process innovation performance. Additionally, digital transformation serves as a full mediator between IT capabilities and product innovation performance. Businesses make substantial investments in information technology (IT) on an annual basis (Powner et al., 2013). The capability to utilize IT has become a crucial aspect of a firm's operations (Lin, 2007) due to the significance of enhancing the management of information and material flows (Vickery et al., 2003; Prajogo & Olhager, 2012; Yu, 2015). The progress in information technology has significantly improved the capacity of organizations to facilitate the sharing of information (Agan, 2011) and the prompt interchange of information. Within the framework of a supply chain, the use of information technology (IT) capabilities is leveraged to facilitate collaborative activities such as forecasting and scheduling between the focal business and its partners within the supply chain (Prajogo and Olhager, 2012; Yu, 2015). Information technology (IT) has a crucial role in enabling and enhancing interactions, as noted by Adams et al. (2014). The function of IT skills is complementary to marketing due to its involvement in establishing and nurturing client connections.

2.1.3. The Information Technology (IT) Capabilities in Small and Medium Enterprises (SMEs)

The use of internet-based information and communication technology presents small enterprises with the potential to enhance their competitiveness. The use of information and communication technology (ICT) has been discovered to enhance the competitiveness of businesses, since the

Internet provides an avenue for small and medium enterprises (SMEs) to engage in fair competition with bigger organizations. In the contemporary era characterized by technological advancements, the significance of information technology (IT) within the small and medium-sized enterprises (SMEs) sector is widely acknowledged. IT is likened to a vital resource, akin to oxygen, as it plays a crucial role in the survival, performance enhancement, and competitive advantage of such firms (Raymond et al, 2016; Neirotti & Raguseo, 2017). The existing body of research on IT capabilities provides evidence supporting the notion that IT capabilities have a favorable influence on both innovation performance (Lyver & Lu, 2018) and company performance. Despite the extensive body of research indicating the direct correlation between IT capabilities and both innovation performance and firm success, there is a lack of comprehensive understanding about the specific processes via which IT skills exert their effect on both outcomes. The comprehension of this process has the potential to provide a method for forecasting the conditions in which IT competence has an indirect impact on the performance of small and medium-sized enterprises (Melville et al, 2004). This would be of significant use for small and medium-sized enterprises (SMEs) operating in developing nations, since they encounter a range of contextual issues that have a detrimental impact on their overall performance. The impact of information technology (IT) skills on the performance outcomes of small and medium-sized enterprises (SMEs) is seen to be indirect within a dynamic business environment. The research will use the Dynamic Capability View (DCV) Framework as the sensitizing framework.

2.1.4. Benefits of IT Capabilities

An organization's ability to thrive in a dynamic business environment characterized by competition, evolving customer demands, regulatory pressures, and product life cycle duration necessitates the development of core competency. This core competency allows the organization

to establish a framework for identifying and leveraging its key strengths, thereby enabling strategic decision-making. Consequently, core competency is a skill that empowers an organization to provide distinctive benefits and services to its customers by effectively formulating, enhancing, upgrading, and deploying unique resources that play a pivotal role in creating sustainable competitive advantage (SCA). Information technology (IT) is widely acknowledged as a critical factor that facilitates an organization's core competency by enhancing operational efficiencies, reducing costs, and enabling automation.

According to Al-Surmi et al. (2020), the flexibility of IT infrastructure and strategic planning in IT play a crucial role in enabling advanced computing capabilities, efficient information processing, the effectiveness of business analytics, the ability to track customers' needs and anticipated preferences, monitor competitors' actions and reactions, and comply with regulations and laws in new markets. In addition to its significant contributions to operational and tactical impacts, the capability of IT strategic planning plays a crucial role in facilitating organizational transformation of strategies, fostering relationships with partners, aligning customers' needs with business design, and developing competitive business models (Bharadwaj et al., 2013; Ilmudeen & Bao, 2019). The strategic role of IT capability extends to the creation of new products that cater to customer needs, while IT knowledge resources enable organizations to gather, disseminate, and analyze data (information) pertaining to customers, markets, competitors, and processes. This, in turn, enhances responsiveness to changes within the business environment (Ashrafi & Mueller, 2015).

Previous research in the field of information technology have conceptualized IT capacity as a multidimensional construct, including several aspects such as IT operation, IT knowledge, IT competences, IT management, and IT alignment. These dimensions have been examined in

relation to their impact on business performance and the attainment of competitive advantage (Ilmudeen et al., 2019). According to Tian et al. (2010), there is evidence to suggest that the use of information technology (IT) inside an organization may enhance its overall performance. This improvement is achieved via the identification and utilization of new possibilities, as well as the adaptation and reconfiguration of current IT resources to prevent stagnation. For instance, a study conducted by Ashrafi (2015) revealed that the financial performance of firms is significantly influenced by their IT capability and IT knowledge. The resources related to IT knowledge assist firms in enhancing their marketing competencies, enabling them to anticipate shifts in customer behavior, forecast market demands, and develop proactive strategies to effectively respond to competitors' actions and fundamental changes in the business environment. IT consultants offer various solutions to enhance marketing competencies, thereby enabling firms to achieve Sustainable Competitive Advantage through research and development activities focused on market dynamics, product development, functional aspects, customer preferences, competitors' choices, as well as relevant laws and regulations. The capability of IT personnel plays a crucial role in aligning, developing, and upgrading IT systems and processes within firms. The incorporation of many information technology (IT) business applications into the various processes and product design of a company (Ashrafi, 2015) is aimed at enhancing the fundamental market and technical capabilities (Wang et al., 2012) in order to effectively manage business uncertainty and secure the long-term survival of the organization (Bulchand-Gidumal et al, 2011). The capabilities of IT workers are considered a strategic resource for implementing distinctive capabilities in essential core business operations. These skills result in unique and non-replicable advantages that competitors are unable to comprehend, as they lack understanding of the process

of creating these capabilities (Rivard et al., 2006). Consequently, IT personnel become the primary means for achieving sustained competitive advantage (SCA).

2.1.5 Business Process Agility

The concept of business process agility refers to an organization's ability to quickly and effectively adapt its processes in response to changing market conditions, customer demands, and technological advancements.

The concept of business process agility has garnered significant attention from both researchers and practitioners in recent years (Chen et al., 2014; Tallon, 2008; Tallon and Pinsonneault, 2011). This is primarily due to the recognition that the capacity to effectively adapt to a constantly evolving business landscape is crucial for the long-term viability of organizations (Dove et al, 2001; Vagnoni and Khoddami, 2016; Kale et al., 2019). The notion of agility has garnered increasing scholarly interest due to its ability to effectively respond to the demands of a rapidly changing business landscape by promptly adapting organizational strategies (Oosterhout et al., 2006). The capacity to promptly and effectively address alterations, to exhibit flexibility and adaptability in the face of changes, and to manage uncertainty are crucial for the long-term viability of organizations operating within a highly dynamic business environment (Dove, 2001; Sambamurthy et al., 2003; Sherehiy et al., 2007).

The ability of organizations to swiftly and effortlessly predict or adapt to changes is crucial for achieving business process agility (Oosterhout et al., 2006). An agile business process is anticipated to facilitate the organization in achieving cost economies (Chen et al., 2014) and capitalizing on opportunities for innovation and competitive action (Sambamurthy et al., 2003) by swiftly and efficiently adapting to the market environment. Business process agility has been defined in previous research as the ability of enterprises to effectively respond to various changes,

such as shifts in demand, the creation of new products, alterations in product mix, adjustments in product price, expansions into new markets, the selection of suppliers, and the adoption and dissemination of information technology (Tallon, 2008; Tallon and Pinsonneault, 2011). The organization's capacity to swiftly and effectively reconfigure its operations in response to changes in the market environment is a key determinant of their flexibility. Previous research have also examined the origins of agility and flexibility, including a wide range of strategic approaches. According to Han et al. (1998) and Lin et al., (2017), the implementation of market orientation inside an organization improves the organization's ability to successfully address market demands.

Interdepartmental collaboration plays a vital role in enabling organizations to effectively respond to and meet the demands of the market, as evidenced by studies conducted by Hult (2011), Keszey et al. (2017), Le Meunier-FitzHugh et al (2011), and Turkulainen and Ketokivi (2012). Several studies have investigated the impact of IT skill and competency on business agility and company performance. Notable contributions include the works of Chen et al. (2014), Oosterhout et al. (2006), Ravichandran (2018), Sambamurthy et al. (2003), Tallon (2008), and Tallon and Pinsonneault (2011). According to previous research conducted by Bodolica et al. (2022) and Liu et al (2019), it is posited that organizations should strive to cultivate the capacity to acquire resources and expertise via collaborative collaborations with other entities. In order to accommodate the extensive range and expandability of goods that beyond the limitations of a singular firm operating inside a closed proprietary platform, it becomes imperative to establish partnerships with suppliers, logistic partners, and complementary solution partners (Aguirre et al., 2019; Kunal et al., 2017).

The crucial significance of information technology capabilities (ITC) in enabling organizations to effectively adapt to changes in their external environment has been extensively established in prior

research (Shang and Seddon, 2002). This is due to the fact that, in broad terms, they facilitate the ability of platforms to acquire and disseminate information, as well as to engage in market intelligence. Ultimately, this enables the updating of service and product portfolios and the ability to adapt to the evolving needs of customers (Yang and Liu, 2012; Trinh-Phuong et al., 2012). The IT infrastructure capabilities facilitates the establishment of a comprehensive and interconnected data and process platform on a worldwide scale. This platform enables the acquisition of precise and up-to-date information that is essential for making informed business decisions (Oliver et al, 2005). Additionally, it offers firms the ability to engage in real-time monitoring of customers' behaviors, enabling them to promptly respond to shifts in both information technology capabilities and client preferences (Fink and Neumann, 2007). Furthermore, the enhancement of IT infrastructure capacity empowers the organization to maximize and mechanize business procedures (Seo and La Paz, 2008) and to implement a modular IT infrastructure that facilitates the assimilation of unforeseen modifications and permits swift reconfiguration of internal processes within a company (Overby et al., 2006). An integrated information technology (IT) infrastructure enables a corporation to facilitate the sharing of information, coordination of operations, and alignment of processes with its business partners (Rai and Tang, 2010; Lioukas et al., 2016).

Another dimension of information technology and communication (ITC) that is connected to the alignment between IT and business is its impact on business process alignment (BPA). This impact stems from the ability of IT personnel to comprehend the business needs and provide prompt and effective solutions that support the overall strategic objectives of the organization (Ferdows et al., 2004). In addition, establishing a strong relationship between information technology and business functions may effectively remove organizational barriers and facilitate the company's ability to

make informal judgments, a practice often seen in dynamic and uncertain environments (Lu and Ramamurthy, 2011). Furthermore, a proactive IT role is distinguished by a continuous pursuit of opportunities to investigate and use technical assets in order to foster innovation (Lu et al., 2011). Therefore, information technology (IT) has emerged as a valuable asset in facilitating continuous learning and fostering innovation inside organizations. This enables companies to swiftly adapt and reconfigure their business processes in response to contextual shifts (Agarwal and Sambamurthy, 2020). In addition, an active IT role enables organizations to effectively discover and acquire technical advancements in a timely way, therefore anticipating future IT requirements for the formulation of a company's strategic plans (Tallon, 2007; Lioukas et al., 2016). In the realm of Multi-National Corporations (MNCs), Information and Communication Technology (ICT) assumes a significant role in identifying both global and local trends. These trends serve as valuable inputs for MNCs to effectively address the needs specific to each environment in which they operate (Agarwal et al., 2020). Furthermore, the use of Information and Communication Technology (ICT) facilitates the expeditious and cost-effective development of novel goods and services (Zhang, 2008). Nevertheless, the primary role of Information and Communication Technology (ICT) is in the consolidation and enhancement of both internal and external networks of Multinational Corporations (MNCs) (Zhang and Tansuhaj, 2007). This serves to decrease communication expenses, consequently fostering more dynamic knowledge exchange (Chen et al, 2015). Additionally, it offers tools that facilitate coordinated actions, resulting in enhanced integration of the multinational corporation (MNC) with its networks, notably its external partners (Agarwal et al., 2016).

2.1.6. Market Dynamism

Market dynamism may be described as the extent of fluctuations and transformations occurring within a market. The fundamental elements that contribute to the characterization of market dynamism include the expeditious evolution of technologies, alterations in market structure, the volatility of market demand, substantial variations in the supply of materials, and the potential occurrence of market shocks. Market dynamism is primarily defined by its inherent volatility and unpredictability. In an environment characterized by significant market dynamism, it becomes challenging to discern the limits of the market, formulate well-defined and effective business models, and identify key market actors like rivals, consumers, and suppliers. Therefore, companies often encountered challenges due to the presence of external uncertainty stemming from a highly dynamic market environment. This uncertainty made it more difficult for businesses to accurately forecast future market conditions, effectively strategize and allocate resources, and promptly react with their own expertise and associated procedures.

In contrast to markets with high levels of dynamism, less dynamic markets exhibit occasional changes that are often foreseeable by market participants, or they experience regular changes that follow relatively predictable and linear patterns. In the current market conditions, there is a clear delineation of market borders and a well-established understanding of the market players, including rivals, consumers, and suppliers. The demand from customers remains generally consistent, resulting in a lesser need for significant alterations to the goods and services offered by firms. Given the considerable degree of market dynamism, enterprises encounter an uncertain context marked by rapid technology advancements, volatile shifts in client preferences, and the instability of market composition. In the setting of a highly dynamic market, enterprises are compelled to diligently monitor emerging client preferences, broaden their information scope, and

cultivate adaptable and prompt answers in order to effectively address customer wants and navigate the volatile market conditions, therefore sustaining competitiveness.

Hence, substantial research has been conducted on market dynamism, with prior studies indicating that it is a crucial element influencing company performance. Additionally, scholars have explored the moderating influence of market dynamism in this context. The findings indicate that the ability of enterprises to produce new products is more significantly linked to gaining a competitive advantage in markets that exhibit moderate levels of dynamism, as opposed to stable or highly dynamic markets. The use of a dynamic capacity framework enables organizations to evaluate external information, facilitating their engagement in entrepreneurial endeavors. Consequently, this enhances the innovation performance and overall firm performance of small and medium-sized enterprises (SMEs). However, the majority of research studies tend to concentrate on a single aspect of IT capacity (Kim et al., 2011) or a general level of aggregation (Chen & Tsou, 2012; Chen et al., 2015), hence failing to provide a holistic understanding of the impact of IT skills on performance. Hence, the theoretical and practical understanding of the multifaceted nature of IT skills remains ambiguous.

2.1.7 SMEs Performance

Small and medium-sized businesses (SMEs) are unquestionably essential for economic growth in the present technological era. These businesses boost the economy as a whole by boosting living standards, generating new employment possibilities, and correcting unequal income distribution. (Love & Roper, 2015) as a consequence, SMEs serve as a basis for economic benefit at the national level. The contributions of SMEs are crucial to the economic expansion of emerging nations. The internal capabilities possessed by small and medium-sized firms (SMEs) are one of the factors that

might affect their performance. Small businesses are widely acknowledged to have a key role in stimulating innovation, eradicating poverty, creating jobs, and building social integration.

Small and medium-sized businesses (SMEs) actively promote economic growth in a variety of ways. First of all, they accommodate the growing labor population by offering employment possibilities in both rural and urban locations. Additionally, SMEs improve the economy's general innovation and sustainability, which raises its attractiveness and long-term growth prospects. Small and medium-sized businesses (SMEs) are essential for starting economic growth and easing the move toward industrialization. However, small and medium-sized businesses (SMEs) have a significant impact on a number of variables, including income distribution, tax revenue, employment, the effectiveness of resource allocation, and the stability of family income. Compared to bigger businesses, small and medium-sized businesses (SMEs) frequently utilize manufacturing processes that need more labor. As a consequence, these organizations significantly contribute to the development of lucrative employment prospects, the production of money, and eventually, the reduction of poverty.

Since improving performance is the primary objective of this discipline, strategic management academics are currently concentrating mostly on company performance (Venkatraman et al., 2013). However, there is still continuous scholarly discussion about the specific terminology and description of the subject matter within the academic community (Lee et al., 2010). A well-known two-dimensional framework with financial criteria and more extensive operational needs was initially developed by Venkatraman and Ramanujam in 1987. Their framework's second dimension uses main and secondary data, two different data sources. Financial performance includes a number of variables, including but not limited to sales growth, profitability, and earnings per share, that serve as indicators of a company's economic health and success. However, a more

thorough evaluation of operational performance goes beyond financial metrics and takes into account a variety of factors, including market share, product quality, the successful launch of new products, the effectiveness of marketing initiatives, the value added by production processes, and other technical efficiency indicators.

The second dimension, which focuses on the source of performance data, can be classified as primary or secondary. While secondary data is gathered from publicly available information, primary data is collected directly from organizations. According to Morgan and Turnell (2003), it is crucial to take into account a variety of elements when assessing market performance in the financial services industry. Market share, customer happiness, competitive position, customer retention, and sales growth are a few of these variables. The idea of business performance is defined within the context of business-to-business (B2B) interactions, according to Le Meunier-FitzHugh et al., 2011. The criteria for this group focus on how well the company performs in terms of gaining a sizeable market share, generating a sizable amount of sales revenue, marketing goods with the best profit margins, exceeding all sales targets and objectives within the fiscal year, encouraging sales of novel products, and producing sales that result in long-term profitability.

Alternative research suggests that the calculation of corporate sales (Yan et al., 2017) and the addition of value of assets or valuations (Curwen et al., 2013) may be used to determine the business success of telecommunication manufacturing firms. By focusing on corporate performance within the particular setting of the B2B and communications industries, this study advances the work of Venkatraman and Ramanujam (1987) and Lee et al. (2010). For the purpose of categorizing and analyzing company performance, the research uses a two-dimensional framework. The measurement of an organization's success in achieving both financial and non-financial outcomes, including elements like sales revenue, profit margins, cash flow, market share,

improvements in product and service quality, and customer satisfaction, is known as organizational performance.

2.2. Theoretical Literature Review

In the context of this study, the term "2.2.1" refers to The Resource-Based View (RBV) is a theoretical framework that focuses on the internal resources and capabilities of a firm as the primary drivers of competitive advantage.

The Resource-Based View (RBV), which has emerged as a unifying framework in the field of strategy research, elucidates the origins of competitive advantage, whether it is enduring or temporary in nature. The disparities in performance may be elucidated by considering the varying resources and competencies that various firms possess. In scholarly literature, a range of terminologies (inputs, assets, capacities, competences) are used to characterize the resource endowments of a corporation. In accordance with Grant's framework, the term 'resource' was used to include all of these conceptual elements. The concept of "capability" was formerly described as a unique resource that encompasses a firm's ability to effectively organize and deploy other resources in order to achieve a desired outcome. Based on the principles of resource-based logic, it is posited that resources which possess value but are widely available can only contribute to achieving competitive parity. Conversely, resources that possess value and are scarce have the potential to confer temporary competitive advantage. Finally, resources that possess value, scarcity, and are difficult to replicate can serve as a foundation for sustained competitive advantage.

In the presence of certain isolating processes, such as route dependency, causal ambiguity, social complexity, or team-embodied abilities, a resource may exhibit poor imitability. The realization of the competitive potential of resources and capabilities is contingent upon their ability to enhance

the efficiency and effectiveness of critical business processes. According to Barney's observation, the value of company resources is not inherent, but rather dependent on their ability to exploit opportunities and/or mitigate dangers within the business's operating environment. The attainment of a competitive edge is reliant upon the prevailing circumstances within the industry. The notion of strategic fit has significant importance in models of strategy formation. It posits that for an organization to thrive and achieve success, it is essential to establish a harmonious alignment between the demands of its competitive environment and its internal characteristics and capabilities. The alignment of a company's IT resources and skills with the requirements of the business environment may have a beneficial impact on its performance. Conversely, a lack of alignment may have a detrimental effect on the company's competitive position.

The user's text does not provide enough information to be rewritten academically. The present study aims to conduct an empirical review and develop hypotheses based on existing literature.

2.3.1 IT capability and business process agility

In light of the aforementioned definition of business process agility, the primary means by which IT capability can assist organizations in attaining this objective are as follows: (1) facilitating expeditious business process operations, (2) promoting adaptable business processes, and (3) enabling business process innovation (Tallon, 2008). Firstly, it is vital to acknowledge that agility has significant importance inside an organization when it comes to expeditiously formulating company selections. According to Duncan (1995), the establishment of a robust IT infrastructure enables a company to efficiently access the important data it has. Numerous information technology solutions provide the capability to access a substantial quantity of up-to-date

management data. This includes information about the current state of resources, such as inventory levels, product development progress, and estimated product delivery durations.

The establishment and efficient management of these applications need the presence of a robust IT competence. Furthermore, the establishment of external IT connections facilitates the seamless interchange of information and effective communication between enterprises and their external partners, ensuring prompt and efficient collaboration. The integration of IT capabilities into everyday business activities and processes has been shown to expedite the response time to change, information processing, and strategy implementation (Melville et al., 2004). The demonstration of IT capability's flexibility may be shown via the following characteristics. According to Van Oosterhout et al. (2006), organizations that possess a robust IT infrastructure and have proficient IT management skills are capable of deploying new applications in a highly efficient and effective manner, while also addressing the challenges involved with maintaining outdated systems. This suggests that a company with limited IT capabilities, maybe caused by the existence of outdated technologies, would be unable to efficiently and promptly adapt to changes in the market. Furthermore, the establishment of external IT connections and the development of a robust IT infrastructure contribute to the creation of an effective communication and information exchange system both inside and across company borders. Consequently, this enhances the ability of organizations to respond promptly and effectively to market demands (Shang & Seddon, 2002).

According to Qu et al. (2012), the use of IT business partnerships, IT business process integration, and business IT strategic thinking may effectively facilitate the coordination and knowledge exchange between IT and business personnel. The use of information technology (IT) to support business operations and preserve operational flexibility is crucial for firms to gain a competitive edge. Fichman (2004) and Weill et al (2002) have posited that an enhanced information technology

(IT) capacity may enhance a firm's capabilities in several dimensions, including hardware compatibility, software flexibility, network connection, and adaptability of IT skills. These capabilities, in turn, enhance the ability to adapt to change and increase the flexibility of systems. Regarding its function in facilitating business process innovation, IT capacity has the potential to drive the modularization and atomization of business processes, hence allowing their combination and recombination to generate novel business processes (Sambamurthy et al., 2003).

According to Tallon (2008), the inclusion of management elements within IT capabilities, such as strategic foresight and relationship building, has the potential to facilitate continuous learning, increased adoption of best practices, strategic adaptability, and the development of trust among business partners. The IT competence of an organization plays a crucial role in promoting organizational learning, as well as the dissemination of best practices and information. This capability enables the company to consistently and iteratively modify its business processes. In conclusion, considering the growing integration of IT applications in business operations, the ability of a company to quickly adapt or adjust these processes seems to rely significantly on its capacity to effectively use and deploy IT, as shown by its IT competence.

Therefore, we propose the following hypothesis:

Hypothesis 1: The presence of IT capabilities has a beneficial effect on the agility of business processes.

H1: IT capability has a positive impact on business process agility.

2.3.2. The Impact of Business Process Agility on Small and Medium Enterprises Performance

The general consensus among scholars is that business process agility is advantageous for organizations as it enables them to effectively adjust and synchronize their operations, hence facilitating the attainment of enhanced financial performance (Sambamurthy et al., 2003). Organizations that possess robust process agility have the capacity to actively and preemptively manage several elements, such as selecting appropriate partnerships and promptly responding to client demands. This ability enables them to enhance operational flexibility, retain customers, and ultimately achieve higher revenues while simultaneously decreasing costs (Tallon, 2008). Moreover, the degree of business process agility shown by an organization is indicative of the efficacy of the interaction between the firm and its market (Katayama & Bennett, 1999). A firm's ability to swiftly react to market changes is indicated by a high degree of agility. The phenomenon may be seen via the augmentation of product customisation, enhancement of delivery performance, and reduction of response time. Based on the resource-based view (RBV) theory, the concept of business process agility is seen as a valued organizational capacity (Swafford et al., 2008) that has the potential to enhance a firm's exceptional performance (Chen et al., 2011).

Based on the aforementioned considerations, we propose a hypothesis:

H2: Business process agility exerts a positive impact on organizational performance.

2.3.3 The mediating role of business process agility

The impact of IT competence on company performance may be influenced by the mediating function of other resources or skills. The strategic capability of business process agility is contingent upon a firm's capacity to effectively adopt and use IT resources (Bharadwaj, 2000; Weill et al., 2002). The synthesis of these reasons implies that the mediating role of business process agility exists in the connection between a company's IT capabilities and its organizational performance. Elevated levels of information technology (IT) proficiency have the potential to empower organizations to enhance their business processes by imbuing their operational procedures with attributes such as agility, resilience, and adaptability. Enhanced business process agility presents organizations with the potential to attain elevated levels of profitability, return on investment, sales growth, and market share expansion. On the contrary, in the absence of it, the organization is less inclined to attain exceptional levels of performance. Therefore, it is anticipated that the presence of business process agility would act as an intermediary factor in the association between IT competence and performance. Therefore, we propose the following hypothesis:

H3: Business process agility mediates the relationship between IT capability and Firm performance.

The following section will discuss the topic of 2.3.4. This study examines the moderating role of market dynamism.

Market dynamism refers to the speed and unpredictability of changes in the market, including the obsolescence of products and services, advancements in technology, actions taken by rivals, and fluctuations in client demand (Newkirk & Lederer, 2006). In markets characterized by dynamism or quick change, senior executives encounter significant levels of uncertainty and exhibit an increased need for information and the ability to effectively analyze and use it (Li & Ye, 2023). In

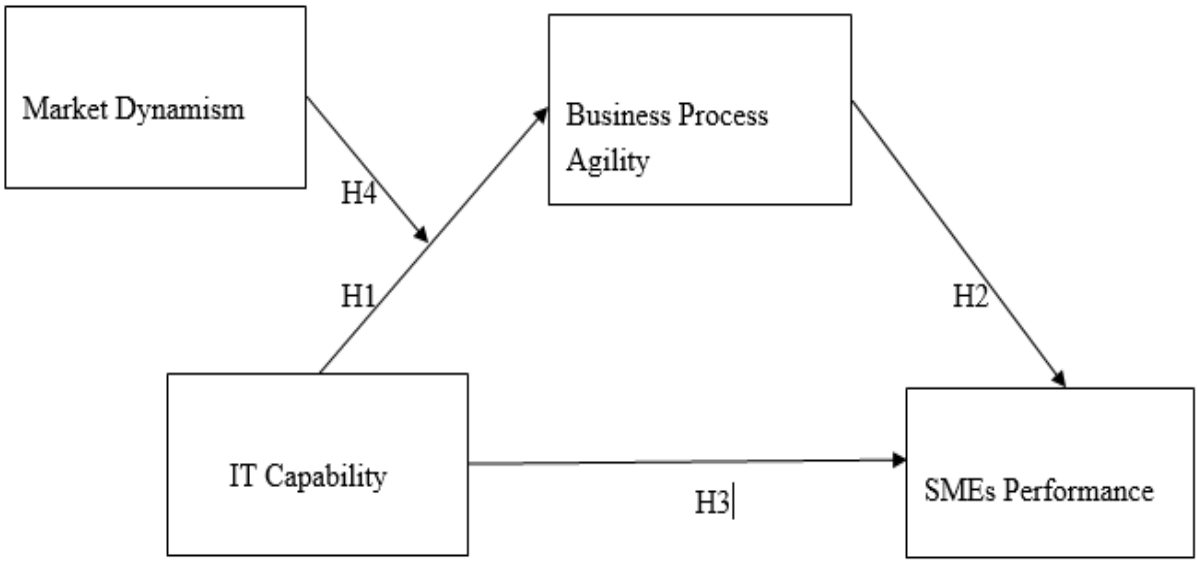
dynamic markets, the value of IT capacity increases as it allows enterprises to efficiently use diverse IT assets and resources in comparison to markets that are generally stable. In accordance with the aforementioned reasoning, Li & Ye (2023) observe that investments in information technology (IT) seem to have a more pronounced beneficial effect on financial performance when there are more fluctuations in the market. Similarly, Nevo and Wade (2011) ascertain that resources enabled by IT become increasingly valuable under market situations characterized by increased dynamism. Creating a competitive edge may be challenging in a dynamic market characterized by several simultaneous developments.

Moreover, maintaining any competitive advantage that may have been established may pose significant challenges, since the rapid pace of change has the potential to nullify or make any derived advantages outdated. In highly unpredictable and ever-changing markets, organizations may need to regularly restructure their diverse IT assets, cultivate novel insights, and consistently seek out emerging prospects in order to enhance operational efficiency and effectiveness. These operations include the acquisition of market information, the examination and transmission of data from both consumers and rivals, and the prompt dissemination of up-to-date information inside internal departments and among partners in volatile marketplaces (Zhang & Sarker, 2008; Chen, 2010). In other terms, it is anticipated that increased market dynamism would result in heightened and fluctuating demands on information processing. Consequently, there will be a need for enhanced IT capabilities to facilitate the effective functioning of the market.

Based on the above discussion, we propose the following hypothesis for empirical examination:

H4: Market dynamism positively moderates the relationship between IT capability and business process agility.

2.4. Conceptual Framework



CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.0 Introduction

The concentration of the third chapter is on the methodology used to collect data for solving the research questions. It considers the foundation of the study through defining the research problem and outlining the purposes of this study, as well as by referencing significant prior research to broaden our understanding of the key concepts and theory at the center of this investigation.

This chapter encompasses an examination of several factors, including the population under study, the calculation of sample size, the approach and tools used for data collection, as well as the subsequent data analysis.

In addition, the chapter discusses ethical issues and provides a profile of small and medium-sized enterprises in Ghana.

3.1 Research Design

A research design, as defined by Cooper and Schindler (2006), refers to a systematic strategy established to facilitate the examination and subsequent answering of research questions.

The significance of information technology (IT) in the contemporary high-tech era cannot be overstated, particularly in relation to its role in supporting the small and medium-sized enterprises (SMEs) sector. IT is not only vital for the survival of these businesses, but also plays a crucial role in enhancing their performance and enabling them to gain a competitive edge (Neirotti & Raguseo, 2017; Raymond, Bergeron, Croteau, & St-Pierre, 2016).

Sekaran (2014) categorizes research into four distinct forms: exploratory, descriptive, hypothesis-testing, and case study.

The use of a descriptive research strategy is employed to investigate, analyze, and elucidate prevailing methodologies inside an organization or a large community (Tichapondwa, 2013). According to Wilson (2013), descriptive research is considered to be the most successful approach for addressing concerns related to the identification and description of phenomena.

Descriptive research endeavors to elucidate the characteristics, circumstances, problems, or phenomena under investigation (Kumar, 2011).

This study use descriptive research methodology to investigate the research topics at hand and seeks to establish a correlation between many variables.

a. What is the relationship between IT Capabilities and SMEs performance?
b. What is the mediating effect of Business Process Agility in the relationship between IT Capabilities and SMEs performance?
c. What is the moderating effect of Market Dynamism in the relationship between Business Process Agility and SMEs performance?

The research design includes the consideration of the data analysis approach, which may be either quantitative or qualitative (Odoh & Chinedum, 2014).

This study utilizes a quantitative research approach since it involves questionnaires to collect quantitative or statistical data. Quantitative research plays a crucial role in the academic realm as

it aids scholars in formulating predictions and assessing their hypotheses via the establishment of associations between variables (Wilson, 2013).

A quantitative study approach was used to examine the correlation between IT capabilities, business process agility, market dynamism, and SMEs performance, as well as to test the hypotheses derived from these factors.

This study has examined the relational explanations, generalizations, and predictions that are inherent in quantitative research.

3.3 Population of Study Area

The study's sample consisted of small and medium-sized enterprises (SMEs) located in the Kumasi Metropolis. The Kumasi Metropolis has a total area of 254 square kilometers and comprises ten sub-metropolitan regions, namely Manhyia, Tafo, Suame, Asokwa, Oforikrom, Asawase, Bantama, Kwadaso, Nhyiaeso, and Subin. The researcher has been a resident in the study region for around eleven (11) years, during which time they have been engaged in both academic pursuits and employment. This extended period of residence lends considerable relevance to the research being conducted. This facilitated the researcher in developing a comprehensive understanding of the research site, hence streamlining the data collection process for the study. The involvement in this initiative was attributed to the Kumasi Entrepreneurs and Arts Community, as well as the National Board for Small Scale Industries (NBSSI).

The governmental organization responsible for overseeing small and medium-sized enterprises (SMEs) in Ghana is known as the National Board for Small Scale Industries (NBSSI).

In Ghana, it is mandatory for small and medium-sized enterprises (SMEs) to undergo registration with the National Board for Small Scale Industries (NBSSI) at the Registrar's General Department located in the respective regions.

3.4 Sampling techniques and sample size

The use of intentional sampling indicates that discretion was exercised in the selection of participants who fulfilled the sample criteria, namely persons employed in small or medium-sized enterprises. However, the unit of analysis for this study was high performing small and medium-sized enterprises (SMEs) in the Metropolis.

According to Dickson et al. (1995), it is more prudent to do research and develop models based on high-performing companies rather than failing ones. Consequently, it serves as a pivotal factor in the selection of organizations for assessing their IT skills (Liu et al., 2019).

The sample size was calculated using the mathematical procedure provided by Yamane (Adam 2020), which is phrased as follows:

$$n = \frac{N}{1+N\alpha^2}$$

N is the population, n is the sample size, α is the margin of error (0.05) at a 95% significance level.

Inferring from the above, the following criteria/attributes were used to select the sample size:

i. The firm must qualify as an SME (firms employing maximum of 100 workers)
ii. The SME must be located in the Kumasi Metropolis
iii. The SME must part of the high performing SMEs in the Kumasi Metropolis.

3.5 Pilot study

Prior to its dissemination, the questionnaire undergone a rigorous ethical review procedure. After obtaining ethical approval, the survey was subjected to a pre-testing phase with managers who represented the respective organizations.

3.6 Data collection

The online poll was given through the Google Forms system in an independently administered manner. The survey was given to participants of the target group via different media avenues, including email and WhatsApp. This distribution approach effectively overcame geographical and operational constraints that could have hindered the questionnaire's dissemination process (Deutskens et al., 2005). The questionnaire was specifically designed to accommodate individuals in ownership and managerial roles, regardless of their gender, age, or learning background. Through personal connections, the researcher assembled a comprehensive list of 120 MBA master's degree seekers who met the necessary criteria of holding administration roles in multiple business organizations. The participants exhibited a clear and straightforward approach to the technique. The use of a closed-ended format in the questionnaire prevented respondents from providing more elaboration or specifics.

The creation of the questionnaire was informed by a comprehensive examination of the existing literature pertaining to the measurement of the three primary research variables, namely IT capabilities, business process agility, market dynamism, and SMEs performance.

The structure of the questionnaire consisted of four basic elements. During the first stage, the collection of sociodemographic data was asked to get background information about to the firm and the responder. The objective of this piece was to provide further support and explain the statistical data obtained from the other three parts of the questionnaire.

The data pertaining to IT capabilities and business process agility were collected in parts two and three, correspondingly. Section two assessed the IT capabilities (ITC) using a 5-point scale. In Section C of the study, a 5-point scale ranging from 1 (representing "Strongly Disagree") to 5 (representing "Strongly Agree") was used to assess the impact of business process agility on company performance. Section D aims to collect data about the impact of market dynamism on the development of small and medium-sized enterprises (SMEs), using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Section E aims to collect data about the strategies used by small and medium-sized enterprises (SMEs) to enhance their sales and profit margins relative to their rivals. The respondents are requested to rate their agreement with the provided statements on a 5-point Likert scale, where 1 represents 'Strongly Disagree' and 5 represents 'Strongly Agree'.

In order to increase the response rate, a recurring reminder was consistently sent to prompt the participants. The poll data was stored using Google Drive, a secure cloud storage service that requires password authentication.

3.7 Data Analysis

The data collection process included the use of a 5-point scale, which classifies it as quantitative, numeric, and possessing different qualities (Wagner et al., 2016). The online survey platform facilitated the efficient extraction of continuous data into Microsoft Excel (Excel) via a rapid download process. Consequently, the data obtained from the survey platform was aggregated based on the specified questions and their corresponding answers. In order to facilitate the use of descriptive statistical analysis, it was necessary to convert the Excel file into numerical values since it comprised a combination of alphanumeric text and numeric data.

The Likert scale answers were quantified using numerical values, with a rating of one indicating a significant level of disagreement and a rating of five indicating a significant level of agreement. The numerical values ranging from one to seven are associated with the many options available on the Likert scale. The data provided included information on the size and role type of the organizations, as well as ordinal data. This data was initially in string format and needed to be converted into numeric values in order to do statistical analysis. Upon careful examination of all the replies received and the subsequent exclusion of study participants who did not meet the predetermined eligibility criteria, the raw data was subjected to coding.

CHAPTER FOUR

4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter encompasses the examination, evaluation, and elucidation of the present study. The research is structured into three distinct sections: a validation study, an examination of the acquired data in connection to different factors, and an exploration of the interplay between IT Capabilities, Business Process Agility, SMEs Performance, and Market Dynamism. The analysis was conducted using the SPSS program.

The data used in this study were obtained from small and medium-sized enterprises (SMEs) mostly situated within the Kumasi Metropolis. The collection of this data was conducted via an online survey administered between the months of March and June in the year 2023.

The present chapter is organized into several sections, beginning with an examination of the demographics. The several subtopics included in this study include descriptive analysis, correlation data analysis, bivariate correlation analysis, exploratory factor analysis, reliability analysis, and regression analysis.

4.2 Demographics and background characteristics of respondents

According to the results obtained from our research, it was noted that a collective number of 86 individuals belonged to the age range of 25 to 30 years. This specific group comprises a significant portion, exactly 42.0%, of the dataset. The percentage deemed valid for this specific category is 42.0%. The combined cumulative percentage for both age groups amounts to 65.9%, indicating the proportion of individuals aged 30 or below.

This comprehensive investigation provides a comprehensive examination of the distribution of ages within the dataset, with particular emphasis on the population size within each age group and the overall representation of individuals throughout age groups.

With regards to gender, the total population comprises 148 people identified as male, accounting for 72.2% of the population, and 57 individuals identified as female, making up 27.8% of the population. The whole sample had a total of 205 individuals.

The term "Valid Percent" for each gender group represents the relative percentage of that particular category in respect to the total valid responses. In the current context, the proportions for the "male" and "female" groups are determined by taking into account the total number of valid responses, which totals 205.

The term "Cumulative Percent" pertains to the progressive aggregation of percentages when traversing the many categories within a certain dataset. For instance, the cumulative fraction corresponding to the category "male" amounts to 72.2%. This implies that 72.2% of the individuals within the dataset are categorized as "male" or are positioned within this category or below in the ordered list.

This research presents valuable insights into the gender distribution within the dataset, revealing that a significant proportion of individuals (72.2%) self-identify as male, whilst a lesser fraction (27.8%) self-identify as female.

The analysis of educational attainment offers valuable insights into the educational attributes of people. The preponderance of bachelor's degrees implies a diverse range of educational achievements, while the inclusion of master's and doctoral degrees signifies a subgroup of individuals with higher levels of expertise and proficiency.

It is essential to recognize that the distribution of education may have implications for decision-making, recruiting protocols, and understanding of the knowledge and skills acquired by the surveyed persons within a certain context. The attainment of education is often associated with a strong positive relationship with the acquisition of knowledge and abilities, hence having a significant impact on several sectors like industry, academia, and society.

The examination of position distribution provides useful insights into the hierarchical organization of the enterprises included in the information. The disparity in employee-to-executive ratio implies a higher number of individuals engaged in operational and non-managerial roles.

The analysis of the size distribution offers valuable insights on the range of organizations included within the dataset. Although smaller entities constitute the bulk of organizations, there are instances of organizations that fall between the medium and large size categories.

A comprehensive understanding of the many ownership configurations represented in the dataset may be attained by analyzing the different categories of ownership. State-owned enterprises (SOEs) may exhibit distinct operational characteristics and aims in comparison to privately held organizations.

Understanding the distribution of age, gender, roles, organization sizes, and ownership types may have important implications for decision-making, organizational planning, and gaining a full understanding of the composition of the dataset in many contexts.

Table 4.2 Demographic and background information of respondents

Variable	Category	Frequency	Percentage
Age	<25	49	23.9
	25 - 30	86	42.0
	31 - 35	46	22.4
	36 - 40	18	8.8
	>40	6	2.9
	Total	**205**	**100.0**
Gender	Male	148	72.2
	Female	57	27.8
	Total	**205**	**100.0**
Level of Education	Bachelor	159	77.6
	Masters	42	20.5
	Doctorate	4	2.0
	Total	**205**	**100.0**
Position	Employee	155	75.1
	Executive	46	23.9
	Total	**205**	**100.0**
Firm Size	<100	132	64.4
	101 – 1000	48	23.4
	> 1000	25	12.2
	Total	**205**	**100.0**
Ownership	State owned	74	36.1
	Non-state owned	131	63.9
	Total	**205**	**100.0**

Source: Field Data, 2023

4.3 Descriptive analysis

After careful analysis of the variables shown in the table, it becomes apparent that the Minimum value corresponds to the least observed value within the dataset. The word "maximum" denotes the numerical value that has been determined to be the highest within a given set, while "mean"

signifies the number that has been observed as the arithmetic average of the set. Both phrases are indicative of the central trend. The idea of standard deviation refers to a statistical measure that measures the degree of dispersion or variability shown by a dataset in respect to its mean.

Skewness is a statistical concept used to measure the degree of asymmetry within a given distribution. It is often noticed that the mean, also known as the average, generally exhibits a lower value in comparison to the median. On the other hand, it is observed that the mode generally exhibits a higher numerical value compared to the median. This specific distribution is often referred to as "left-skewed" or "negatively skewed" in academic literature.

Kurtosis is a statistical concept used to assess the level of peakedness in a given distribution. A negative kurtosis value suggests that the distribution of each variable is less peaked and has lighter tails compared to a normal distribution.

From a practical standpoint, the observation of a negative skewness indicates the presence of a subgroup of values that are much lower than the rest of the data points, resulting in a distribution that is stretched towards the left. It is important to bear in mind that skewness is only one of the factors that contribute to the characterization of the shape of a data distribution.

Upon doing an analysis of ITINF1, it is evident that the minimum value is documented as 1.00, however the maximum value is 5.00, which aligns with the observed range in other variables. The dataset has a central tendency, characterized by a mean value of 3.2927. The measure of the spread of the data relative to the mean is shown by a standard deviation of 1.30692.

The obtained skewness value of -0.397 indicates that the distribution has a negative skewness, signifying a leftward skew. Negative skewness levels often fall within the range of -0.5 to -1. The data given in this context demonstrates a significant skew towards the right side of the distribution,

coupled with a very low density of data points on the left side. The recorded kurtosis value of -0.907 suggests that the distribution exhibits a somewhat lower level of peakness and flatter shape.

Generally, the ITAPP, ITINF, ITBP, ITSTI, ITM, and EIT under IT Capabilities output shows that the distribution is skewed to the left (negatively skewed) and it is less peaked.

Table 4.3 Descriptive Analysis

Descriptive Statistics **IT Infrastructure**							
		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
ITINF1	Appropriateness of the data architectures	1.00	5.00	3.2927	1.30692	-0.397	-0.907
ITINF2	Appropriateness of the network architectures	1.00	5.00	3.2927	1.28422	-0.408	-0.840
ITINF3	Adequacy of architectural flexibility	1.00	5.00	3.1512	1.19704	-0.295	-0.727
IT APPLICATION							

		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
ITAPP1	Develop IT applications internally	1.00	5.00	2.8341	1.46254	0.092	-1.336
ITAPP2	Purchase valuable IT applications from suppliers	1.00	5.00	3.4244	1.30624	-0.426	-0.853
ITAPP3	Discontinue or decommission less-valuable IT applications	1.00	5.00	3.1854	1.23065	-0.152	-0.786

IT Business Partnerships							
		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
ITBP1	Multi-disciplinary teams to blend business and technology	1.00	5.00	3.2244	1.28276	-0.231	-0.948
ITBP2	Relationship between line management and IT service providers	1.00	5.00	3.2829	1.21991	-0.394	-0.746
ITBP3	Line management sponsorship of IT initiatives	1.00	5.00	2.9317	1.25449	-0.036	-1.020
ITBP4	Climate that encouraging risk taking and experimentation with IT	1.00	5.00	3.1171	1.19884	-0.297	-0.737
ITBP5	Climate nurturing IT project championship	1.00	5.00	3.0439	1.20172	-0.085	-0.874

IT Business Process Integration							
		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
ITBPI1	Consistency of IT application portfolios with business processes	1.00	5.00	3.0049	1.22673	-0.170	-0.913
ITBPI2	Restructuring of business work processes to leverage opportunities	1.00	5.00	3.2000	1.18156	-0.287	-0.712
ITBPI3	Restructuring of IT work processes to leverage opportunities	1.00	5.00	3.1707	1.17787	-0.263	-0.750
Business IT Strategic Thinking		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
ITST1	Clarity of vision regarding how IT contributes to business value	1.00	5.00	3.4732	1.23491	-0.474	-0.713
ITST2	Integration of business strategic planning and IT planning	1.00	5.00	3.3707	1.20827	-0.358	-0.681
ITST3	Management's ability to understand	1.00	5.00	3.6293	1.13721	-0.566	-0.397

	value of IT investments						
IT Management							
		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
ITM1	Effectiveness of IT planning	1.00	5.00	3.4390	1.20149	-0.352	-0.752
ITM2	IT project management practices	1.00	5.00	3.3561	1.19846	-0.372	-0.781
ITM3	Planning for security control, standard compliance, and disaster recovery	1.00	5.00	3.2341	1.20611	-0.155	-0.818
ITM4	System development practices	1.00	5.00	3.2488	1.19704	-0.232	-0.862
ITM5	Consistency of IT policies throughout the enterprise	1.00	5.00	3.2049	1.23152	-0.302	-0.891
ITM6	IT evaluation and control systems	1.00	5.00	3.2634	1.22430	-0.371	-0.752
External IT Linkage							
		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
EIT1	Technology-based links with customers	1.00	5.00	3.2341	1.22226	-0.295	-0.753

EIT2	Technology-based links with suppliers	1.00	5.00	3.2537	1.21027	-0.248	-0.819
EIT3	We use IT-based entrepreneurial collaborations with external partners	1.00	5.00	3.1561	1.21471	-0.187	-0.809

Business Process Agility		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
BPA1	Respond to changes in aggregate consumer demand	1.00	5.00	3.4439	1.08150	-0.417	-0.394
BPA2	Customize a product or service to suit an individual customer	1.00	5.00	3.4780	1.19466	-0.401	-0.785
BPA3	React swiftly to new product or service launches by competitiors	1.00	5.00	3.1902	1.18731	-0.232	-0.718
BPA4	Introduce a new pricing schedule in response to changes in competitors' prices	1.00	5.00	3.1610	1.27127	-0.133	-1.036
BPA5	Expand into new regional and/or international markets	1.00	5.00	3.1707	1.28914	-0.212	-1.004
BPA6	Expand or reduce the variety of products/services available for sale	1.00	5.00	3.1122	1.22958	-0.168	-0.889

BPA7	Adopt new technologies to produce better products or services	1.00	5.00	3.5317	1.19444	-0.442	-0.707
BPA8	Switch suppliers to get better benefits of lower costs, or better quality or improved delivery times	1.00	5.00	3.4878	1.13159	-0.492	-0.451
Market Dynamism							
		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
MD1	Products and services in our industry become obsolete quickly	1.00	5.00	2.8293	1.24661	0.067	-0.918
MD2	The product/services technologies in our industry change quickly	1.00	5.00	2.8878	1.18077	0.039	-0.844
MD3	We can predict what our competitors are going to do next	1.00	5.00	2.9805	1.15453	-0.077	-0.642
MD4	We can predict when our products/services demand changes	1.00	5.00	3.3073	1.14112	-0.266	-0.571
MD5	The survival of our firm is currently threatened by scarce supply of labor	1.00	5.00	2.7220	1.27408	0.191	-1.035

MD6	The survival of our firm is currently threatened by scarce supply of materials	1.00	5.00	2.6195	1.26863	0.340	-0.952
MD7	The survival of our firm is currently threatened by tough price competition	1.00	5.00	2.9073	1.30842	-0.026	-1.094
MD8	The survival of our firm is currently threatened by tough price competition in product/service quality	1.00	5.00	2.8488	1.26086	0.096	-0.967
MD9	The survival of our firm is currently threatened by tough price competition in product/service differentiation	1.00	5.00	2.8098	1.21989	0.141	-0.810
MD10	In our industry, there is considerable diversity in customer buying habits	1.00	5.00	3.2683	1.14242	-0.263	-0.668
MD11	In our industry, there is considerable diversity in nature of competition	1.00	5.00	3.2390	1.09654	-0.307	-0.411
MD12	In our industry, there is considerable diversity in product lines	1.00	5.00	3.1366	1.15931	-0.174	-0.694

FIRM PERFORMANCE							
		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
PERF1	Our organisation can achieve increased sales revenue	1.00	5.00	3.4634	1.10030	-0.352	-0.375
PERF2	Our organisation can achieve increased profit margins	1.00	5.00	3.4000	1.08284	-0.336	-0.287
PERF3	Our organisation can achieve increased cash flow	1.00	5.00	3.4049	1.09678	-0.363	-0.293
PERF4	Our firm has been able to increase its return on assets	1.00	5.00	3.3512	1.09972	-0.308	-0.316
PERF5	Our firm has been able to increase its return on equity	1.00	5.00	3.4000	1.10967	-0.408	-0.322
PERF6	Our firm has been able to increase its return on sale	1.00	5.00	3.4390	1.04433	-0.254	-0.330
PERFORMANCE (COMPETITIVE ADVANTAGE)							
		Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic

PERF7	We are more profitable than our competitors	1.00	5.00	3.2537	1.12635	-0.098	-0.536
PERF8	Our sales growth exceeds that of our competitors	1.00	5.00	3.2488	1.14685	-0.106	-0.673
PERF9	Our revenue growth exceeds that of our competitors	1.00	5.00	3.2098	1.18400	-0.164	-0.637
PERF10	Our market share growth exceeds that of our competitors	1.00	5.00	3.2195	1.17390	-0.105	-0.686
PERF11	Overall, our performance is better than our competitors	1.00	5.00	3.5171	1.16986	-0.320	-0.745

4.4 Correlation Analysis

The objective of correlation analysis is to examine the association between two or more variables and ascertain the extent to which variations in one variable align with variations in another. The correlation coefficients provide valuable insights into the magnitude and orientation of this association.

The Pearson correlation coefficient, which is widely used in research, was used in this study to analyze the relationship between continuous variables.

A significant connection is seen when the correlation coefficient approaches a value of +1 or -1. A positive correlation is considered greater as its value approaches 1, while a negative correlation is deemed stronger when its value approaches -1.

A correlation coefficient that is close to zero is indicative of a weak or inconsequential link.

The sign of the correlation coefficient (+ or -) indicates the direction of the link.

The criteria often used for evaluating the magnitude of a correlation coefficient encompass:

The correlation between the variables is minimal, ranging from 0.00 to 0.30.

A moderate connection is seen between the values of 0.30 and 0.70.

A correlation ranging from 0.70 to 1.00 indicates a statistically significant relationship.

Hypothesis testing is used to ascertain the statistical significance of the observed association. The p-value quantifies the probability of seeing a correlation of similar magnitude to the one observed, under the assumption that there is no genuine connection within the population.

The use of a scatterplot is a common practice in graphically representing the relationship between data. The spatial distribution of data points on a graph offers valuable insights into their interrelationship.

Correlation only captures linear connections. Nonlinear relationships may not be accurately depicted. Correlation analysis facilitates a quantitative assessment of the interrelationship between variables, hence assisting in the detection of patterns, trends, and potential relationships within the data. The aforementioned tool has significant value in facilitating well-informed decision-making and generating profound findings.

In the context of correlation analysis, it is universally acknowledged that the correlation coefficient of a variable with itself is always equal to 1. This is due to the fact that such a correlation signifies an idealized linear association between the variable and itself.

As expected, the correlation coefficient between the variable "ITAPP1" and itself is 1, which signifies a perfect positive correlation due to the same nature of the variables.

The correlation coefficient between "ITAPP1" and each variable is represented by the values in the matrix.

A correlation value of 0.28 between the variable "ITAPP1" and another variable suggests the presence of a fairly favorable association. In a similar vein, a correlation coefficient of 0.230** indicates a moderate positive connection, and so forth.

It is essential to acknowledge that the presence of a correlation does not always indicate a causal relationship. The presence of a correlation between two variables does not always indicate a causal relationship, where changes in one variable directly result in changes in the other variable.

The present analysis focuses on the examination of the EIT3. The amplitude and direction of the linear connection between the variable "EIT3" and each individual variable are represented by the values inside the matrix.

The correlation matrix shows the associations between the variable "EIT3" and a collection of other factors. Each number represents the correlation coefficient between the variable "EIT3" and its respective variable. The coefficients provide information about the following:

The presence of positive correlations ranging from 0.379 to 0.681 suggests that there exists a moderate to high positive linear association between the factors in question and the variable "EIT3." The aforementioned factors have a positive correlation with the growth in "EIT3".

The variables have moderately negative linear associations with "EIT3," as shown by negative correlation coefficients ranging from 0.240** to 0.67**. The aforementioned variables have a tendency to decrease when the value of "EIT3" increases.

The correlation matrix illustrates the associations between the variable "PERF11" and a group of other variables. Each coefficient indicates the extent of correlation between the variable "PERF11" and its respective counterpart. The coefficients provide information on the following:

Variables that exhibit positive correlations with coefficients ranging from 0.260** to 0.71** demonstrate a moderate to strong linear association with the variable "PERF11." As the variable "PERF11" increases, there is a corresponding propensity for these variables to also increase.

The variables have a moderate negative linear association with "PERF11," as shown by negative correlation coefficients ranging from -0.015 to -0.377**. The aforementioned factors often exhibit a negative correlation with the growth in the "PERF11" factor.

The degree of the correlation between these variables exhibits variability, with some variables showing greater correlations in comparison to others. The presence of two asterisks (**) denotes relationships that are statistically significant.

Generally the correlation output shows a strong relationship amongst all variables.

4.5 Bivariate Correlation

The table provided displays correlation coefficients that measure the strength and direction of the linear relationship between pairs of variables. Correlation coefficients show a spectrum of values spanning from -1 to 1. A positive correlation coefficient signifies a positive linear relationship, suggesting that when one variable undergoes an upward change, the other variable likewise tends to see a corresponding increase.

A negative correlation coefficient indicates a negative linear relationship, implying that when one variable increases, the other variable is likely to decrease.

The levels of significance are represented by: With the significance level of 0.01 for a two-tailed test, the correlation is deemed statistically significant. Similarly, with a significance threshold of 0.05 for a two-tailed test, the correlation is also considered statistically significant.

The results of this research demonstrate a statistically significant positive correlation (0.299**) between information technology competence and market dynamics, implying the existence of a moderate positive relationship between these two factors. This suggests that companies with advanced information technology capabilities are more inclined to demonstrate heightened levels of market dynamism.

The results of the research reveal a large and notable correlation (0.711**) between ITCAP and BAgil, indicating a strong and positive relationship between IT capacity and business agility. This observation implies that there exists a direct and positive relationship between the augmentation of information technology capabilities and the improvement of business agility.

The study findings reveal a noteworthy and positive correlation (0.648**) between IT capacity and FINPERF, suggesting a robust and favorable relationship between these two variables. The research suggests a positive correlation between the level of IT skills in organizations and their financial performance.

The study found a strong positive correlation (0.615**) between IT capacity and competitive advantage, suggesting a considerable positive relationship between these two variables. This suggests that a higher proficiency in information technology abilities is linked to greater levels of competitive advantage.

4.6 Exploratory factor Analysis (EFA)

The Kaiser-Meyer-Olkin tool of Sampling Adequacy (KMO) is a statistical tool used to assess the suitability of data for factor analysis.

The values of the variable fall within the interval from 0 to 1. A greater numerical value suggests that the dataset is more appropriate for factor analysis.

The Bartlett's Test of Sphericity is a statistical procedure used to evaluate if the correlation matrix between variables substantially deviates from an identity matrix. This deviation would suggest that the variables under consideration are not interrelated.

The statistic associated with the test is the "Approx. Chi-Square" value, which has a numerical value of 8159.859.

The value of "df" (degrees of freedom) (903) corresponds to the degrees of freedom that are linked to the chi-square statistic.

The significance value (0.000) is the p-value corresponding to the conducted test.

The p-value seen in the table suggests a strong departure from the null hypothesis, as it approaches zero. This indicates a considerable deviation of the correlation matrix from an identity matrix. This implies that the variables exhibit interdependence and are appropriate for doing factor analysis. The KMO value of 0.937 and the statistically significant p-value (< 0.001) obtained from Bartlett's Test suggest that the dataset is well-suited for factor analysis. This implies that there are correlations among the variables, indicating the presence of a structure that may be effectively represented by factors.

In general, the findings instill confidence in doing an Exploratory Factor Analysis on the dataset in order to elucidate latent components that account for the observed correlations among these variables.

4.6.1 Total variance

The term "total variance" refers to the comprehensive measure of variability or dispersion shown by a given dataset. The metric in question serves to quantify

This section provides a summary of the proportion of variance explained by each factor identified via the exploratory factor analysis (EFA). The objective of this study is to provide a comprehensive understanding of the degree to which each component encompasses the whole of the variance included in the original variables.

Every individual element is associated with its corresponding eigenvalues. The eigenvalue serves as a quantitative metric that signifies the degree to which a certain component contributes to the observed variability. The percentage of variance is a metric that provides a quantitative assessment of the proportion of total variation that can be attributed to each individual component. The cumulative percentage also functions as a measure of the cumulative proportion of the total variance that is explained by the components up to a certain point.

Table 4.6.1 Total Variance

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	19.858	46.181	46.181	19.858	46.181	46.181	11.214	26.078	26.078
2	3.287	7.645	53.825	3.287	7.645	53.825	5.070	11.791	37.869
3	3.033	7.055	60.880	3.033	7.055	60.880	4.860	11.303	49.173
4	2.067	4.807	65.687	2.067	4.807	65.687	4.541	10.561	59.733
5	1.259	2.929	68.616	1.259	2.929	68.616	3.819	8.882	68.616
6	0.989	2.300	70.916						
7	0.905	2.104	73.020						
8	0.881	2.048	75.068						
9	0.743	1.727	76.795						
10	0.700	1.627	78.422						
11	0.662	1.540	79.962						
12	0.608	1.414	81.376						
13	0.570	1.326	82.703						
14	0.556	1.294	83.997						
15	0.506	1.177	85.174						
16	0.469	1.091	86.265						
17	0.461	1.073	87.337						
18	0.433	1.008	88.345						
19	0.386	0.897	89.242						
20	0.382	0.889	90.131						
21	0.337	0.784	90.915						
22	0.331	0.770	91.685						
23	0.308	0.717	92.403						
24	0.285	0.663	93.066						
25	0.278	0.646	93.712						
26	0.245	0.570	94.282						
27	0.238	0.553	94.835						
28	0.229	0.532	95.367						
29	0.207	0.482	95.850						
30	0.202	0.469	96.319						

31	0.187	0.435	96.754						
32	0.178	0.414	97.168						
33	0.158	0.368	97.536						
34	0.153	0.355	97.892						
35	0.137	0.318	98.210						
36	0.134	0.312	98.521						
37	0.122	0.285	98.806						
38	0.115	0.269	99.074						
39	0.106	0.246	99.321						
40	0.089	0.206	99.527						
41	0.076	0.177	99.704						
42	0.071	0.166	99.870						
43	0.056	0.130	100.000						

Extraction Method: Principal Component Analysis

The presented table displays the results of the exploratory factor analysis (EFA), which produced a cumulative count of 43 components, also known as factors. Every individual element is accompanied with its corresponding eigenvalues and percentages of variance. The data presented is often used for the purpose of making conclusions about the optimal number of components to be maintained. This is typically achieved by the application of certain criteria, such as the need for eigenvalues to exceed 1 or by conducting a visual analysis of a "scree plot."

This section elucidates that the EFA was performed using the Principal Component Analysis (PCA) extraction method.

In summary, the table shown above provides valuable insights into the variation explained by each individual component in the factor analysis. This information facilitates the process of making well-informed decisions on the most suitable amount of components to keep, considering their respective contributions to variance.

The table below displays the Rotated Component Matrix obtained from an Exploratory Factor Analysis (EFA) using a Varimax rotation. The primary aim of Exploratory Factor Analysis (EFA) is to elucidate latent components that are responsible for and explain the observed correlations among variables. The values shown in the table represent the loadings of individual variables on each rotated component (factor) after the implementation of the rotation operation.

The loadings on separate factors are aligned with the values in the columns for each variable shown on the left. Factor loadings are used as indicators that reveal the strength and direction of the relationship between individual variables and their corresponding factors. Higher absolute values of factor loadings suggest stronger links between variables and factors.

Table 4.6.2 Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
ITINF1	**0.643**	0.223	0.061	0.392	0.000
ITINF2	**0.686**	0.295	-0.037	0.376	0.073
ITINF3	**0.626**	0.237	0.000	0.376	0.025
ITBP1	**0.692**	0.149	0.199	0.087	0.191
ITBP2	**0.690**	0.196	0.193	0.220	0.092
ITBP3	**0.735**	0.045	0.144	0.168	0.225
ITBP4	**0.655**	0.037	0.302	0.026	0.206
ITBP5	**0.733**	0.104	0.262	0.094	0.193
ITBPI1	**0.740**	0.259	0.224	0.195	0.081
ITBPI3	**0.663**	0.245	0.259	0.167	0.118
ITM1	**0.710**	0.184	0.332	0.160	-0.044
ITM2	**0.752**	0.265	0.311	0.158	-0.045
ITM3	**0.708**	0.292	0.155	0.157	0.024
ITM4	**0.703**	0.291	0.236	0.149	-0.045
ITM5	**0.757**	0.215	0.289	0.175	0.019
ITM6	**0.757**	0.228	0.275	0.195	0.017
EIT1	**0.687**	0.242	-0.001	0.139	0.135
EIT2	**0.655**	0.307	0.022	0.105	0.157
EIT3	**0.715**	0.297	0.103	0.130	0.178
BPA1	0.463	**0.541**	0.218	0.194	0.102
BPA2	0.314	**0.646**	0.237	0.162	0.075

BPA3	0.264	**0.708**	0.323	0.038	0.115
BPA4	0.138	**0.623**	0.413	0.091	0.191
BPA5	0.407	**0.629**	0.070	0.159	0.179
BPA6	0.305	**0.608**	0.218	0.101	0.213
BPA7	0.389	**0.710**	0.209	0.169	0.025
BPA8	0.277	**0.741**	0.085	0.112	0.151
MD5	0.074	0.006	-0.010	0.184	**0.794**
MD6	0.039	0.038	-0.004	0.032	**0.847**
MD7	0.124	0.194	0.096	0.021	**0.755**
MD8	0.143	0.175	0.124	-0.017	**0.853**
MD9	0.174	0.193	0.170	0.054	**0.771**
PERF1	0.312	0.322	**0.667**	0.220	0.035
PERF2	0.279	0.266	**0.746**	0.211	0.075
PERF3	0.267	0.289	**0.708**	0.302	0.078
PERF4	0.249	0.200	**0.733**	0.346	0.148
PERF5	0.290	0.200	**0.648**	0.380	0.183
PERF6	0.295	0.274	**0.663**	0.404	0.052
PERF7	0.285	0.133	0.406	**0.736**	0.116
PERF8	0.292	0.111	0.377	**0.793**	0.110
PERF9	0.248	0.116	0.395	**0.795**	0.128
PERF10	0.260	0.090	0.334	**0.805**	0.125
PERF11	0.353	0.267	0.120	**0.693**	-0.063

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Variables that have strong loadings, approaching values of 1 or -1, on a particular factor are highly influenced by that component. On the other hand, variables that have loadings that are near 0 on a factor are not sufficiently explained by that specific factor.

For instance, the variable "ITINF1" has significant loadings on Factors 1 and 2, suggesting that it is susceptible to influence from both factors.

The variable "MD5" has a substantial loading on component 5, indicating a strong link with this specific component.

The use of the Varimax rotation approach, within the framework of the "Rotation Method," is employed to streamline the factor structure. The primary goal of Varimax rotation is to maximize the variation of the squared loadings within each component, hence enhancing the interpretability of factors.

The line "The convergence of the rotation was achieved in 7 iterations" indicates that the rotational process attained a stable solution after 7 cycles.

In summary, the Rotated Component Matrix provides useful insights into the associations between each variable and the underlying components extracted from the dataset. The analysis of the arrangement of these components and their correlations with the observed variables is advantageous.

4.7 Reliability test Analysis

The notion of reliability pertains to the degree to which a measurement or evaluation regularly yields same results.

4.7.1 SME'S performance

The assessment of reliability was conducted using a measuring instrument known as "PERF," which has six distinct components. The assessment of the scale's reliability was conducted by the computation of the Cronbach's Alpha coefficient, a widely used measure of internal consistency. The estimated Cronbach's Alpha value of 0.936 indicates a significant level of internal consistency among the items that make up the scale.

The mean value of the scale, when the variable "PERF1" is not included, is 16.9951. If the exclusion of this particular item were to occur, the resulting variance of the scale would amount to 22.917. The item-total correlation coefficient for the variable "PERF1" has been empirically

determined to be 0.778, indicating a strong and positive relationship between this particular item and the aggregate score of the scale. If the item identified as "PERF1" were to be excluded, the resultant Cronbach's Alpha coefficient would be 0.928. The aforementioned value signifies the significant contribution of the item under consideration in upholding the internal coherence of the scale.

In the event that the variable "PERF2" was omitted from the study, the mean score of the scale would amount to 17.0585, while the variance of the scale would be 22.702. The item-total correlation coefficient for the variable "PERF2" has been calculated to be 0.819, indicating a strong positive association between this particular item and the overall score of the scale. If the item denoted as "PERF2" were to be eliminated from the scale, the resulting Cronbach's Alpha coefficient would be 0.923.

If the dataset were to exclude the variable "PERF3", the resulting mean scale score would be 17.0537, and the variance would be 22.590. The item-total correlation coefficient for "PERF3" has been calculated to be 0.819, demonstrating a robust positive relationship between this particular item and the aggregate score of the scale. If the variable denoted as "PERF3" were excluded from the dataset, the resultant Cronbach's Alpha coefficient would be 0.923.

In the event that the variable denoted as "PERF4" was omitted from the scale, the resultant mean scale score would be 17.1073, accompanied by a variance of 22.430. The item-total correlation coefficient for the "PERF4" item has been computed as 0.834, indicating a strong positive relationship between this particular item and the total score of the scale. In the event that the variable denoted as "PERF4" was omitted from the study, the resultant Cronbach's Alpha coefficient would amount to 0.921.

The average scale score, represented as "PERF5", is determined to be 17.0585, while the variability is computed to be 22.791. The item-total correlation coefficient for the "PERF5" item has been computed as 0.784, showing a statistically significant and positive association between this particular item and the overall score of the scale. In the hypothetical case when the variable labeled as "PERF5" is excluded from the dataset, the resultant Cronbach's Alpha coefficient would be computed as 0.927.

In the event that the variable "PERF6" is excluded from the dataset, the resultant mean scale score would amount to 17.0195, accompanied by a variance of 23.000. The item-total correlation coefficient for the variable "PERF6" has been computed to be 0.822, indicating a strong positive relationship between this particular item and the overall score of the scale. In the event that the variable "PERF6" was omitted from the analysis, the resulting Cronbach's Alpha coefficient would be 0.922.

In summary, the Cronbach's Alpha coefficient of 0.936 indicates a significant degree of internal consistency for the "PERF" scale. Moreover, it is worth mentioning that each of the six elements makes a valuable contribution to enhancing the dependability of the scale. The items that were observed have strong correlations with the total scale score, highlighting their significance in ensuring the overall reliability of the scale.

Table 4.7.1 SMEs Performance Reliability test

PERF		**Item-Total Statistics**				
Cronbach's Alpha	N of Items		Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
0.936	6	PERF1	16.9951	22.917	0.778	0.928
		PERF2	17.0585	22.702	0.819	0.923
		PERF3	17.0537	22.590	0.819	0.923
		PERF4	17.1073	22.430	0.834	0.921
		PERF5	17.0585	22.791	0.784	0.927
		PERF6	17.0195	23.000	0.822	0.922

4.7.1.1 Competitive advantage

The notion of competitive advantage pertains to the strategic advantage that a firm has in relation to its rivals within the marketplace. The set in question is distinct and unparalleled.

The assessment of dependability was carried out using the "COMPETITIVE ADV" scale, which included of five components. The assessment of the scale's reliability was conducted by computing the Cronbach's Alpha coefficient, a commonly used measure of internal consistency. The estimated Cronbach's Alpha value of 0.946 indicates a significant level of internal consistency among the items that make up the scale.

The evaluation of the scale's dependability involves examining the correlation between each individual item and the total score of the scale. This facilitates the evaluation of the extent to which each specific item contributes to the overall cohesiveness of the scale. The statistics pertaining to item-total relationships are provided in the following manner:

In the hypothetical situation if the variable denoted as "PERF7" is removed from the dataset, the mean score of the scale would be computed as 13.1951. Furthermore, the variance of the scale was calculated to be 18.168. The calculated item-total correlation coefficient for the variable "PERF7" has yielded a value of 0.858, indicating a strong positive relationship between this particular item and the aggregate score of the scale. If the item designated as "PERF7" is excluded, the resultant Cronbach's Alpha coefficient would be 0.932. This score signifies the significant role that the aforementioned item plays in maintaining the internal coherence of the scale.

If the "PERF8" item is removed from the scale, the mean scale score would be 13.2000, and the scale's variance would be 17.641. The item-total correlation coefficient for the variable "PERF8" has been computed to be 0.904, suggesting a robust positive relationship between this particular item and the aggregate score of the scale. In the event of the exclusion of the variable "PERF8," the resulting Cronbach's Alpha coefficient would amount to 0.924.

In the event that the variable denoted as "PERF9" was eliminated from the dataset, the resultant mean scale score would amount to 13.2390, while the variance would be 17.359. The item-total correlation coefficient for the variable "PERF9" has been determined to be 0.903, indicating a statistically significant and positive association between this particular item and the aggregate score of the scale. In the event that the variable denoted as "PERF9" was excluded from the dataset, the ensuing Cronbach's Alpha coefficient would amount to 0.924.

In the event that the variable denoted as "PERF10" was omitted from the scale, the mean score of the scale would be computed as 13.2293, while the variance of the scale would be determined as 17.550. The item-total correlation coefficient for the variable "PERF10" has been computed to be 0.889, suggesting a strong positive relationship between this specific item and the overall score of

the scale. In the event that the variable "PERF10" was excluded, the resulting Cronbach's Alpha coefficient would be 0.927.

Excluding the data point labeled as "PERF11" from the dataset results in a mean scale score of 12.9317 and a variance of 19.025. The item-total correlation coefficient for the variable labeled "PERF11" has been computed to be 0.713. This value indicates a positive association, although of modest strength, between this specific item and the overall score of the scale. In the event that the variable denoted as "PERF11" was omitted, the resulting Cronbach's Alpha coefficient would amount to 0.957.

In summary, the Cronbach's Alpha coefficient of 0.946 suggests a substantial degree of internal consistency for the "COMPETITIVE ADV" scale. Each of the five items contributes positively to the overall reliability of the scale. The items that were observed have significant connections with the aggregate score of the scale, highlighting their importance in maintaining the overall coherence of the scale.

Table 4.7.1.1 Competitive advantage Reliability Statistics

		Item-Total Statistics				
COMPETITIVE ADV			Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cronbach's Alpha	N of Items	PERF7	13.1951	18.168	0.858	0.932
0.946	5	PERF8	13.2000	17.641	0.904	0.924
		PERF9	13.2390	17.359	0.903	0.924
		PERF10	13.2293	17.550	0.889	0.927
		PERF11	12.9317	19.025	0.713	0.957

4.7.2 Business Process Agility

The assessment of reliability was conducted using the "AGILITY" scale, which comprises of eight distinct elements. The assessment of the scale's reliability was conducted by the calculation of the Cronbach's Alpha coefficient, a widely used measure of internal consistency. The Cronbach's Alpha coefficient, calculated to be 0.911, indicates a significant level of internal consistency among the components that make up the scale.

If the data point labeled as "BPA1" is excluded from the dataset, the resulting mean score for the scale would be 23.1317, and the variance would be 45.301. The item-total correlation coefficient for "BPA1" has been empirically shown to be 0.695, indicating a statistically significant positive association between this particular item and the aggregate score of the scale. If "BPA1" is removed, the Cronbach's Alpha coefficient would decline to 0.901, suggesting that the item plays a significant role in improving the internal consistency of the scale.

If "BPA2" were excluded from the scale, the resulting mean scale score would be 23.0976 with a variation of 44.000. The item-total correlation coefficient for "BPA2" has been empirically shown to be 0.704, indicating a significant positive association between this particular item and the aggregate score of the scale. If the variable "BPA2" were excluded from the analysis, the resulting Cronbach's Alpha coefficient would be 0.899.

If the variable "BPA3" is removed from the dataset, the resulting mean scale score would be 23.3854 and the variance would be 43.277. The item-total correlation coefficient for "BPA3" has been calculated to be 0.762, indicating a strong positive relationship between this particular item and the overall score of the scale. If the variable denoted as "BPA3" were excluded from the dataset, the resultant Cronbach's Alpha coefficient would be 0.895.

If the variable "BPA4" were omitted from the dataset, the resultant mean score of the scale would be 23.4146, accompanied by a variance of 43.754. The item-total correlation coefficient for "BPA4" has been empirically shown to be 0.667, indicating a statistically significant positive association between this particular item and the aggregate score of the scale. In the event that the variable "BPA4" was excluded, the resulting Cronbach's Alpha coefficient would be 0.903.

If the variable "BPA5" were excluded from the dataset, the resultant mean scale score would be 23.4049, and the variance would be 43.095. The item-total correlation coefficient of "BPA5" has been found to be 0.699, indicating a statistically significant positive relationship between this particular item and the entire score of the scale. If the variable denoted as "BPA5" were excluded from the dataset, the resultant Cronbach's Alpha coefficient would be 0.900.

By removing the variable "BPA6" from the dataset, the resulting mean scale score would be 23.4634, with a corresponding variation of 44.064. The item-total correlation coefficient for "BPA6" has been empirically shown to be 0.675, indicating a statistically significant positive association between this particular item and the aggregate score of the scale. In the event that the variable "BPA6" was excluded, the resulting Cronbach's Alpha coefficient would be 0.902.

If the variable "BPA7" is removed from the dataset, the resulting mean score would be 23.0439 and the variance would be 42.964. The item-total correlation coefficient for "BPA7" has been empirically determined to be 0.779, indicating a strong positive relationship between this particular item and the aggregate score of the scale. In the event that the variable denoted as "BPA7" was omitted from the study, the resultant Cronbach's Alpha coefficient would amount to 0.893.

If the variable labeled as "BPA8" were excluded from the scale, the resultant mean scale score would be 23.0878, and the variance of the scale would be 44.580. The item-total correlation

coefficient for the variable "BPA8" has been found to be 0.710, indicating a statistically significant positive relationship between this particular item and the overall score of the scale. If the variable "BPA8" were excluded from the analysis, the resulting Cronbach's Alpha coefficient would be 0.899.

In summary, the Cronbach's Alpha coefficient of 0.911 achieved indicates a substantial degree of internal consistency for the "AGILITY" scale. Each of the eight elements demonstrates a significant contribution to the overall reliability of the scale. The items that were observed have significant connections with the aggregate score of the scale, highlighting their essential contribution to the overall coherence of the scale.

Table 4.7.2 Business process agility Reliability statistics

AGILITY		**Item-Total Statistics**				
Cronbach's Alpha	N of Items		Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
0.911	8	BPA1	23.1317	45.301	0.695	0.901
		BPA2	23.0976	44.000	0.704	0.899
		BPA3	23.3854	43.277	0.762	0.895
		BPA4	23.4146	43.754	0.667	0.903
		BPA5	23.4049	43.095	0.699	0.900
		BPA6	23.4634	44.064	0.675	0.902
		BPA7	23.0439	42.964	0.779	0.893
		BPA8	23.0878	44.580	0.710	0.899

4.7.3 Market Dynamism

The assessment of reliability was conducted using the "Market Dynamism" scale, which consisted of a total of five items. The assessment of the scale's reliability was conducted by the computation of the Cronbach's Alpha coefficient, a commonly used measure of internal consistency. The Cronbach's Alpha coefficient, calculated to be 0.888, indicates an acceptable level of internal consistency among the components that make up the scale.

The assessment of the scale's reliability involves examining the degree of connection between each individual item and the total score of the scale. This analysis facilitates the evaluation of the extent to which each item contributes to the overall coherence of the scale. The statistical analysis pertaining to the connection between the item and its total is shown in the following data.

If the "MD5" component is excluded, the mean value of the scale would be 11.1854, and the variance of the scale would be computed as 18.740. The calculated item-total correlation coefficient for the "MD5" item is 0.666, indicating a statistically significant positive relationship between this specific item and the overall score of the scale. In the hypothetical situation when the "MD5" variable is omitted, the resultant Cronbach's Alpha coefficient would be 0.878. The aforementioned value signifies the item's substantial contribution to maintaining the internal coherence of the scale.

If the "MD6" component is omitted from the scale, the mean scale score would be 11.2878, and the variance would be 18.177. The calculated item-total correlation coefficient for "MD6" is 0.733, indicating a statistically significant positive relationship between this particular item and the entire score of the scale. In the event that the variable "MD6" was excluded, the resulting Cronbach's Alpha coefficient would amount to 0.863.

If the variable labeled "MD7" were to be eliminated from the dataset, the resultant mean scale score would amount to 11.0000, while the variance would be calculated as 18.157. The calculated item-total correlation coefficient for "MD7" is 0.703, indicating a statistically significant positive relationship between this particular item and the total score of the scale. If the variable denoted as "MD7" were omitted from the study, the resultant Cronbach's Alpha coefficient would be 0.870.

In the event that the variable "MD8" is eliminated from the dataset, the resultant mean score of the scale would amount to 11.0585, while the variance of the scale would be 17.526. The item-total correlation coefficient for "MD8" has been empirically determined to be 0.814, indicating a strong positive relationship between this particular item and the total score of the scale. If the exclusion of the item denoted as "MD8" were to occur, the resulting Cronbach's Alpha coefficient would amount to 0.844.

If the item labeled "MD9" is removed from the scale, the mean scale score would be 11.0976, and the scale's variance would be 18.559. The item-total correlation coefficient of "MD9" has been found to be 0.729, indicating a statistically significant positive relationship between this particular item and the overall score of the scale. In the event that the variable "MD9" was excluded, the resulting Cronbach's Alpha coefficient would amount to 0.864.

In summary, the Cronbach's Alpha coefficient of 0.888 indicates that the "Market Dynamism" scale has satisfactory levels of internal consistency. Each of the five items significantly contributes to enhancing the reliability of the scale. The items that were observed have significant correlations with the score of the whole scale, indicating their significant contribution to the overall coherence of the scale.

Table 4.7.3 Market Dynamism Reliability Statistics

Market Dynamism		**Item-Total Statistics**				
Cronbach's Alpha	N of Items		Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
0.888	5	MD5	11.1854	18.740	0.666	0.878
		MD6	11.2878	18.177	0.733	0.863
		MD7	11.0000	18.157	0.703	0.870
		MD8	11.0585	17.526	0.814	0.844
		MD9	11.0976	18.559	0.729	0.864

4.7.4 IT Capability

The assessment of reliability was carried out using the "IT Capability" scale, including a total of nineteen components. The assessment of the scale's reliability was conducted by computing the Cronbach's Alpha coefficient, a commonly used measure of internal consistency. The Cronbach's Alpha coefficient, acquired from the data analysis, indicates a high level of internal consistency among the items that make up the scale. The coefficient value of 0.964 reflects a large degree of consistency.

The assessment of the scale's reliability involves analyzing the degree of connection between each specific item and the overall score of the scale. This analysis enables the evaluation of the extent to which each individual item contributes to the overall coherence of the scale. The statistical data pertaining to the connection between the item and its total are presented in the following manner:

If the variable "ITINF1" is removed from the dataset, the resulting mean score for the scale would be 57.6098, with a variance of 295.386. The item-total correlation coefficient for the variable "ITINF1" has been computed to be 0.721, suggesting a positive association between this particular

item and the aggregate score of the scale. If the exclusion of the item labeled "ITINF1" were to occur during the study, the resultant Cronbach's Alpha coefficient would be 0.963. This indicates that the inclusion of this specific item contributes to the overall internal consistency of the scale.

If the variable "ITINF2" is removed from the scale, the resulting mean scale score would be 57.6098 and the variance would be 294.033. The study has shown a significant item-total correlation of 0.767 for the variable "ITINF2," indicating a positive association between this particular item and the overall score of the scale. If the variable "ITINF2" were omitted from the analysis, the resulting Cronbach's Alpha coefficient would be 0.962.

If the "ITINF3" component is removed from the scale, the resulting mean scale score would be 57.7512 and the variance would be 299.345. The item-total correlation coefficient for the variable "ITINF3" has been calculated to be 0.693, indicating a significant positive association between this particular item and the overall score of the scale. If the variable "ITINF3" were excluded, the Cronbach's Alpha coefficient would be 0.963.

In the event that the variable "ITBP1" is excluded from the dataset, the mean score of the scale would be 57.6780, while the scale's variability would amount to 296.239. The item-total correlation coefficient for "ITBP1" has been computed as 0.715, suggesting a positive association between this particular item and the overall score of the scale. If the variable labeled as "ITBP1" were omitted from the analysis, the resultant Cronbach's Alpha coefficient would be 0.963.

After removing the variable "ITBP2" from the scale, the mean scale score is determined to be 57.6195, accompanied by a variance of 296.413. The calculated item-total correlation coefficient for "ITBP2" is 0.752, indicating a statistically significant positive relationship between this

particular item and the total score of the scale. If the variable "ITBP2" were removed from the analysis, the resulting Cronbach's Alpha coefficient would be 0.962.

If the variable "ITBP3" is removed from the dataset, the resulting mean score for the scale would be 57.9707, with a variance of 296.176. The calculated item-total correlation coefficient for "ITBP3" is 0.735, suggesting a statistically significant positive relationship between this specific item and the entire score of the scale. If the variable labeled as "ITBP3" were removed from the analysis, the resulting Cronbach's Alpha coefficient would be 0.963.

If the "ITBP4" variable is excluded from the scale, the resulting mean scale score would be 57.7854, and the variance would be 300.787. The results indicate that the item-total correlation coefficient for "ITBP4" is 0.655, indicating a statistically significant positive relationship between this particular item and the overall score of the scale. If the variable "ITBP4" were excluded, the resulting Cronbach's Alpha coefficient would be 0.964.

Based on the hypothetical situation in which the variable "ITBP5" is eliminated, the mean score of the scale would be calculated as 57.8585. Additionally, the variability of the scale would be quantified by a variance of 296.730. The calculated item-total correlation coefficient for "ITBP5" is 0.756, showing a statistically significant positive relationship between this particular item and the overall score of the scale. In the event of the exclusion of the variable "ITBP5," the resulting Cronbach's Alpha coefficient would be 0.962.

If the data point labeled "ITBPI1" is excluded from the scale, the mean scale score would be 57.8976, and the variance would be 293.514. The item-total correlation coefficient for "ITBPI1" has been computed as 0.820, indicating a significant positive association between this specific item

and the overall score of the scale. If the variable "ITBPI1" were removed from the analysis, the resulting Cronbach's Alpha coefficient would be 0.961.

If the variable "ITBPI3" were excluded from the dataset, the mean score of the scale would be 57.7317, and the variance of the scale would be 297.697. The item-total correlation coefficient for the variable "ITBPI3" has been computed to be 0.748, suggesting a significant positive relationship between this particular item and the overall score of the scale. In the hypothetical scenario if the variable "ITBPI3" is removed from the analysis, the resulting Cronbach's Alpha coefficient would be 0.962.

If the item labeled "ITM1" were to be removed from the scale, the resulting mean scale score would be 57.4634, and the variance would be 296.397. The calculated item-total correlation coefficient for "ITM1" is 0.765, indicating a statistically significant positive relationship between this specific item and the overall score of the scale. In the event that the variable "ITM1" was excluded, the resulting Cronbach's Alpha coefficient would be 0.962.

In the event that the variable "ITM2" is eliminated from the dataset, the mean score of the scale would be 57.5463, while the variation of the scale would amount to 294.122. The item-total correlation coefficient for "ITM2" has been computed to be 0.825, suggesting a significant positive association between this particular item and the total score of the scale. If the variable denoted as "ITM2" were removed from the analysis, the resulting Cronbach's Alpha coefficient would be 0.961.

If the variable "ITM3" is removed from the scale, the resulting mean scale score would be 57.6683, with a variance of 296.272. The item-total correlation coefficient for "ITM3" has been determined to be 0.765, indicating a positive association between this particular item and the total score of the

scale. If the variable denoted as "ITM3" were omitted, the Cronbach's Alpha coefficient would be 0.962.

Based on the hypothetical situation whereby the variable "ITM4" is eliminated, the mean score of the scale would be 57.6537, and the variation of the scale would amount to 296.463. The estimated item-total correlation coefficient for "ITM4" is 0.766, suggesting a positive relationship between this particular item and the overall score of the scale. If the variable labeled "ITM4" were removed from the analysis, the resulting Cronbach's Alpha coefficient would be 0.962.

If the "ITM5" variable is excluded from the scale, the resulting mean scale score would be 57.6976 and the variance would be 293.202. The study has shown a substantial positive link between the particular item "ITM5" and the overall scale score, as indicated by a calculated item-total correlation coefficient of 0.824. In the event of excluding the variable "ITM5," the Cronbach's Alpha coefficient would amount to 0.961.

Table 4.7.4 IT capability Reliability Statistics

IT CAPABILITY		**Item-Total Statistics**				
Cronbach's Alpha	N of Items		Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
0.964	19	ITINF1	57.6098	295.386	0.721	0.963
		ITINF2	57.6098	294.033	0.767	0.962
		ITINF3	57.7512	299.345	0.693	0.963
		ITBP1	57.6780	296.239	0.715	0.963
		ITBP2	57.6195	296.413	0.752	0.962
		ITBP3	57.9707	296.176	0.735	0.963
		ITBP4	57.7854	300.787	0.655	0.964
		ITBP5	57.8585	296.730	0.756	0.962
		ITBPI1	57.8976	293.514	0.820	0.961
		ITBPI3	57.7317	297.697	0.748	0.962

		ITM1	57.4634	296.397	0.765	0.962
		ITM2	57.5463	294.122	0.825	0.961
		ITM3	57.6683	296.272	0.765	0.962
		ITM4	57.6537	296.463	0.766	0.962
		ITM5	57.6976	293.202	0.824	0.961
		ITM6	57.6390	293.183	0.830	0.961
		EIT1	57.6683	298.517	0.698	0.963
		EIT2	57.6488	299.190	0.688	0.963
		EIT3	57.7463	295.827	0.770	0.962

4.8 Regression

The output shown is the outcome of a regression analysis conducted using the PROCESS tool in SPSS version 4.0. This study examines the associations between factors and their impacts on the dependent variables "BAgil" and "SMEPERF."

The model for BAgil has an R-squared value of 0.556, suggesting that it accounts for 55.6% of the variability seen in the outcome variable "BAgil."

The F-statistic of 26.803, with a corresponding p-value of less than 0.001, indicates that the whole model has statistical significance.

The variable "ITCAP" has a statistically significant positive coefficient of 0.670 ($p < 0.001$), suggesting that there is a tendency for "BAgil" to rise as "ITCAP" increases.

The variable "MktDyn" has a statistically significant positive coefficient of 0.128 ($p = 0.006$), indicating that an upward change in "MktDyn" is linked to a modest rise in "BAgil."

Covariates such as "age," "gender," "education," "position," "size," and "owner" are included into the analysis to mitigate any confounding influences.

To determine if the link between "ITCAP" and "BAgil" is moderated by "MktDyn," the model includes the interaction term "Int_1" (ITCAP x MktDyn). Nevertheless, the statistical analysis reveals that the interaction term does not exhibit significance ($p = 0.850$), suggesting that the interaction effect lacks statistical significance.

R-squared (R2): 0.510 indicates that the model accounts for 51.0% of the variation in the outcome variable "SMEPERF."

The F-statistic of 25.283, along by a p-value less than 0.001, suggests that the entire model has statistical significance.

The study found a significant direct influence of "ITCAP" on "SMEPERF" ($\beta = 0.432$, $p < 0.001$), suggesting that a rise in "ITCAP" is positively related with an increase in "SMEPERF."

The direct correlation between "BAgil" and "SMEPERF" is 0.301 (p 0.001), indicating that rising "BAgil" is linked to rising "SMEPERF."

The study incorporates the use of bootstrapping to estimate confidence intervals, and presents a range of statistical measures for each coefficient, such as standard errors, t-values, and confidence intervals.

The variables "MktDyn" and "ITCAP" undergo mean-centering prior to the analysis.

The interpretation of the analysis entails evaluating the coefficients, their degrees of significance, and their practical consequences within the framework of the research inquiry.

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.0 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 7
    Y  : SMEPERF
    X  : ITCAP
    M  : BAgil
    W  : MktDyn

Covariates:
 age      gender   education position size     owner

Sample
Size:  203

**************************************************************************
OUTCOME VARIABLE:
 BAgil

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .745       .556       .409     26.803      9.000    193.000       .000

Model
              coeff         se          t          p       LLCI       ULCI
constant      3.077       .312      9.860       .000      2.461      3.692
ITCAP          .670       .051     13.146       .000       .569       .770
MktDyn         .128       .046      2.759       .006       .036       .219
Int_1          .008       .042       .190       .850      -.075       .090
age           -.023       .053      -.425       .671      -.128       .082
gender         .058       .103       .567       .572      -.145       .261
education     -.037       .111      -.335       .738      -.257       .182
position       .119       .113      1.057       .292      -.103       .342
size          -.124       .070     -1.780       .077      -.261       .013
owner          .179       .103      1.733       .085      -.025       .383

Product terms key:
 Int_1    :        ITCAP    x        MktDyn

Test(s) of highest order unconditional interaction(s):
```

```
       R2-chng           F         df1         df2           p
X*W       .000        .036       1.000     193.000        .850

************************************************************************
OUTCOME VARIABLE:
 SMEPERF

Model Summary
          R       R-sq        MSE          F        df1         df2          p
       .714       .510       .437     25.283      8.000     194.000       .000

Model
              coeff         se          t          p       LLCI       ULCI
constant      2.174       .389      5.594       .000      1.407      2.940
ITCAP          .432       .072      6.003       .000       .290       .573
BAgil          .301       .073      4.122       .000       .157       .445
age           -.027       .054      -.489       .626      -.134       .081
gender        -.003       .106      -.031       .975      -.213       .206
educatio      -.093       .113      -.818       .414      -.316       .131
position      -.012       .116      -.101       .920      -.240       .217
size           .113       .072      1.560       .120      -.030       .255
owner          .121       .107      1.135       .258      -.089       .331

****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI
       .432       .072      6.003       .000       .290       .573

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
 ITCAP       ->    BAgil       ->    SMEPERF

     MktDyn     Effect     BootSE   BootLLCI   BootULCI
     -1.046       .199       .061       .079       .316
       .000       .202       .062       .079       .321
      1.046       .204       .067       .076       .337

      Index of moderated mediation:
             Index     BootSE   BootLLCI   BootULCI
MktDyn        .002       .014      -.023       .035
---

********************** ANALYSIS NOTES AND ERRORS ************************
```

```
Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the mean and +/- SD from the mean.

NOTE: The following variables were mean centered prior to analysis:
          MktDyn   ITCAP

WARNING: Variables names longer than eight characters can produce incorrect
output
when some variables in the data file have the same first eight characters.
Shorter
variable names are recommended. By using this output, you are accepting all risk
and consequences of interpreting or reporting results that may be incorrect.

------ END MATRIX -----
```

CHAPTER FIVE

5.0 SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Small and medium-sized businesses (SMEs) are essential to the economy in today's fast-paced business environment because they often spur competition and innovation (Benitez et al., 2018).

This study has delved into a complex and dynamic area of research, aiming to investigate the multifaceted interplay between IT capabilities, business process agility (BPA), market dynamism, and SME performance.

Utilizing advanced statistical techniques, we obtained valuable insights that cast light on the mechanisms underpinning the success and competitiveness of small and medium-sized enterprises (SMEs).

5.2 Summary of findings

5.2.1 The relationship between IT Capability and Performance of small medium enterprise

Examining the connection between IT capabilities and the overall performance of SMEs was the primary focus of our first research question. Our research unambiguously demonstrates that there is a strong and beneficial association between a company's IT capabilities and the Performance of a small or medium-sized enterprise (SME). This result highlights the critical role that IT skills play as a facilitator for small and medium-sized enterprises (SMEs) to reach better levels of performance. Small and medium-sized businesses (SMEs) that make investments in information technology (IT) and successfully harness their IT resources are in a position to achieve greater operational efficiency, innovation, and overall competitiveness, which ultimately leads to improved performance results (A. Bharadwa, 2000).

5.2.2 The mediating role of Business Process Agility in relationship between IT Capability and Performance

Moving to our second study questioning, we endeavored to investigate the intermediary function of business process agility in the correlation between IT capability and small and medium-sized enterprise (SME) performance. Our study provides evidence supporting the crucial role of business process agility as a mediator. Our findings indicate that the IT capability of small and medium enterprises (SMEs) has a direct impact on their performance. Additionally, we observed that IT capability also indirectly affects performance by improving the agility of their business processes (Chen et al, 2014). The aforementioned mediating effect underscores the notion that small and medium-sized enterprises (SMEs) with robust information technology (IT) capabilities are more adept at promptly adjusting their operational procedures in response to evolving conditions, hence resulting in enhanced overall performance.

5.2.3 The moderating role of Market Dynamism on the relationship between IT Capability and Performance through Business Process Agility

Our investigation of the third research question focused on examining the influence of market dynamism on the link between IT capability and SME performance, specifically in the context of business process agility. The findings of our study revealed interesting and noteworthy observations. While the statistical analysis did not find a significant direct moderating influence of market dynamism on the link between IT capability and BPA, it is important to note that the significance of market responsiveness should not be disregarded. Instead, it highlights the need of SMEs adopting a proactive approach in adapting their strategies and procedures to anticipate

market developments. Market dynamism is a contextual aspect that has an impact on the unfolding of the link between IT capabilities and business process agility (Dibrell et al. 2008).

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study highlights the significant impact of information technology (IT) skills on the performance of small and medium-sized enterprises (SMEs), with business process agility serving as a crucial intermediate mechanism. As small and medium-sized enterprises (SMEs) continue to adopt digital transformation, the strategic use of IT resources and the cultivation of agile processes may effectively position them for improved competitiveness and expansion. Although the influence of market dynamism on the association between IT capabilities and business process agility was not found to be statistically significant in our research, it is important to acknowledge its potential effect. It is strongly recommended that small and medium-sized enterprises (SMEs) maintain a high degree of adaptability in response to dynamic market circumstances, in order to guarantee the continued effectiveness and alignment of their plans with developing client expectations (Dibrell et al. 2008).

This research is a valuable contribution to the existing body of academic literature and has practical implications for managers of small and medium-sized enterprises (SMEs) as well as policymakers. By acknowledging the deep relationship between information technology capabilities, the agility of business processes, and the dynamic nature of the market, small and medium-sized enterprises (SMEs) may get a comprehensive understanding of how to effectively traverse the difficult and multifaceted terrain of contemporary business and cultivate long-term success.

In conclusion, our study offers significant contributions to the understanding of the complex interconnections that influence the performance of small and medium-sized enterprises (SMEs), with a particular focus on the significance of information technology (IT) skills, adaptability in

business processes, and response to market dynamics. A comprehensive comprehension of this holistic nature is crucial for small and medium-sized enterprises (SMEs) that want to flourish within a swiftly evolving commercial landscape, all the while attaining enduring prosperity.

6.2 Recommendations

This research primarily examined the influence of market dynamism as a moderator. However, it is important to acknowledge that other contextual factors may also contribute to the link between IT capability, business process agility, and performance. The inclusion of other moderating elements may contribute to a more thorough comprehension. Besides the aspect of business process agility, there are additional elements that may possibly act as mediators in the interaction between IT capabilities and performance. The exploration of alternate mediators has the potential to enhance the comprehension of the intricate systems involved. The conclusions of the research may be subject to potential impact from the particular geographical location or industrial sector being examined. Subsequent investigations may delve into the extent to which these associations remain consistent across diverse geographical areas or sectors. The primary emphasis of this study was on quantitative analysis. However, it is worth noting that qualitative research has the potential to provide a more profound understanding of the real-life experiences of small and medium-sized enterprises (SMEs) in terms of managing their IT capabilities, fostering business process agility, and effectively reacting to market dynamics. Incorporating these constraints into future research attempts will not only enhance the credibility of the results but also add to the advancing body of information on the complex interconnections among IT capabilities, business process agility, market dynamics, and SME success.

REFERENCES

Acharya, T., & Ray, A. K. (2005). Image processing: principles and applications. John Wiley & Sons.

Adam, A. M. (2020). Sample size determination in survey research. Journal of Scientific Research and Reports, 26(5), 90-97.

Adams, D. H., Popma, J. J., Reardon, M. J., Yakubov, S. J., Coselli, J. S., Deeb, G. M., ... & Oh, J. K. (2014). Transcatheter aortic-valve replacement with a self-expanding prosthesis. New England Journal of Medicine, 370(19), 1790-1798.

Ade, P., Aguirre, J., Ahmed, Z., Aiola, S., Ali, A., Alonso, D., & Madhavacheril, M. (2019). The Simons Observatory: science goals and forecasts. Journal of Cosmology and Astroparticle Physics, 2019(02), 056-056.

Ades, A. E., Sculpher, M., Sutton, A., Abrams, K., Cooper, N., Welton, N., & Lu, G. (2006). Bayesian methods for evidence synthesis in cost-effectiveness analysis. Pharmacoeconomics, 24, 1-19.

Agan, A. Y. (2011). Sex offender registries: Fear without function? The Journal of Law and Economics, 54(1), 207-239.

Agarwal, R., & Sambamurthy, V. (2020). Principles and models for organizing the IT function. In Strategic information management (pp. 243-260). Routledge.

Aguilar, M., Aisa, D., Alvino, A., Ambrosi, G., Andeen, K., Arruda, L., ... & Liu, D. (2014). Electron and positron fluxes in primary cosmic rays measured with the Alpha Magnetic Spectrometer on the International Space Station. Physical review letters, 113(12), 121102.

Ally, A., Balasundaram, M., Carlsen, R., Chuah, E., Clarke, A., Dhalla, N., ... & Ferguson, M. L. (2017). Comprehensive and integrative genomic characterization of hepatocellular carcinoma. Cell, 169(7), 1327-1341.

Al-Surmi, A., Cao, G., & Duan, Y. (2020). The impact of aligning business, IT, and marketing strategies on firm performance. Industrial marketing management, 84, 39-49.

Ashrafi, R., & Mueller, J. (2015). Delineating IT resources and capabilities to obtain competitive advantage and improve firm performance. Information Systems Management, 32(1), 15-38.

Aydiner, A. S., Tatoglu, E., Bayraktar, E., Zaim, S., & Delen, D. (2019). Business analytics and firm performance: The mediating role of business process performance. Journal of business research, 96, 228-237.

Baek, M., DiMaio, F., Anishchenko, I., Dauparas, J., Ovchinnikov, S., Lee, G. R., ... & Baker, D. (2021). Accurate prediction of protein structures and interactions using a three-track neural network. Science, 373(6557), 871-876.

Barua, A., Kriebel, C. H., & Mukhopadhyay, T. (1995). Information technologies and business value: An analytic and empirical investigation. Information systems research, 6(1), 3-23.

Benton, T. G., Vickery, J. A., & Wilson, J. D. (2003). Farmland biodiversity: is habitat heterogeneity the key?. Trends in ecology & evolution, 18(4), 182-188.

Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: an empirical investigation. MIS quarterly, 169-196.Karimi et al. (2007)

Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. V. (2013). Digital business strategy: toward a next generation of insights. MIS quarterly, 471-482.

Bhatt, G. D., & Grover, V. (2005). Types of information technology capabilities and their role in competitive advantage: An empirical study. Journal of management information systems, 22(2), 253-277.

Bordeleau, F. E., Mosconi, E., & de Santa-Eulalia, L. A. (2020). Business intelligence and analytics value creation in Industry 4.0: a multiple case study in manufacturing medium enterprises. Production Planning & Control, 31(2-3), 173-185.

Borucki, W. J., Koch, D., Basri, G., Batalha, N., Brown, T., Caldwell, D., ... & Prsa, A. (2010). Kepler planet-detection mission: introduction and first results. Science, 327(5968), 977-980.

Bozarth, C. C., Warsing, D. P., Flynn, B. B., & Flynn, E. J. (2009). The impact of supply chain complexity on manufacturing plant performance. Journal of operations management, 27(1), 78-93.

Brynjolfsson, E., & Hitt, L. M. (2000). Beyond computation: Information technology, organizational transformation and business performance. Journal of Economic perspectives, 14(4), 23-48.

Bulchand-Gidumal, J., Melián-González, S., & González López-Valcárcel, B. (2011). Improving hotel ratings by offering free Wi-Fi. Journal of Hospitality and Tourism Technology, 2(3), 235-245.

Chaurasia, B., Garg, D., & Agarwal, A. (2016). Framework to improve performance through implementing Lean Six Sigma strategies to oil exporting countries during recession or depression. International Journal of Productivity and Performance Management, 65(3), 422-432.

Chen, X., & Siau, K. (2011). Impact of business intelligence and IT infrastructure flexibility on competitive performance: an organizational agility perspective.

Chesbrough, H., & Schwartz, K. (2007). Innovating business models with co-development partnerships. Research-Technology Management, 50(1), 55-59.

Chi, L., Holsapple, C. W., & Srinivasan, C. (2007). Competitive dynamics in electronic networks: A model and the case of interorganizational systems. International Journal of Electronic Commerce, 11(3), 7-49.

Cometto, T., Nisar, A., Palacios, M., Le Meunier-FitzHugh, K., & Labadie, G. J. (2016). Organizational linkages for new product development: Implementation of innovation projects. Journal of Business Research, 69(6), 2093-2100.

Curwen, L. G., Park, J., & Sarkar, A. K. (2013). Challenges and solutions of sustainable apparel product development: A case study of Eileen Fisher. Clothing and Textiles Research Journal, 31(1), 32-47.

Dalenogare, L. S., Benitez, G. B., Ayala, N. F., & Frank, A. G. (2018). The expected contribution of Industry 4.0 technologies for industrial performance. International Journal of production economics, 204, 383-394. (Neirotti & Raguseo, 2017

Davis-Sramek, B., Germain, R., & Iyer, K. (2010). Supply chain technology: the role of environment in predicting performance. Journal of the Academy of Marketing Science, 38, 42-55.

Dehning, B., & Richardson, V. J. (2002). Returns on investments in information technology: A research synthesis. Journal of information systems, 16(1), 7-30.

Deutskens, E., de Ruyter, J. C., & Wetzels, M. G. (2005). An assessment of measurement invariance between online and mail surveys.

Dias, A. T., Rossi, F. S. M., Silva, J. T. M., de Camargos, M. A., & de-Carvalho, J. P. (2020). The effects of competitive environment and strategic factors on US firm performance before and after the global financial crisis. Latin American Business Review, 21(1), 37-59.

Dibrell, C., Davis, P. S., & Craig, J. (2008). Fueling innovation through information technology in SMEs. Journal of small business management, 46(2), 203-218.

Dickson, P., Schneier, W., Lawrence, P., & Hytry, R. (1995). Managing design in small high-growth companies. Journal of Product Innovation Management, 12(5), 406-414.

Duncan, G. (1995). ACC reform and workplace safety and health. JOURNAL OF OCCUPATIONAL HEALTH AND SAFETY, AUSTRALIA AND NEW ZEALAND, 11(4), 381-385.

Ferdows, K., Lewis, M. A., & Machuca, J. A. (2004). Rapid-fire fulfillment. Harvard business review, 82(11), 104-117.

Fichman, R. G. (2004). Going beyond the dominant paradigm for information technology innovation research: Emerging concepts and methods. Journal of the association for information systems, 5(8), 1.

Fink, L., & Neumann, S. (2007). Gaining agility through IT personnel capabilities: The mediating role of IT infrastructure capabilities. Journal of the Association for Information Systems, 8(8), 25.

Golden, J. T., Andersen, R. A., & Bergman, R. G. (2001). Exceptionally low-temperature carbon− hydrogen/carbon− deuterium exchange reactions of organic and organometallic compounds catalyzed by the Cp*(PMe3) IrH (ClCH2Cl)+ cation. Journal of the American Chemical Society, 123(24), 5837-5838.

Habib, M. A., Bao, Y., & Ilmudeen, A. (2020). The impact of green entrepreneurial orientation, market orientation and green supply chain management practices on sustainable firm performance. Cogent Business & Management, 7(1), 1743616.

Han, J. K., Kim, N., & Srivastava, R. K. (1998). Market orientation and organizational performance: is innovation a missing link?. Journal of marketing, 62(4), 30-45.

Hu, Z., Chen, X., Zhao, Y., Tian, T., Jin, G., Shu, Y., ... & Shen, H. (2010). Serum microRNA signatures identified in a genome-wide serum microRNA expression profiling predict survival of non-small-cell lung cancer. J Clin Oncol, 28(10), 1721-1726.

Huang, C. D., & Hu, Q. (2007). Achieving IT-business strategic alignment via enterprise-wide implementation of balanced scorecards. Information systems management, 24(2), 173-184.

Huang, G. Q., Qu, T., Zhang, Y., & Yang, H. D. (2012). RFID-enabled product-service system for automotive part and accessory manufacturing alliances. International journal of production research, 50(14), 3821-3840.

Hult, G. T. M. (2011). Market-focused sustainability: market orientation plus!. Journal of the Academy of Marketing Science, 39, 1-6.

Hult, G. T. M., Ketchen, D. J., Griffith, D. A., Chabowski, B. R., Hamman, M. K., Dykes, B. J., ... & Cavusgil, S. T. (2008). An assessment of the measurement of performance in international business research. Journal of international business studies, 39, 1064-1080.

Ilmudeen, A., Bao, Y., & Alharbi, I. M. (2019). How does business-IT strategic alignment dimension impact on organizational performance measures: Conjecture and empirical analysis. Journal of Enterprise Information Management, 32(3), 457-476.

Jahanshahi, P., Zalnezhad, E., Sekaran, S. D., & Adikan, F. R. M. (2014). Rapid immunoglobulin Mbased dengue diagnostic test using surface plasmon resonance biosensor. Scientific reports, 4(1), 3851.

Jansen, J. J., Vera, D., & Crossan, M. (2009). Strategic leadership for exploration and exploitation: The moderating role of environmental dynamism. The leadership quarterly, 20(1), 5-18.

Jin, B. (2006). Performance implications of information technology implementation in an apparel supply chain. Supply Chain Management: An International Journal, 11(4), 309-316.

Karimi, J., Bhattacherjee, A., Gupta, Y. P., & Somers, T. M. (2000). The effects of MIS steering committees on information technology management sophistication. Journal of Management Information Systems, 17(2), 207-230.

Karimi, J., Somers, T. M., & Bhattacherjee, A. (2007). The role of information systems resources in ERP capability building and business process outcomes. Journal of Management Information Systems, 24(2), 221-260.

Katayama, H., & Bennett, D. (1999). Agility, adaptability and leanness: A comparison of concepts and a study of practice. International journal of production economics, 60, 43-51.

Keszey, T., & Biemans, W. (2017). Trust in marketing's use of information from sales: the moderating role of power. Journal of Business & Industrial Marketing, 32(2), 258-273.

Kim, J. W., Isobe, T., Chang, K. H., Amano, A., Maneja, R. H., Zamora, P. B., ... & Tanabe, S. (2011). Levels and distribution of organophosphorus flame retardants and plasticizers in fishes from Manila Bay, the Philippines. Environmental pollution, 159(12), 3653-3659.

Kohli, R., & Grover, V. (2008). Business value of IT: An essay on expanding research directions to keep up with the times. Journal of the association for information systems, 9(1), 1.

Kornrich, S., & Furstenberg, F. (2013). Investing in children: Changes in parental spending on children, 1972–2007. Demography, 50(1), 1-23.

Le Meunier-FitzHugh, K., & Piercy, N. F. (2011). Exploring the relationship between market orientation and sales and marketing collaboration. Journal of Personal Selling & Sales Management, 31(3), 287-296.

Li, Y., Ye, F., & Zhu, H. (2023). Impact of interaction between corporate environmental responsibility and corporate financial performance: the moderating effects of environmental regulation and internal control. Applied Economics, 1-14.

Chew, K. W., Yap, J. Y., Show, P. L., Suan, N. H., Juan, J. C., Ling, T. C., ... & Chang, J. S. (2017). Microalgae biorefinery: high value products perspectives. Bioresource technology, 229, 53-62.

Lioukas, C. S., Reuer, J. J., & Zollo, M. (2016). Effects of information technology capabilities on strategic alliances: Implications for the resource-based view. Journal of Management Studies, 53(2), 161-183.

Liu, J., Song, K., Zhu, C., Chen, C. C., van Aken, P. A., Maier, J., & Yu, Y. (2014). Ge/C nanowires as high-capacity and long-life anode materials for Li-ion batteries. ACS nano, 8(7), 7051-7059.

Liu, X., Faes, L., Kale, A. U., Wagner, S. K., Fu, D. J., Bruynseels, A., ... & Denniston, A. K. (2019). A comparison of deep learning performance against health-care professionals in detecting diseases from medical imaging: a systematic review and meta-analysis. The lancet digital health, 1(6), e271-e297.

Love, J. H., & Roper, S. (2015). SME innovation, exporting and growth: A review of existing evidence. International small business journal, 33(1), 28-48.

Lu, Y., & K.(Ram) Ramamurthy. (2011). Understanding the link between information technology capability and organizational agility: An empirical examination. MIS quarterly, 931-954.

Lyver, M. J., & Lu, T. J. (2018). Sustaining innovation performance in SMEs: Exploring the roles of strategic entrepreneurship and IT capabilities. Sustainability, 10(2), 442.

Mahmood, M. A., & Mann, G. J. (2005). Information technology investments and organizational productivity and performance: An empirical investigation. Journal of Organizational Computing and Electronic Commerce, 15(3), 185-202.

Melville, N., Kraemer, K., & Gurbaxani, V. (2004). Information technology and organizational performance: An integrative model of IT business value. MIS quarterly, 283-322.

Melville, P., & Mooney, R. J. (2004, July). Diverse ensembles for active learning. In Proceedings of the twenty-first international conference on Machine learning (p. 74).

Mithas, S., Ramasubbu, N., & Sambamurthy, V. (2011). How information management capability influences firm performance. MIS quarterly, 237-256.

Moodley, D., Geerts, S., Richardson, D. M., & Wilson, J. R. (2013). Different traits determine introduction, naturalization and invasion success in woody plants: Proteaceae as a test case. Plos one, 8(9), e75078.

Morgan, R. E., & Turnell, C. R. (2003). Market-based organizational learning and market performance gains. British Journal of Management, 14(3), 255-274.

Mustafa, G., Solli-Sæther, H., Bodolica, V., Håvold, J. I., & Ilyas, A. (2022). Digitalization trends and organizational structure: bureaucracy, ambidexterity or post-bureaucracy?. Eurasian Business Review, 12(4), 671-694.

Nabeel-Rehman, R., & Nazri, M. (2019). Information technology capabilities and SMEs performance: An understanding of a multi-mediation model for the manufacturing sector. Interdisciplinary Journal of Information, Knowledge, and Management, 14, 253.

Nagueh, S. F., Smiseth, O. A., Appleton, C. P., Byrd, B. F., Dokainish, H., Edvardsen, T., ... & Houston, Texas; Oslo, Norway; Phoenix, Arizona; Nashville, Tennessee; Hamilton, Ontario, Canada; Uppsala, Sweden; Ghent and Liège, Belgium; Cleveland, Ohio; Novara, Italy; Rochester, Minnesota; Bucharest, Romania; and St. Louis, Missouri. (2016). Recommendations for the evaluation of left ventricular diastolic function by echocardiography: an update from the American Society of Echocardiography and the European Association of Cardiovascular Imaging. European Journal of Echocardiography, 17(12), 1321-1360.

Neirotti, P., & Raguseo, E. (2017). On the contingent value of IT-based capabilities for the competitive advantage of SMEs: Mechanisms and empirical evidence. Information & Management, 54(2), 139-153.

Nevo, S., & Wade, M. (2011). Firm-level benefits of IT-enabled resources: A conceptual extension and an empirical assessment. The Journal of Strategic Information Systems, 20(4), 403-418.

Nevo, S., & Wade, M. R. (2010). The formation and value of IT-enabled resources: antecedents and consequences of synergistic relationships. MIS quarterly, 163-183.

Newkirk, H. E., & Lederer, A. L. (2006). The effectiveness of strategic information systems planning under environmental uncertainty. Information & Management, 43(4), 481-501.

Odoh, M., & Chinedum, I. E. (2014). Research designs, survey and case study. Journal of VLSI and signal processing, 4(6), 16-22.

Okamoto, K., Shook, C. J., Bivona, L., Lee, S. B., & English, D. S. (2004). Direct observation of wetting and diffusion in the hydrophobic interior of silica nanotubes. Nano Letters, 4(2), 233-239.

Oliver, D., & Roos, J. (2005). Decision-making in high-velocity environments: The importance of guiding principles. Organization Studies, 26(6), 889-913.

Overby, E., Bharadwaj, A., & Sambamurthy, V. (2006). Enterprise agility and the enabling role of information technology. European journal of information systems, 15, 120-131.

Overby, J. W., & Lee, E. J. (2006). The effects of utilitarian and hedonic online shopping value on consumer preference and intentions. Journal of Business research, 59(10-11), 1160-1166.

Pang, Z., Zheng, L., Tian, J., Kao-Walter, S., Dubrova, E., & Chen, Q. (2015). Design of a terminal solution for integration of in-home health care devices and services towards the Internet-of-Things. Enterprise Information Systems, 9(1), 86-116.

Pavlou, P. A., & El Sawy, O. A. (2011). Understanding the elusive black box of dynamic capabilities. Decision sciences, 42(1), 239-273.

Peng, Y. P., & Lin, K. H. (2017). The effect of global dynamic capabilities on internationalizing SMEs performance: Organizational culture factors as antecedents. Baltic Journal of Management, 12(3), 307-328.

Pérez-López, S., & Alegre, J. (2012). Information technology competency, knowledge processes and firm performance. Industrial Management & Data Systems, 112(4), 644-662.

Pollack, S. E., Dries, D., Hulet, R. G., Magalhães, K. M. F., Henn, E. A. L., Ramos, E. R. F., ... & Bagnato, V. S. (2010). Collective excitation of a Bose-Einstein condensate by modulation of the atomic scattering length. Physical Review A, 81(5), 053627.

Prajogo, D., & Olhager, J. (2012). Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration. International Journal of Production Economics, 135(1), 514-522.

Purcarea I, Espinosa MDB, Apetrei A. 2013. Innovation and knowledge creation: perspectives on the SMEs sector. Management Decision **51**(5): 1096–1107.

Qiao, X., Qiao, J., & Mindich, L. (2003). Analysis of specific binding involved in genomic packaging of the double-stranded-RNA bacteriophage φ6. Journal of bacteriology, 185(21), 6409-6414.

Radhakrishnan, A., Goldstein, J. L., McDonald, J. G., & Brown, M. S. (2008). Switch-like control of SREBP-2 transport triggered by small changes in ER cholesterol: a delicate balance. Cell metabolism, 8(6), 512-521.

Rai, A., & Tang, X. (2010). Leveraging IT capabilities and competitive process capabilities for the management of interorganizational relationship portfolios. Information systems research, 21(3), 516-542.

Ramsden, C. M., Powner, M. B., Carr, A. J. F., Smart, M. J., da Cruz, L., & Coffey, P. J. (2013). Stem cells in retinal regeneration: past, present and future. Development, 140(12), 2576-2585.

Ravichandran, T., Lertwongsatien, C., & Lertwongsatien, C. (2005). Effect of information systems resources and capabilities on firm performance: A resource-based perspective. Journal of management information systems, 21(4), 237-276.

Ravishankar, M. N., Pan, S. L., & Leidner, D. E. (2011). Examining the strategic alignment and implementation success of a KMS: A subculture-based multilevel analysis. Information Systems Research, 22(1), 39-59.

Raymond, L., Bergeron, F., Croteau, A. M., & St-Pierre, J. (2016). IT-enabled knowledge management for the competitive performance of manufacturing SMEs: An absorptive capacity-based view. Knowledge and Process Management, 23(2), 110-123.

Rehman, N., Razaq, S., Farooq, A., Zohaib, N. M., & Nazri, M. (2020). Information technology and firm performance: mediation role of absorptive capacity and corporate entrepreneurship in manufacturing SMEs. Technology Analysis & Strategic Management, 32(9), 1049-1065.

Rhee, J., Park, T., & Lee, D. H. (2010). Drivers of innovativeness and performance for innovative SMEs in South Korea: Mediation of learning orientation. Technovation, 30(1), 65-75.

Rivard, S., Raymond, L., & Verreault, D. (2006). Resource-based view and competitive strategy: An integrated model of the contribution of information technology to firm performance. The Journal of Strategic Information Systems, 15(1), 29-50.

Roberts, N., & Grover, V. (2012). Leveraging information technology infrastructure to facilitate a firm's customer agility and competitive activity: An empirical investigation. Journal of Management Information Systems, 28(4), 231-270.

Rodrigues, M., Franco, M., Sousa, N., & Silva, R. (2021). COVID 19 and the business management crisis: An empirical study in SMEs. Sustainability, 13(11), 5912.

Rousmaniere, T. G., Swift, J. K., Babins-Wagner, R., Whipple, J. L., & Berzins, S. (2016). Supervisor variance in psychotherapy outcome in routine practice. Psychotherapy Research, 26(2), 196-205.

Ruekert, R. W., Walker Jr, O. C., & Roering, K. J. (1985). The organization of marketing activities: a contingency theory of structure and performance. Journal of marketing, 49(1), 13-25.

Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003). Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. MIS quarterly, 237-263.

Sathish, M., Kumar, K. S., Naveen, K. J., & Jeevanantham, V. (2011). A study on consumer switching behaviour in cellular service provider: A study with reference to Chennai. Far East Journal of Psychology and Business, 2(2), 71-81.

Schubert, P., & Leimstoll, U. (2007). Importance and use of information technology in small and medium-sized companies. Electronic Markets, 17(1), 38-55.

Seo, D., & La Paz, A. I. (2008). Exploring the dark side of IS in achieving organizational agility. Communications of the ACM, 51(11), 136-139.

Seraj, S., Kunal, P., Li, H., Henkelman, G., Humphrey, S. M., & Werth, C. J. (2017). PdAu alloy nanoparticle catalysts: effective candidates for nitrite reduction in water. Acs Catalysis, 7(5), 3268-3276.

Setia, P., Sambamurthy, V., & Closs, D. J. (2008). Realizing business value of agile IT applications: antecedents in the supply chain networks. Information Technology and Management, 9, 5-19.

Setia, P., Setia, P., Venkatesh, V., & Joglekar, S. (2013). Leveraging digital technologies: How information quality leads to localized capabilities and customer service performance. MIS quarterly, 565-590.

Shang, S., & Seddon, P. B. (2002). Assessing and managing the benefits of enterprise systems: the business manager's perspective. Information systems journal, 12(4), 271-299.

Sherehiy, B., Karwowski, W., & Layer, J. K. (2007). A review of enterprise agility: Concepts, frameworks, and attributes. International Journal of industrial ergonomics, 37(5), 445-460.

Sila, I. (2010). Do organisational and environmental factors moderate the effects of Internet-based interorganisational systems on firm performance?. European Journal of Information Systems, 19(5), 581-600.

Simón-Moya, V., Revuelto-Taboada, L., & Ribeiro-Soriano, D. (2016). Influence of economic crisis on new SME survival: reality or fiction?. Entrepreneurship & Regional Development, 28(1-2), 157-176.

Smith Jr, S. C., Dove, J. T., Jacobs, A. K., Kennedy, J. W., Kereiakes, D., Kern, M. J., ... & Smith Jr, S. C. (2001). ACC/AHA guidelines for percutaneous coronary intervention (revision of the 1993 PTCA guidelines)—executive summary: a report of the American College of Cardiology/American Heart Association task force on practice guidelines (Committee to revise the 1993 guidelines for percutaneous transluminal coronary angioplasty) endorsed by the Society for Cardiac Angiography and Interventions. Circulation, 103(24), 3019-3041.

Stoel, M. D., & Muhanna, W. A. (2009). IT capabilities and firm performance: A contingency analysis of the role of industry and IT capability type. Information & Management, 46(3), 181-189.

Stratopoulos, T., & Dehning, B. (2000). Does successful investment in information technology solve the productivity paradox?. Information & management, 38(2), 103-117.

Sun, L. Y., Zhao, J., & Dimirovski, G. M. (2009). Adaptive coordinated passivation control for generator excitation and thyristor controlled series compensation system. Control Engineering Practice, 17(7), 766-772.

Sundbo, J. (2001). The strategic management of innovation. Books.

Swafford, P. M., Ghosh, S., & Murthy, N. (2008). Achieving supply chain agility through IT integration and flexibility. International journal of production economics, 116(2), 288-297.

Tallon, P. P. (2008). Inside the adaptive enterprise: an information technology capabilities perspective on business process agility. Information technology and management, 9, 21-36.

Tallon, P. P., & Pinsonneault, A. (2011). Competing perspectives on the link between strategic information technology alignment and organizational agility: insights from a mediation model. MIS quarterly, 463-486.

Thiel, C., Wilken, M., Zenker, M., Sticht, H., Fahsold, R., Gusek-Schneider, G. C., & Rauch, A. (2009). Independent NF1 and PTPN11 mutations in a family with neurofibromatosis-Noonan syndrome. American Journal of Medical Genetics Part A, 149(6), 1263-1267.

Tichapondwa, S. M. (2013). Preparing your Dissertation at a Distance: A Research.

Trinh-Phuong, T., Molla, A., & Peszynski, K. (2012). Enterprise system-enabled organizational agility capability: A construct and measurement instrument.

Tsai, W. C., Hsu, S. D., Hsu, C. S., Lai, T. C., Chen, S. J., Shen, R., ... & Tsou, A. P. (2012). MicroRNA-122 plays a critical role in liver homeostasis and hepatocarcinogenesis. The Journal of clinical investigation, 122(8), 2884-2897.

Turkulainen, V., & Ketokivi, M. (2012). Cross-functional integration and performance: what are the real benefits?. International Journal of Operations & Production Management, 32(4), 447-467.

Umphress, S. T., Murphy, S. P., Franke, A. A., Custer, L. J., & Blitz, C. L. (2005). Isoflavone content of foods with soy additives. Journal of Food Composition and analysis, 18(6), 533-550.

Vagnoni, E., & Khoddami, S. (2016). Designing competitivity activity model through the strategic agility approach in a turbulent environment. foresight, 18(6), 625-648.

Van Oosterhout, M., Waarts, E., & Van Hillegersberg, J. (2006). Change factors requiring agility and implications for IT. European journal of information systems, 15(2), 132-145.

Van Oosterhout, M., Waarts, E., van Heck, E., & van Hillegersberg, J. (2006). Business Agility: Need, Readiness and Alignment with IT Strategies 1. In Agile Information Systems (pp. 52-69). Routledge.

Varadarajan, R. (2010). Strategic marketing and marketing strategy: domain, definition, fundamental issues and foundational premises. Journal of the Academy of Marketing Science, 38, 119-140.

Venkatraman, N., & Ramanujam, V. (1987). Planning system success: a conceptualization and an operational model. Management science, 33(6), 687-705.

Wade, M., & Hulland, J. (2004). The resource-based view and information systems research: Review, extension, and suggestions for future research. MIS quarterly, 107-142.

Wang, J., Chen, C., & Liu, Y. (2023, July). Barriers of Design Management in AR/VR Startups: Interview and Discussion. In International Conference on Human-Computer Interaction (pp. 536-549). Cham: Springer Nature Switzerland.

Wang, X., Yang, G., Feng, Y., Ren, G., & Han, X. (2012). Optimizing feeding composition and carbon–nitrogen ratios for improved methane yield during anaerobic co-digestion of dairy, chicken manure and wheat straw. Bioresource technology, 120, 78-83.

Wang, Z., & Wang, N. (2012). Knowledge sharing, innovation and firm performance. Expert systems with applications, 39(10), 8899-8908.

Weber, M., Wagner, L., & Ruch, W. (2016). Positive feelings at school: On the relationships between students' character strengths, school-related affect, and school functioning. Journal of Happiness Studies, 17, 341-355.

Weill, P., & Ross, J. W. (2004). IT governance: How top performers manage IT decision rights for superior results. Harvard Business Press.

Weill, P., & Vitale, M. (2002). What IT infrastructure capabilities are needed to implement e-business models?. Mis Quarterly, 1(1), 17.

Willner, A. E., Huang, H., Yan, Y., Ren, Y., Ahmed, N., Xie, G., ... & Ashrafi, S. (2015). Optical communications using orbital angular momentum beams. Advances in optics and photonics, 7(1), 66-106.

Wyart, V., & Tallon-Baudry, C. (2008). Neural dissociation between visual awareness and spatial attention. Journal of Neuroscience, 28(10), 2667-2679.

Yan, J., & Yan, L. (2017). Collective entrepreneurship, environmental uncertainty and small business performance: A contingent examination. The Journal of Entrepreneurship, 26(1), 1-26.

Yu, G., Wang, L. G., & He, Q. Y. (2015). ChIPseeker: an R/Bioconductor package for ChIP peak annotation, comparison and visualization. Bioinformatics, 31(14), 2382-2383.

Zahra, S. A., Hayton, J. C., Neubaum, D. O., Dibrell, C., & Craig, J. (2008). Culture of family commitment and strategic flexibility: The moderating effect of stewardship. Entrepreneurship theory and practice, 32(6), 1035-1054.

Zhang, M., Sarker, S., & Sarker, S. (2008). Unpacking the effect of IT capability on the performance of export-focused SMEs: a report from China. Information Systems Journal, 18(4), 357-380.

Zhu, K., & Kraemer, K. L. (2005). Post-adoption variations in usage and value of e-business by organizations: cross-country evidence from the retail industry. Information systems research, 16(1), 61-84.

APPENDIX I

SECTION B - IT CAPABILITY

Indicate the extent to which you disagree or agree with the following questions by ticking

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

QUESTIONS	**SD**	**D**	**N**	**A**	**SA**
a. Develop IT applications internally.					
b. Purchase valuable IT applications from suppliers.					
c. Discontinue or decommission less-valuable IT applications.					
IT infrastructure					
ITF 1: Appropriateness of the data architectures					
ITF 2: Appropriateness of network architectures					
ITF 3: Adequacy of architectural flexibility					
IT business partnerships					
IBP 1: Multi-disciplinary teams to blend business and technology expertise					
IBP 2: Relationship between line management and IT service providers					
IBP 3: Line management sponsorship of IT initiatives					
IBP 4: Climate that encouraging risk taking and experimentation with IT					
IBP 5: Climate nurturing IT project championship					
IT business process integration					
BPI 1: Consistency of IT application portfolios with business processes					
BPI 2: Restructuring of business work processes to leverage opportunities					
BPI 3: Restructuring of IT work processes to leverage opportunities					
Business IT strategic thinking	**SD**	**D**	**N**	**A**	**SA**

BIT 1: Clarity of vision regarding how IT contributes to business value					
BIT 2: Integration of business strategic planning and IT planning					
BIT 3: Management's ability to understand value of IT investments					
IT management					
ITM 1: Effectiveness of IT planning					
ITM 2: IT project management practices					
ITM 3: Planning for security control, standard compliance, and disaster recovery					
ITM 4: System development practices					
ITM 5: Consistency of IT policies throughout the enterprise					
ITM 6: IT evaluation and control systems					
External IT linkage					
EIT 1: Technology-based links with customers					
EIT 2: Technology-based links with suppliers					
EIT 3: We use IT-based entrepreneurial collaborations with external partners					

SECTION C- BUSINESS PROCESS AGILITY

Indicate the extent to which you disagree or agree with the following questions by ticking

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

	SD	**D**	**N**	**A**	**SA**
a. Respond to changes in aggregate consumer demand					
b. Customize a product or service to suit an individual customer					

c. React swiftly to new product or service launches by competitors					
d. Introduce a new pricing schedule in response to changes in competitors' prices					
e. Expand into new regional and/or international markets.					
f. Expand or reduce the variety of products/services available for sale.					
g. Adopt new technologies to produce better products or services					
h. Switch suppliers to get better benefits of lower costs, or better quality or improved delivery times					

SECTION D – MARKET DYNAMISM

Indicate the extent to which you disagree or agree with the following questions by ticking

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

	SD	**D**	**N**	**A**	**SA**
a. Products and services in our industry become obsolete quickly					
b. The product/services technologies in our industry change quickly					
c. We can predict what our competitors are going to do next					
d. We can predict when our products/services demand changes e. The survival of our firm is currently threatened by scarce supply of labor					
f. The survival of our firm is currently threatened by scarce supply of materials					
g. The survival of our firm is currently threatened by tough price competition					

h. The survival of our firm is currently threatened by tough competition in product/service quality					
i. The survival of our firm is currently threatened by tough competition in product/service differentiation					
j. In our industry, there is considerable diversity in customer buying habits					
k. In our industry, there is considerable diversity in nature of competition					
l. In our industry, there is considerable diversity in product lines					

SECTION E – SMEs PERFORMANCE

Indicate the extent to which you disagree or agree with the following questions by ticking

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

	SD	**D**	**N**	**A**	**SA**
a. Our organisation can achieve increased sales revenue					
b. Our organisation can achieve increased profit margins.					
c. Our organisation can achieve increased cash flow.					
d. Our firm has been able to increase its return on assets.					
e. Our firm has been able to increase its return on equity.					
f. Our firm has been able to increase its return on sale.					
g. We are more profitable than our competitors.					
h. Our sales growth exceeds that of our competitors.					
i. Our revenue growth exceeds that of our competitors.					

j. Our market share growth exceeds that of our competitors.					
k. Overall, our performance is better than our competitors					

End of questionnaire. Thank you for your cooperation.