UNIVERSITY OF GHANA

BUSINESS STRATEGY AND BUSINESS MODELS OF DIGITAL ENTERPRISES IN A DEVELOPING ECONOMY: CONCEPTUALIZING THE LINK

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DECLARATION

I do hereby declare that this work is the result of my own research and has not been presented by anyone for any academic award in this or any other university. All references used in this work have been fully acknowledged.

I, therefore, bear responsibility for any shortcomings.

22nd May 2020

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CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University.

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DEDICATION

To

my wife, Linda Melody

and Son, Elgene

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Praise be unto the name of the most high God, who has been my provider and guardian. Though only my name appears on the cover of this thesis, many people have contributed to its production. I owe my gratitude to all those people who have made this thesis possible and because of whom my graduate experience has been one that I will cherish forever.

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LIST OF ACRONYMS AND ABBREVIATIONS

AGOA	African Growth and Opportunity Act
CIO	Chief Information Officer
CR	Critical Realist
DBS	Digital Business Strategy
DETF	Digital Economy Task Force
ECOWAS	Economic Community of West African States
e-Journal	Electronic Journal
E-learning	Electronic learning
EPA	Economic Partnership Agreement
GEM	Global Entrepreneurship Monitor
GMIC	Ghana Multimedia Incubator Center
GNI	Gross National Income
ICT	Information and Communication Technology
ICT	Information and Communication Technology
IKCO	Iran Khodro Company
IS	Information System
IT	Information Technology
LMS	Learning Management System
MEST	The Meltwater Entrepreneurial School of Technology
MIS	Management Information Systems
ROI	Return on Investment

SME	Small Medium Scale Enterprise
UG	University of Ghana
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
US	United States
UTAUT	Unified Theory of Acceptance and Use of Technology

DEFINITION OF KEY TERMS AND CONCEPTS

Digital Business Strategy (DBS):	A multidimensional concept which deals with the various directions a business may pursue to survive and remain profitable in the digital economy (Mithas, Tafti, & Mitchell, 2013; Fletcher, 2017).
Digital Economy:	That part of economic output derived solely or primarily from digital technologies with a business model based on digital goods or services (Bukht & Heeks, 2018).
Digital Enterprise:	An organization that uses technology as a competitive advantage in its internal and external operations (Rouse, 2011; Davison & Ou, 2017).
Business Strategy:	A firm's business strategy outlines the way it competes within its industry – how, where and the approach to competing (Lyneis, 2020)
Business Model:	A business model outlines the basis of how an organization creates, delivers, and captures value, in economic, social, cultural or other contexts within an industry (Hummel, Slowinski, Mathews, & Gilmont, 2010).
Digital Business Model:	A business model is said to be digital when the changes in digital technologies, trigger fundamental changes in the mode of operation of the business and how revenues are generated (Veit et al., 2014).
Strategic Actions	The sequence of steps that must be taken, or activities that must be performed well, for a strategy to succeed (Lyneis, 2020).

ABSTRACT

The rapid advances in digital technologies have led to the rising need for the development of strategies to harness its potential, especially in the field of Information Systems. Despite this growing importance, there is still a fuzzy understanding of what constitutes a comprehensive Digital Business Strategy (DBS) which encompasses the dominant dimensions of strategic actions in the digital economy. It is worthwhile to note that the digital business strategy transcends one functional area in businesses. In another breadth, most economic actors have difficulties in understanding the digital economy and are not always aware of the problems digital firms face. This difficulty has been attributed to the peculiarities of digital technologies and the specific characteristics of the digital economy. The above issues led to the conduct of this thesis which was guided by the critical realist paradigm to develop a theoretical digital business strategy framework which explains the value-creation strategic actions that underpin business models of digital enterprises in a developing economy. These include the four main dimensions of digital business strategy (Governance, Coordination, Competence and Flexibility). Based on this underpinning purpose and the gaps identified in existing research, the thesis sought to achieve three primary objectives.

First, the study was set in motion through the conduct of a survey to explore the business models of the digital enterprises operating within Ghana's digital economy. The findings suggest that among human, physical, and intangible assets, financial assets were the least utilized assets in the operations of the digital enterprises. This stems from the fact that the online financial business sector is still in its nascent stages in most developing economies. The findings further suggest that all digital enterprises leverage accessible and low-cost social networking services as part of their operations and use them as an avenue to engage with their target customers.

Second, the study explored the strategic actions which underpin the business models of a digital enterprise selected as a case. The competitive environment of this digital enterprise - identified from the mapping study - was initially examined. This allowed for understanding the forces that influence the operations of the digital enterprise. The strategic actions of the digital enterprise were reviewed using the conceptual framework developed along the four dimensions of digital business strategy (governance, competence, coordination and flexibility) and guided by their corresponding strategic management theories. This culminated into the development of a comprehensive digital business strategy framework that explains the strategic actions that underpin the business models of digital enterprises in a developing economy.

Finally, the dimensions of the strategic actions (governance, competence, coordination and flexibility) underpinning the business model of an informal digital enterprise in a developing economy were determined as the firm grew from the start-up stage to the maturity stage. Findings culminated into the development of a comprehensive digital business strategy framework for the growth of the digital enterprise.

The novelty of the study is its ability to combine four strategic management theories on strategy in a single research to develop a digital business strategy framework for determining the survival and growth of the digital enterprise in a developing country. Also, the mapping of digital enterprises in Ghana is arguably the first study on modelling the digital economy of a developing country. This thesis moved beyond contributing to academia, practice and policy into carrying out patentable products which have also already been making strides in the digital economy of Ghana and globally. Two of these products are notable of mention in this abstract. In the first place, an online database has been developed based on the mapping of digital enterprises in Ghana. In response to the lack of a single database for digital enterprises in

Ghana, an online database named “http://dbizbase.com/” has been developed. This database serves as a one-stop-shop for information concerning digital enterprises in Ghana. Second, a research paper was published in 2019, Volume 21, edition 2 of the *Journal of Digital Policy, Regulation and Governance*. The journal is ranked by the Association of Business Schools (ABS) and Scopus. This article was developed from the first research objective, which sought to model the digital economy of Ghana. The article was titled "Surviving in the digital era–business models of digital enterprises in a developing economy" which according to google scholar citation metrics has so far been cited 11 times one month after publication. The DOI number is 10.1108/DPRG-08-2018-0046.

Keywords: *Digital Business Strategy; Digital Enterprises; Digital Economy; Developing Economy; Critical Realism; Digital Entrepreneurship*

CHAPTER ONE

INTRODUCTION

1.1 Research Background

Strategy denotes a high-level plan to achieve a set of objective(s) or goal(s). Strategy as a term became popular during the 6th century, especially in the military. In the military, several divisions with different skills, including logistics and tactics, are supposed to work collectively to ensure victory for the empire. From these earlier times, the term strategy has been adopted to refer to as "a comprehensive way to try to pursue political ends, including the threat or actual use of force, in a dialectic of wills" (Freedman, 2015).

Strategy in business has taken on a broader perspective to consist of a set of business management decisions such as; the choice of an industry within which to operate; investments in resources; tactics for pricing goods and services; and the configuration of the firm (Williamson, 1991). Other decisions may consist of managing the business' trade-offs between efficiency – cost reduction – and also effectiveness – value creation and capture (Drnevich & Croson, 2013). Even though these high-level decisions might seem easy, they require thorough analysis. Several factors must be taken into consideration before effective decisions can be taken. This makes strategy in businesses very crucial which are not different from other endeavours. Failure of the strategy may even result in the closure of the company.

Digital businesses – firms whose business models are enabled by digital technologies – are expected to develop strategies along digital technologies to be able to survive and become profitable. On the other hand, some digital enterprises find it challenging to develop strategic actions to manage digital technologies due to their disruptive nature (Christensen, 2013). Lyneis (2020) defines strategic actions as the sequence of steps that must be taken or activities

that must be performed well, for a strategy to succeed. It is not surprising that, even though digital enterprises such as Facebook, Amazon and Google are thriving well at the back of the disruptive digital innovations, others such as Nokia and Dell are struggling to identify the appropriate digital strategies to implement (Keen & Williams, 2013; Weill & Woerner, 2015). Specifically, businesses in the digital economy face a significant challenge which is related to their ability to manufacture products and services that benefit from the available digital resources while integrating well with other platforms and environments (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013; El Sawy & Pereira, 2013). The strategic actions needed for the survival and growth of these digital enterprises are collectively referred to as Digital Business Strategy (DBS). Digital business strategy refers to the fusion between Information Technology strategy and Business strategy (Drnevich & Croson, 2013). With digital business strategy, the digital enterprise moves beyond focusing on a business strategy to a stage where it primarily develops a strategy to engage in IT-related activities (Mithas, Tafti, & Mitchell, 2013).

Digital business strategy has been seen to be a multidimensional concept which deals with the various directions a business may pursue to survive and remain profitable. This assertion is corroborated by Drnevich and Croson (2013) in the special edition of MIS Quarterly on digital business strategy where four major dimensions were highlighted; Coordination, Flexibility, Governance and Competence.

In the first place, the coordination dimension of digital business strategy deals with the digital enterprise's ability to cooperate, collude or coordinate with rival firms (Porter, 2008). This prevents or limits new competitors from entry into the industry and exerts authority over both customers and suppliers. Studies on digital business strategy that viewed the strategy from the perspective of coordination assert that the exchange of rich information enabled by digital

platforms found both inside and outside the firm helps in maximizing returns and makes the firm competitive (Choi, Raghu, Vinzé, & Dooley, 2017; Rai, Pavlou, Im, & Du, 2012).

In terms of the Governance dimension of digital business strategy, the focus is on using Information Technology in managing and monitoring supplier networks and the performance of contracts between the human resources of the firm. For instance, earlier studies (e.g. Bøe, Gulbrandsen, & Sørebø, 2015; Chen & Kamal, 2016; Constantiou & Kallinikos, 2015; Nwankpa, 2015; Reyns & Henson, 2016) investigated the role of digital technologies on the cost of transactions. Dawson, Denford and Desouza (2016) examined factors that influenced IT-based innovations in organisations and discovered that it was very critical for the whole team to approach innovation as a unit to achieve success.

The competence dimension of digital business strategy, on the other hand, emphasizes the capabilities and the resources which the firm uses to capture and create value. According to Drnevich and Croson (2013), the firm acquires these capabilities and resources by consciously building them – through inheritance or chance. In the competence-base perspective, the focus is mostly on balance existing between the creation of value and its capture. This serves as the mechanism for determining the economic benefits of investments for the firm. Studies on the competence dimension of digital business strategy (e.g. Chuang & Lin, 2017; Hazarbassanova, 2016; Mithas et al., 2013) highlight the major role of digital technology in value creation and capture which makes firms competitive in the industry.

Finally, the flexibility dimension highlights the ability of digital enterprises to quickly respond to changes that occur both internally (inside) and externally (outside) which leads to an improvement in efficiency and effectiveness. Highlighting on the dynamic nature of the digital

technologies which requires that products are quickly produced, Henfridsson, Mathiassen and Svahn (2014) assert that firms need to adopt a digital business strategy which will enable them to be flexible and stay competitive. A major advantage of flexibility is the ability to adapt to new situations at minimal costs and also being able to seize opportunities quickly (Drnevich & Croson, 2013).

The foregoing discussion calls for research which combines the various dimensions of digital business strategy into a framework to study the strategic actions of digital enterprises in their quest to survive and grow in the digital economy of a developing country. A study that explores the evolution of the dimensions of the strategic actions (governance, competence, coordination and flexibility) that influence the business models of digital enterprises in the digital economy will be opportune. This forms the premise of this study.

1.2 Research Problem

Digital business strategy has received considerable research attention especially in the field of Information Systems due to its role in transforming contemporary business processes and helping businesses to survive and grow in a very competitive digital economy (Carcary, Doherty, & Thornley, 2015; Grover & Kohli, 2013; Mithas et al., 2013). In this regard, a special edition of the MIS Quarterly journal was devoted to digital business strategy. The survival of a business is asserted to hinge on the strategy being implemented (Lyneis, 2020). The strategy is expected to be holistic – encompassing the four main dimensions of the strategic actions. These dimensions include Governance, Coordination, Competence and Flexibility.

Frameworks for reviewing digital business strategy should comprehensively discuss issues related to these dimensions. Paradoxically, strategic management theories and frameworks for

studying digital business strategy mostly focus on one of the four major dimensions outlined with arguably no framework capturing issues from all the dimensions. Resource-Based view theory, for instance, is limited by its focus on only the internal resources of the firm without the external environment (Barney, 2001). Resource-based view theory focuses on the competence dimension of digital business strategy, which explores how the enterprise manages its resources to remain profitable and competitive. The review of the literature also revealed that Agency theory and the Transaction Cost Economics framework primarily focus on the governance dimension of digital business strategy. Agency theory, for instance, focuses on the relationship between parties where one party (the principal) engages another person (the agent) to undertake some task on his/her behalf (Jensen & Meckling, 1976).

Dynamic Capabilities and Real Options theories focus on the flexibility dimension of digital business strategy (Bharadwaj et al., 2013; Drnevich & Croson, 2013). Dynamic Capabilities theory conceptualises those features of the enterprise which are presumed to consist of both managerial and organizational processes. These processes allow the enterprise to identify its needs or opportunities for change in dynamic environments (Helfat et al., 2007). The coordination dimension of digital business strategy literature is dominated by theories such as the Structure-Conduct-Performance model and the Input-Output (I/O) Economics theory. The basic tenets of the Structure-Conduct-Performance model are that the behaviour of sellers and buyers, which is a function of the structure of the industry determines the industry's economic performance (Bain, 1956).

These unidimensional perspectives of the strategic management theories and frameworks present a dilemma for Information Systems researchers as pointed out by Venkatesh, Morris, Davis and Davis (2003) in the development of the Unified Theory of Acceptance and Use of

Technology (UTAUT). Information Systems researchers are confronted with these strategic management theories and models from which they are expected to "pick and choose" constructs based on the dimension of digital business strategy to be reviewed. In some situations, these researchers must choose a "favoured model" and largely ignore the contributions from alternative models. This situation necessitates a review and a synthesis to progress towards a unified view of digital business strategy consisting of all the dimensions outline.

In another breadth, the studies on digital business strategy tend to focus on firms with formalized structures and procedures for the implementation of their strategies. Mithas et al. (2013), for instance, researched on examining how a firm's competitive industry environment and digital strategic posture influence its digital business strategy. This study focused on 400 American based firms with formalised structures. It was discovered that a firm's digital business strategy is a product of its awareness and ability to respond to the competitive environment within the digital economy instead of merely optimizing operations or reacting to some competitors. Further studies were suggested to be conducted to investigate other strategic actions related to IT such as engagement in social media and social networks which were not covered in the study.

In addition to the gaps identified, most economic actors have great difficulties in clearly understanding the digital economy of countries and are not always aware of the problems digital firms have to face (Blay, 2019; Jansson, 2011). This difficulty is attributed to the particularities of digital technologies and the specific characteristics of the digital economy as asserted by Georgiadis, Stiakakis and Ravindran (2013). Academics and researchers are encouraged to prepare for a future in which the digital economy will be a major part of the whole economic and social activity of countries (Blay, 2019; Bukht & Heeks, 2017; Neumeier,

Wolf, & Oesterle, 2017). Paradoxically research on modelling the digital economies of countries have arguably been limited to Spain (del Aguila, Padilla, Serarols, & Veciana, 2003) and Indonesia (Aryanto & Chrismastuti, 2011). Research to map out the business models of the digital enterprises in a developing economy will be opportune and a step toward modelling the digital economy by identifying the dominant business strategies and models in the digital economy of that country.

Again, most new enterprises are unable to survive beyond 42 months after they are established (Allen, Langowitz, Elam, & Dean, 2007; Boateng, 2016a). This phenomenon has been observed to be prevalent in most developing economies. In Africa as a whole, only 13 percent of enterprises survive beyond 42 months after their establishment. Expressly, in Ghana and Uganda, 38 percent and 31 percent of firms survive beyond the 42-month survival threshold, respectively (Global Entrepreneurship Monitor (GEM), 2012). It can be concluded that Africa has a very high business discontinuation rate. The causes of this phenomenon have been attributed to the nature of ownership of these enterprises, managers with limited formal education and managers with limited access to market information (Mensah, 2004). Politicians, academics and other agencies have made calls for African governments to make efforts to avert the high business discontinuation rates. This situation calls for studies to explore the strategic actions of the firms which have survived beyond the 42-month survival threshold. This will expound lessons for new enterprises in the quest to mitigate this menace.

Notwithstanding the issues raised, it has been argued that the two dominant paradigms in Information Systems (Interpretivism and Positivism) have been deficient in providing answers to the mechanisms behind the strategic evolution of digital enterprises (Henfridsson & Bygstad, 2013). Little, if any, research has been conducted on developing an understanding of the

various activities and contingencies of causal structures that exist in the strategic evolution of digital enterprises. Studies conducted from the interpretive perspective focus on digital business strategy involving socio-technical elements (Hanseth & Lyytinen, 2016) and the networks of humans and non-human elements (Eija, Netta, Marianne, Leena, & Tonja, 2014). Such studies also focus on the relationships between practices which are well organised (Karasti, Baker, & Millerand, 2010). In terms of studies underpinned by positivism, the research primarily focuses on a situational report on the alignment between Information Technology and business strategy (Taran, Nielsen, Montemari, Thomsen, & Paolone, 2016). Critical realism has been proposed as an alternative intellectual approach that allows for theorizing the digital business strategy infrastructure (Fletcher, 2017; John Mingers, Mutch, & Willcocks, 2013; Tsang, 2014) and emphasising on the generative mechanisms that allow for studying a phenomenon over a period (Henfridsson & Bygstad, 2013). Consequently, the explanatory power of the underlying mechanisms has been masked in previous research through the adoption of paradigms which are inattentive to the structures operating beyond them. The Interpretivist focuses on the rich texture of individuals' meaning-making of the socio-technical world whiles the Positivist focuses on the directly observable events in the empirical domain of structures.

In summary, the following research gaps are presented in this research problem section of the thesis;

1. Digital Business strategy is a multidimensional concept consisting of Governance, Flexibility, Competence and Coordination (Drnevich & Croson, 2013; Islam, Buxmann, & Eling, 2017; Yeow, Soh, & Hansen, 2018). On the other hand, strategic management theories and framework (e.g. Resource-Based View theory, Agency theory, Dynamic Capabilities theory among others) for studying digital business

strategy mostly focus on one of the dimensions. This necessitates a study that integrates strategic management theories to examine the strategic actions of digital enterprises. This assertion is highlighted in the editorial of the special edition of MIS Quarterly Journal on digital business strategy. In the editorial, Drnevich and Croson (2013) indicated that digital business strategy should be approached from a multidimensional perspective. This allows for capturing the issues surrounding the concept holistically.

2. Studies on the strategic actions of businesses tend to focus on firms with formalised structures and procedures for the implementation of their strategies (Cruz & Haugan, 2019; Islam et al., 2017; Weill & Woerner, 2015). Godfrey (2015) on the other hand asserts that organisations with informal structures are simply "structureless" and, hence, emphasis should be placed on understanding their scope, size and contribution to their economies. This assertion warrants further studies that focus on the strategic actions of firms without formalised professional management structures to understand the nature of their business models and survival strategies in the digital economy.
3. Africa has a higher business discontinuation rate of 13 percent when compared with that of the European Union and the USA (Boateng, 2016a; International Monetary Fund, 2018). There is the need for research that explores the strategic actions and growth of surviving digital enterprises (Brownlow, Zaki, & Neely, 2015; Remane, Hanelt, Nickerson, & Kolbe, 2017; Wang, Su, Wang, & Zou, 2019), especially from Africa. This allows for identifying the strategic actions enabling them to survival which will serve as lessons for budding and struggling digital enterprises.
4. The digital economy has become a significant part of the whole economic and social activity of countries (Blay, 2019). Research on modelling the digital economies of countries have arguably been limited to countries such as Spain (del Aguila et al., 2003) and Indonesia (Aryanto & Chrismastuti, 2011). There is a need for studies that map the

business models of digital enterprises in other digital economies. This will help to identify the enablers and constraints the digital enterprises face within the digital economy, especially from a developing economy perspective.

The above research gaps call for a study underpinned by the critical realist paradigm that investigates the mechanisms involved in the strategic actions of digital enterprises in their quest to remain agile and grow. It is opportune to conduct an arguably novel study that aims at developing a digital business strategy framework that explores the various stages of growth of the digital enterprise and the corresponding dimensions of the digital business strategy that influenced the growth.

1.3 Research Purpose

The purpose of this doctoral research is to develop a theoretical digital business strategy framework which explains the value-creation strategic actions that underpin business models of digital enterprises in a developing economy. The dimensions of the strategic actions include (Governance, Coordination, Competence and Flexibility) as highlighted in extant research (Drnevich & Croson, 2013). Each dimension is reviewed with its accompanying strategic management theory, as discussed in the research problem section.

The study does not only seek to develop a comprehensive framework for digital business strategy but to explore the business models of the digital enterprises operating in Ghana's digital economy in a guest to identify their dominant technologies, industries and enablers. This helps to understand how firms become agile in their guest to survive amid disruptive digital innovations. Ghana has been selected as the site for this research because of the presence of

digital enterprises and also the traces of relatively scarce resources as exhibited in other developing countries (Boateng et al., 2017; Effah, 2012).

The study is set in motion through the conduct of a mapping study to explore the business models of the digital enterprises operating within Ghana's digital economy. This survey helps to identify the business models of digital enterprises and to determine their dominant technologies and enabling factors for their growth.

Second, a digital enterprise operating within Ghana's digital economy is selected as a case to contribute to the development of the theoretically grounded and practice-oriented understanding of the dimensions of the strategic actions (governance, competence, coordination and flexibility) within the digital economy of Ghana in the face of its competing forces.

Third, another digital enterprise operating within Ghana's digital economy is selected as a case to explore the evolution of its business model and the underlying strategic actions (governance, competence, coordination and flexibility) as it grows.

1.4 Research Objectives

The underpinning purpose of this research is to develop a comprehensive framework that explains the strategic mechanisms of business models of digital enterprises in a developing economy. Based on this underpinning purpose and the gaps identified in existing literature, this research seeks to achieve the following objectives;

1. To determine the business models of digital enterprises in a developing economy.

This objective is in response to the need for a survey into the business models and enabling factors of surviving digital enterprises operating in Africa as highlighted in extant literature (Boateng, 2016a; Boateng et al., 2017; International Monetary Fund, 2018). Again, the higher discontinuation rate of businesses in Africa (16%) calls for an investigation into the business models and enablers of the surviving firms to present lessons and insights to help mitigate this menace. Also, this mapping study is in response to calls made in extant research (Remane et al., 2017) for studies into the business models of digital enterprises operating in other digital economies. In this regard, a 16 business model archetype developed by Weill, Malone, D'Urso, Herman and Woerner (2005) is applied to analyse the business models of selected digital enterprises operating in Ghana . Refer to Chapter 7 for analysis and discussion of findings in this regard).

2. To determine the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy.

This objective is in response to calls for research to examine the strategic actions that underpin the business models of digital enterprises (Bharadwaj et al., 2013; Drnevich & Croson, 2013; Islam et al., 2016; Yeow et al., 2018). One of the digital enterprises - identified in the mapping study - is purposively selected as a single case study. The competitive environment of this multinational digital enterprise is explored. This allows for understanding the forces that influence the operations of the digital enterprise. Finally, the strategic actions of the digital enterprise are reviewed using the conceptual framework developed along the four dimensions of digital business strategy (governance, competence, coordination and flexibility) and guided by their corresponding strategic management theories. This culminates into the development of a comprehensive digital business strategy framework that explains the strategic actions of

business models of digital enterprises in a developing economy. Refer to Chapter 8 for analysis and discussion of findings in this regard.

3. To explain how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value.

The third objective is in response to the need for studies into enterprises without formalised structures and procedures for the implementation of their strategies. Research attention has been on firms with formalised or professional management structures (Cruz & Haugan, 2019; Islam et al., 2017; Weill & Woerner, 2015). The focus here is to explore how the strategic actions (governance, competence, coordination and flexibility) underpinning the business models of digital enterprises in a developing economy are developed/oriented to create value as the firm grows from the start-up stage to the maturity stage. In this regard, a Ghanaian-owned digital enterprise is selected as the case for the study. This objective culminates into the development of a comprehensive digital business strategy framework for the growth of the digital enterprise. Chapter 10 presents analysis and discussion of findings in this regard.

1.5 Research Questions

The research objectives enumerated in subsection 1.4 above translate into the following research questions:

1. What is the nature of the business models of digital enterprises in a developing economy?
2. What is the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy?
3. How are the strategic actions of business models of digital enterprises in a developing economy developed/oriented to create value?

1.6 Significance of the Study

In the first place, this thesis is arguably one of the preliminary studies to attempt to develop a comprehensive framework for digital business strategy for firms in the field of Information Systems. This study combines four strategic management theories on strategy to develop a comprehensive digital business strategy framework for determining the survival and growth of the digital enterprise in a developing country. This serves as a steppingstone for further studies on digital business strategy.

Also, the findings of this study contribute to providing insights into the digital economy of a developing country such as Ghana. This study maps out the business models of digital enterprises in Ghana to identify the nature and dominant themes, especially in terms of the operations and structure.

Again, this study on digital business strategy is of immense help to policymakers and practitioners. Policymakers will, therefore, understand the structure and potential of the digital economy, which will assist them in decision making, especially in terms of revenue generation and national development. Practitioners who may include Digital entrepreneurs and managers of businesses will also have a comprehensive digital business strategy framework to guide their strategic decisions and actions.

1.7 Limitations of the Study

Any research work inevitably encounters some basic limitations, and this study is no exception. Below are some limitations identified in this study and how the researcher overcame them.

First, the timeframe for the completion of this research was a significant constraining element which influenced the conduct of the study. However, given these difficulties, all attempts were made to undertake a valid and comprehensive study. Again, the study was limited to Ghana because of the ease of access to respondents and data that the researcher needed to gather.

Again, the various research approaches adopted for this research come with some weaknesses which the researcher ensured were dealt with appropriately. For instance, the structured questionnaire administration leads to an unnatural situation which sometimes influences the responses. Choy (2014) also asserts that there are sometimes inaccuracies or incompleteness in the self-reported information obtained from the questionnaires. In overcoming these challenges, documentation regarding the content and application of the questionnaire was provided. This enabled other researchers to assess the validity of the findings from this thesis. Also, qualitative case studies were conducted on two purposively selected digital enterprises in Ghana. The case studies were to analyse further their strategic actions that have led to their survival over the years.

1.8 Chapter Outline

This thesis is organised into ten chapters which reflect the various steps taken to conduct the study.

This first chapter, the introductory chapter, discussed the research background, problem, purpose, objectives, questions and the significance of the study. The second chapter deals with the description of concepts relating to digital business strategy. This helps to operationalise definitions and provide better perspectives to concepts used in this study.

The third chapter deals with a review of literature related to digital business strategy. This review allows for the appreciation of previous studies conducted in the field of digital business strategy. Themes are drawn from the classification of the literature, which allows for identifying the gaps which this current study seeks to fill.

The fourth chapter reviews theories related to digital business strategy identified in the literature review chapter. These theories are used as the guiding lens in the development of the conceptual framework for the study. The fifth chapter discusses the research framework by providing the propositions which are used to solve the research questions for the study.

The sixth chapter discusses the research methodology for the study. The research paradigm used as the philosophical lens for the study is discussed. This influenced the choice of the research approach and strategy for the study. The study's population, sample and sampling techniques are also discussed in this chapter. Data collection methods and the methods of data analysis are also expounded.

Chapter Seven provides a contextual analysis of the digital economy of Ghana in terms of mapping out the digital enterprises in Ghana. This serves as a response to the first research objective to map out the digital enterprises in Ghana. There is, therefore, a discussion of the findings related to business models and enablers of these enterprises.

Chapter Eight of the study provides the analysis and discussion of findings on the survival strategies in the digital economy of Ghana which is a response to the second research objective to determine the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy.

The ninth chapter also presents an analysis and discussion of the findings on the digital business strategy for evolution. This discussion helps to explain how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value. This is in response to the third research objective.

Chapter Ten, which is the final chapter, provides conclusions and a summary of the research. Also, implications of the study in terms of contributions to literature, policy and practice are discussed. Limitations and recommendations for future research are also provided.

CHAPTER TWO

CONCEPTUALISING BUSINESS STRATEGY IN THE DIGITAL ECONOMY

2.1 Chapter Overview

The previous chapter introduced the thesis by providing a background to the research. This was followed by the research problem which discussed the research gaps identified after the review of digital business strategy literature. This served as the backbone of the study. There was also a discussion on the purpose of the study - develop a digital business strategy framework and identify the nature of strategic actions the digital enterprises in the digital economy of a developing country have developed.

This chapter presents the conceptualisation of digital business strategy for this study. The chapter begins with a review of the definitions of the digital economy. Knowledge of the digital economy helps to identify the enterprises found in it and their activities. Again, the working definition of digital business strategy is discussed and adopted for the study. There is also a review of digital business models which will be used in responding to the first research objective to describe the business models of digital enterprises in a developing economy. The chapter concludes with a review of Porter's Five competitive forces model. Porter's Five competitive model is applied in Chapter seven to review the competitive forces that influence the operations of the case firm.

2.2 Defining the Digital Economy

It has been asserted that the digital economy is an emerging phenomenon which has had a very significant impact on the annual growth rate of countries (World Economic Forum, 2015). Even though economics and politics have been the driving forces behind this new phenomenon,

contributions from innovations in technology cannot be overemphasized (Heeks, 2017). Transformations in the economies of countries in the 1990s were mainly attributed to the Internet evolution. This evolution continued into the 2000s and the 2010s with the introduction of Information and Communication Technologies (ICTs) which has been the bedrock of economic transformations. These ICTs include but not limited to electronic devices with connected embedded sensors (the internet of things); and new digital models such as digital platforms, cloud computing and digital services. Others include new sophisticated end-user devices and gadgets such as smartphones, laptops, netbooks, 3D printers, among others. Also, there has been an increase in the usage of data through the application of concepts such as big data analytics and algorithms for decision making (Dahlman, Mealy, & Wermelinger, 2016).

These new technologies have given rise to the concept of digital affordances which Heeks (2017) refers to as "potential actions an individual or organisation with a purpose can undertake with a digital system within the context of the environment within which they function." These actions may include datafication, digitisation, virtualisation and generativity (Heeks, 2016). Virtualisation refers to the act of physically disembedding processes. Generativity also refers to the recombination and reprogramming of electronic devices and data leading to a function which was not the originally planned purpose for the device or data. Digitisation is also the transformation of every unit in the value chain of information from the analogue mode into the digital mode. Another modern term introduced by Victor Mayer-Schöenberger and Kenneth Neil Cukier in 2013 is Datafication (Strauß, 2015). Mai (2016) assert that datafication deals with the conversion of personal human life information into a computerised form, which is of value to businesses. The impact of datafication extends to Human Resources Data which helps to identify potential employees and their specific characteristics such as risk-taking profile and personality obtained from the usage of social media, personal phone usage and apps. This

technique has been predicted to replace the traditional personality tests associated with recruitments and also in customer relationship management (Moore, 2017).

It has, however, been asserted that the impact of these digital technologies on existing economies have been disruptive. It has reshaped the behaviour and purchase patterns of consumers, business models and processes and even in human interactions (Dahlman et al., 2016). Instances of these transformations can be seen in almost all the sectors of the economy of countries. For example, in the transportation industry, "Uber" which is one of the world's largest taxi company rides on the back of the digital technologies. In social media, Facebook, the world's largest social media company thrives on digital technologies. In marketing, Alibaba and Amazon also dominate. In the hospitality industry, Airbnb, the world's largest hotelier, depends on digital business technologies. Figure 2.1 below shows an industry 4.0 (Geissbauer, Vedso, & Schrauf, 2016) dominated by digital technologies.

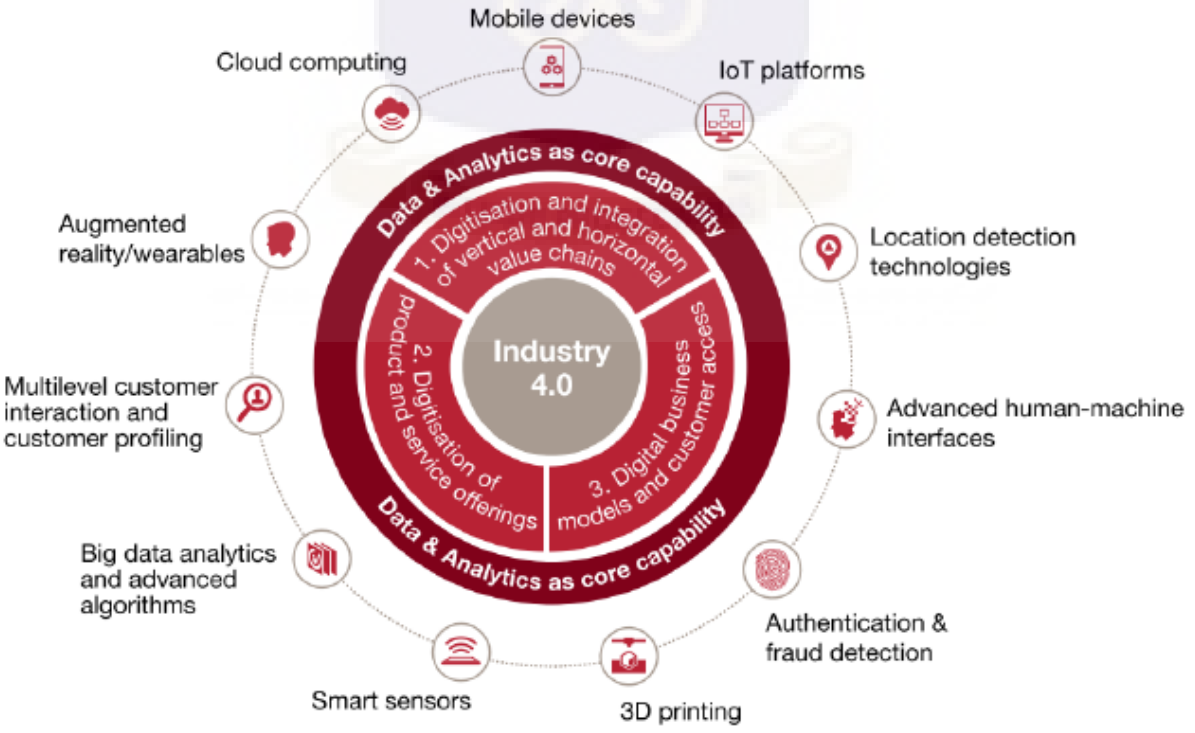


Figure 2.1: Industry 4.0 framework and associated digital technologies (Geissbauer et al., 2016)

The disruptions caused by digital technologies on the economies of countries have led to the creation of a new concept referred to as "Digital economy". The digital economy has been viewed from varied perspectives. This can be ascribed to the reflections of the trends and times within which the definitions emerged. For instance, early definitions of digital economy by researchers such as Tapscott (1996) and Mesenbourg (2001) focused primarily on the internet technology which is indicative of the emergence of the internet technology in the 1990s. More recent definitions of the term digital economy include new technologies such as the mobile and sensor networks, including the wireless and cloud technologies (G20 DETF, 2016).

Knickrehm, Berthon and Daugherty (2016) define the digital economy as "the share of total economic output derived from some broad 'digital' inputs. These digital inputs include digital skills, digital equipment (hardware, software and communications equipment) and the intermediate digital goods and services used in production." These broad measures are said to be the major foundations of the digital economy.

In the context of this study and the issue of extensivity, this study adopts the definition of Bukht and Heeks (2017) which asserts that the digital economy is "that part of economic output derived solely or primarily from digital technologies with a business model based on digital goods or services." This definition provides the flexibility to incorporate all digital business models and digital innovations. Figure 2.2 provides a summary of the constituents of the digital economy. This definition attempts to depend on the flexible boundaries between the digitalised economy, digital economy and the Digital (IT/ICT) sector.

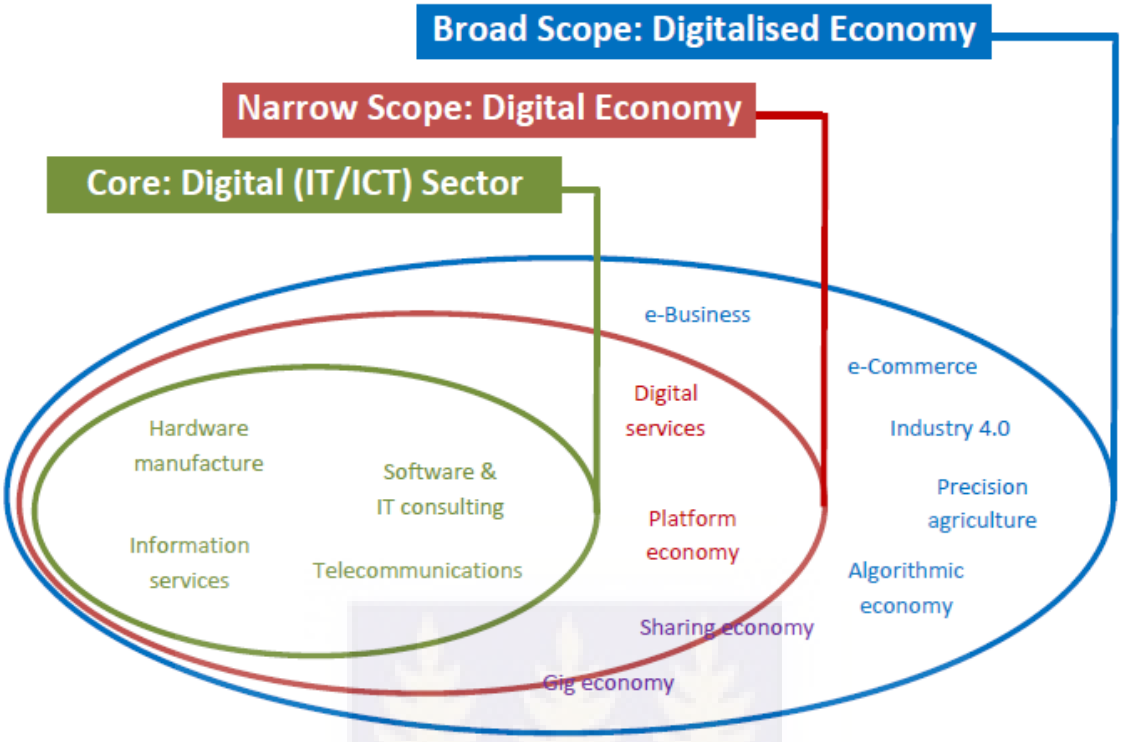


Figure 2.2. Constituents of the digital economy (Bukht & Heeks, 2017, page 13)

2.2.1 Defining the Digital Enterprise

The previous section explained the digital economy and the definition provided by Bukht and Heeks (2017) was adapted and used for this study. The digital economy consists of all the economic output derived solely or mainly from digital technologies that also has a business model dependent upon digital goods and services (Bukht & Heeks, 2017).

Based on the definition of the digital economy, a digital enterprise will necessarily be that business entity which operates within the digital economy. Rouse (2011) defines a digital enterprise to be "an organization that uses technology as a competitive advantage in its internal and external operations." Taking the three scopes of the digital economy into consideration, as shown in Figure 2.2, a digital enterprise or firm must have a business model that primarily utilizes digital technologies. The existence of the digital enterprise is dependent upon the

availability of digital technologies. It must also be noted that the term digital enterprise has evolved over the years to include all business activities that incorporate digital technologies in their operations. Tonaton.com who uses the internet for buying and selling goods and Uber who also uses internet technology for ride-sharing activities are examples of digital enterprises.

2.3 Business Strategy

Strategy denotes a high-level plan to achieve a set of objective(s) or goal(s). Strategy as a term became popular during the 6th century, especially in the military. In the military, for instance, several divisions with different skills, including logistics and tactics, are supposed to work collectively to ensure victory for their empires. From these earlier times, the term strategy has been adopted to refer to as "a comprehensive way to try to pursue political ends, including the threat or actual use of force, in a dialectic of wills" (Freedman, 2015).

Strategy in business consist of the set of decisions taken by business managers. These decisions may consist of the choice of an industry within which to operate, investments in resources, tactics for pricing and the configuration of the firm (Williamson, 1991). Other decisions may consist of managing the business' trade-offs between efficiency – cost reduction – and also effectiveness – value creation and capture (Drnevich & Croson, 2013). Even though these high-level decisions might seem easy, they require thorough analysis. Several factors must be taken into consideration before effective decisions can be taken. This makes strategy in businesses very crucial which is not different from other endeavours. Failure of the strategy may even result in the closure of the business.

Drnevich and Croson (2013) define the business-level strategy to encompass two major issues; Resources and Capabilities. These two constructs are primary in the field of Information

Systems, where the business sees Information Technology as a resource and hence builds capabilities around it to survive the competition.

In summary, this study adopts the definition of business strategy provided by Lyneis (2020) where he asserts that a firm's business strategy outlines the way it competes within its industry – how, where and the approach to doing so. In other words, the business strategy typically specifies the firm's goals, products and services being offered, and the markets served, including the basis for competing (price, service, quality, etc.). The business strategy may also define the structure of the firm, the systems and policies which implement the strategy.

2.4 Digital Business Strategy

The digital economy has redefined business strategy into a term referred to as "Digital Business Strategy." This new phenomenon started with Information Technology (IT) Strategy which was viewed as a functional-level strategy – a subset of the entire business strategy (Bharadwaj et al., 2013; Henderson & Venkatraman, 1993). The IT strategy was headed by an IT manager whose activities were guided by the overall business strategy of the firm. This subordinate role of the IT strategy is highlighted in extant Information Systems research (e.g. Chan & Reich, 2007; Sledgianowski, Luftman, & Reilly, 2006). Chan and Reich (2007) studied IT alignment in businesses and outlined the dominating role of the business strategy over the IT strategy. In essence, the IT strategy must be aligned to the Business strategy. There have been calls for the IT strategy to be recognized at the same level as the business strategy (Venkatraman, 1994; Mata, Fuerst, & Barney, 1995; Miller, 2003; Zott, 2003). Mata et al. (1995) assert that the role of the IT strategy has been to help the business to overcome competition. Other researchers (Miller, 2003; Zott, 2003) see the IT strategy as a means of assisting the firm to increase their competitive advantage.

Transformations in the operations of businesses due to the new functionalities introduced by ICT and other digital technologies have altered the relationship between IT strategy and Business strategy (Bharadwaj et al., 2013). That is, the firms in the post-dotcom decade have taken advantage of the numerous potentials of Information and Communication Technologies – global connectivity through mobile web and the internet, lower prices and high performance of computing. Digital technologies are transforming business strategies. Such transformations include business processes that allow work to be done across borders, time, functions and distance (Ansong & Boateng, 2017; Rai et al., 2012). Also, through social networking and social media, the digital technologies have transformed the structure of social relations existing between and in both the enterprise space and consumers (Susarla, Oh, & Tan, 2012). Again, products and services have become entangled in the digital technologies which have made it difficult to disassociate these digital goods (products and services delivered over digital networks) from their underlying Information Technology infrastructure (Orlikowski, 2009). This situation has led to the creation of entirely new business strategies as postulated by Burgelman and Grove (2007). Besides, the turbulence and disruptions caused by digital platforms have caused an emerging new wave of strategy formulation (Pavlou & El Sawy, 2010).

The arguments raised above have created a new situation for businesses to re-analyse and rethink about the business roles of IT strategy. Bharadwaj et al. (2013) have expounded that the IT strategy should not be viewed as just a functional-level strategy but should be seen as a fusion between the business strategy and the IT strategy which leads to an overarching phenomenon referred to as "Digital Business Strategy." Mithas et al. (2013) see digital business strategy as moving beyond the business strategy to a stage where businesses engage in a category of Information Technology related activities. Bharadwaj et al. (2013), in the Special

Issue on Digital Business Strategy in the MIS Quarterly Journal, defined digital business strategy as "organizational strategy formulated and executed by leveraging digital resources to create differential value." Three significant issues are highlighted from this definition;

1. Viewing IT strategy beyond being a single functional-level strategy to an inter-functional-level strategy spanning areas such as purchasing, operations, marketing, finance and supply chain among others
2. Moving beyond systems and technologies. Thus, looking beyond the traditional IT strategy which had a narrowed perspective into a broader view where digital resources are recognised and are at the same level with the resource-based view strategy (Conner & Prahalad, 1996).
3. Measuring and connecting the implications of IT strategy beyond productivity and efficiency to driving advantage competitively and for strategic differentiation.

2.5 Digital Business Model Types

A business model generally "outlines the basics of how an organization creates, delivers, and captures value, in economic, social, cultural or other contexts" within an industry (Hummel et al., 2010). Business models are indispensable in the operations of businesses – business models an integral part of a firm's business strategy (Geissdoerfer, Savaget, & Evans, 2017). This thesis explores the business models of digital enterprises operating within Ghana's digital economy in a step to determining the digital business strategy that underpins the business model as the firm competes and grows within the industry.

A business model, according to Veit et al. (2014), is said to be digital when the changes in digital technologies, trigger fundamental changes in the mode of operation of the business and how revenues are generated. The various changes that take place in the business are influenced

primarily by information technology, including changes in the business network and the business scope. In this study, a review of the literature was carried out to unearth the various perspectives and models used in the study of digital enterprises. Several insights were obtained from the literature reviewed. For instance, Zolnowski, Towe and Jan (2016) investigated the effects of data-driven innovations on the business models of 20 international companies. They discovered four different patterns - cooperative value innovation, customer-centric value innovation, cooperative productivity improvement, and company-centric productivity improvement.

Lasch, Roy and Yami (2007) also studied the growth determinants of ICT start-ups in France and discovered that human capital and working experience have no significant impact on the success of ICT start-ups. However, it is worth noting that most societies and economies have been transformed and changed through advances in digital technologies (Lucas, Agarwal, Clemons, El Sawy, & Weber, 2013). For instance, mobile devices such as tablets, mobile phones, among others, have become readily accessible, always available, and connected to the internet. Digital enterprises need to leverage these devices and technologies to compete and survive in the digital economy. El Sawy and Pereira (2013) assert that digital businesses must belong to the right digital ecosystems to be considered as being in a strong competitively advantageous position; even though it is sometimes short-lived due to the dynamic nature of the digital ecosystem.

2.5.1 Framework for Studying Digital Business Models

Spieth, Schneckenberg and Ricart (2014) assert that research on business models should be underpinned by three objectives; (1) explaining the business, (2) running the business and (3) developing the business. Based on this premise, this study carried out the mapping out of the

digital enterprises in Ghana. Reviews on business models have utilized frameworks of previous studies, and this current study is not an exception. Weill, Malone, D'Urso, Herman and Woerner (2005) and Osterwalder and Pigneur (2010) are a few of the authors who have developed typologies for modelling digital enterprises. Weill et al. (2005) developed a typology, which has already proven to be useful and was applied to analyse the performance of the top 1,000 digital enterprises in the United States of America. Remane et al. (2016) used the typology developed by Weill et al. (2005) to investigate the changes in the Digital Business Model types of digital enterprises in the mobility sector. The typology classifies the enterprises based on the rights being sold and the types of assets involved in the business. The rights being sold are categorized into:

1. A creator who sells the ownership of an asset that has significantly been transformed,
2. A distributor who trades in the ownership of an asset with limited transformation,
3. A broker who matches buyers and sellers of assets and
4. A landlord who grants the temporary use of the asset.

On the other hand, the type of assets involved are also grouped into:

1. Financial assets - cash, stock, bonds, and insurance policies, as well as other assets that give their owners rights to potential future cash flows.
2. Physical assets - durable items such as houses, computers, and machine tools, as well as nondurable items such as food, clothing, and paper.
3. Intangible assets - legally protected intellectual property such as patents, copyrights, and trademarks, as well as other intangible assets.
4. Human assets - people's time and effort, which for legal reasons, can only be combined with the rights-selling dimensions – a landlord and a broker.

The 16 basic business model archetypes evolve by combining the two dimensions. This 16 Business model archetype is adopted in this study to analyse the business models of digital enterprises in Ghana (see Chapter seven) which is in response to the first research objective of the study.

2.6 Porter's 5 Competitive Forces Model

Generally, Porter's Five Forces model deals with a continuous process of scanning and monitoring the environment of businesses. It also involves obtaining competitive intelligence on the present and potential rivals of enterprises (Porter, 2008). The survival of the enterprise is influenced by some competitive forces which are either within (internal) or outside (external) of the firm (Liang, Saraf, Hu, & Xue, 2007). The firm must strategize to survive this competition. Porter (2012) model has become a handy tool for analysing the various competitive forces that exist within the industry. The Five Forces Model includes; analyses of the bargaining power of suppliers; the threat of entrants or potential competitors; the threat of substitute products or services; the bargaining power of buyers or potential customers; and the intensity of rivalry among existing competitors. Figure 2.3 shows the five competitive forces model.

Figure 2.3: Porter's five competitive forces model (Porter, 2008)

Information Systems scholars and practitioners highly value and use Porter's Five competitive forces model (Indiatsy, Mwangi, Mandere, Bichanga, & George, 2014). This is because the model provides a better understanding of the industry environment; a comparison of rivals for business obstructions, advantages and disadvantages in technology, production and quality (Rachapila & Jansirisak, 2013). This evaluation helps to determine the continuation, termination or development of the business.

The Porter's five competitive forces model is applied to identify the various competing forces that influence the business model of a digital enterprise in a developing economy in the quest to identify the digital strategic actions for survival (see Section 8.5). This was in part a response to the second research objective of this thesis which is to determine the nature of the strategic actions underpinning the business models of digital enterprises in a developing economy.

2.7 Summary of Chapter

In summary, this chapter explained the major concepts as used in this thesis. Strategy, in its broader sense, was initially explored and later explained in the context of businesses. This was followed by defining digital business strategy. This chapter offered a conceptualisation of the dominant themes used in this study. This is meant to dispel ambiguities in their usage and assist in contextualising them in this thesis.

Also, digital business models were discussed. This was aimed at identifying a framework to map out the digital enterprises in Ghana (see chapter 7). The 16 Business model archetypes, developed by Weill et al. (2005), was adopted in this regard.

Finally, a review of Porter's five competitive forces model was presented in this chapter. The model seeks to review the competitive environment of the digital enterprise, which is relevant in strategy development. The model is applied in evaluating the competitive environment of the case digital enterprise in Section 8.5 of this thesis.

The next chapter presents a survey of digital business strategy literature. The objective is to use the knowledge gaps identified from the review to establish a defined focus for this research.

CHAPTER THREE

DIGITAL BUSINESS STRATEGY RESEARCH: AN EVIDENCE SURVEY

3.1 Chapter Overview

The previous chapters introduced the thesis. They presented the background and the research problems from which the research purpose and the objectives were deduced. It was discovered that extant studies on digital business strategies seem to focus on a single dimension of the business strategy - governance, coordination, competence and flexibility. This requires a study that proposes and applies a framework that looks at strategy from these various dimensions. The immediately preceding chapter also conceptualised the business strategy in the digital economy by offering explanations to all concepts and themes used in this thesis.

This chapter reviews previous research to examine the theoretical frameworks and conceptual approaches underlying digital business strategy research and identify the current knowledge gaps. The objective is also to use these knowledge gaps to establish a defined focus for this research.

This review consists of digital business strategy literature from the top journals in Management Information Systems published between 2010 to date. This timeframe was selected because of the general novelty of the topic as well as its emergence in the top journals in Management Information Systems - was a special edition in the MIS Quarterly journal of 2013. The review is divided into four major components; the first part discusses the methodology for the review of digital business strategy literature. The second section maps digital business strategy literature which leads to the identification and the discussion of the major research themes. The third section discusses the issues by providing evidence from the mapping of the digital

business strategy literature. Finally, the major theoretical and conceptual approaches to the study of digital business strategy is expounded. The chapter concludes with a discussion of gaps for future research which are deduced from the review of the digital business strategy literature.

3.2 Review of Digital Business Strategy Literature

One of the most important activities of every academic research is the review of relevant literature on the topic (Sofiadin & Binti, 2014). Literature review refers to as "the ideas in the literature that are used to validate a specific approach to the topic, methods selection and demonstration whereby the research makes a new contribution to a particular field of study" (Ramakrisnan, Yahya, Hasrol, & Aziz, 2012). Effective review of literature is expected to provide an analysis and a synthesis of quality literature. This is intended to provide a strong case for the selection of the topic and to justify the research approach (Sumranwong, 2011). A review of the literature provides a better understanding of the literature for the researcher. Again, it allows the researcher to identify the gaps available for future research which helps to provide relevance to the study. It also provides further explanation of the research problem.

Irrespective of the research approach - could be quantitative, qualitative or mixed methods - King and He (2005) have proposed four different strategies for conducting a literature review. These include the descriptive review, meta-analysis approach, the vote-counting approach and the narrative approach. The meta-analysis technique is adopted for the literature review. This approach provides statistical support, especially for studies conducted using the quantitative research approach. The meta-analysis involves synthesizing and analyzing the present studies of a particular domain.

This literature review adapted Boateng, Molla and Heeks' (2009) method of classification which consists of four major phases; classification of literature, the methodology for the review, discussion of findings and summarizations.

3.2.1 Methodology for the Review

Sofiadin and Binti (2014) assert that the first activity in the conduct of a literature review is an analysis of studies on the topic. This involves searching for literature related to the subject area in online databases and library collections. The search for literature on digital business strategy was carried out in two major phases which were similar to the research by Boateng et al. (2009) on reviewing the theoretical frameworks and approaches in electronic commerce. First, the top information systems journals were searched individually to ascertain the extent to which the research on digital business strategies has been accorded credence.

The second major activity was to search for literature on digital business strategy from the major academic databases which the University of Ghana subscribes to. These databases include EmeraldInsight, Google Scholar, Ebscohost (Elsevier), ScienceDirect, JSTOR and Sage. These databases were selected because they provide access to most of the top journals in Information Systems, including books and conference publications. This assertion is also corroborated by Yunus and Salim (2008). The search for the literature on digital business strategy was conducted with phrases such as “digital business,” “business strategy,” “digital business strategy,” “online business strategy” and “digital strategy.” This search was limited to literature published from 2010 to date. About 200 articles which were related to the research topic were stored and used for the review. The classification was based on the context of the study (the geographical location of the studies); the level of analysis (the level of segmentation

of the study); Methodology of the study (the approach for conducting the study); and the framework for the conduct of the study.

3.3 Discussion of the Review of Digital Business Strategy Literature

This section of the review provides a discussion of the survey of literature related to digital business strategy. This quantitative analysis involves classification of the articles based on the methodological approaches, contextual approaches and years of publication.

3.3.1 Distribution of the Literature according to Research Methodologies

The articles were categorized methodologically into quantitative, qualitative and mixed-method approaches. From Figure 3.1, it was revealed that 54.5 percent of the research on digital business strategy reviewed were conducted using the qualitative research approach (e.g. Arasti, Khaleghi, & Noori, 2017; Choi et al., 2017; Davison & Ou, 2017; Dellermann, Fliaster, & Kolloch, 2017; Pagani, 2013; Woodard, Ramasubbu, Tschang, & Sambamurthy, 2013; Yeow et al., 2018). The remaining 45.5 percent articles were also conducted using the quantitative research approach (e.g. Chuang & Lin, 2017; Grover & Kohli, 2013; Mithas et al., 2013; Setia, Venkatesh, & Joglekar, 2013). Paradoxically, none of the articles reviewed was conducted using the mixed-method approach.

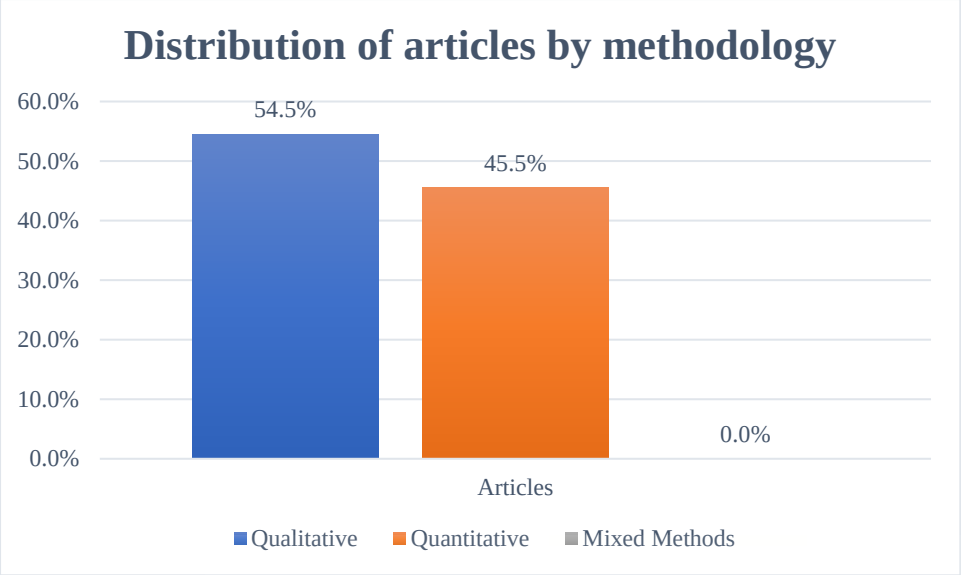


Figure 3.1. Distribution of articles by methodology

3.3.2 Distribution of Literature according to Context

The geographical locations for the conduct of the studies on digital business strategy were also analysed. For the context analysis, the studies were classified into two major groups – Developing and Developed context. Studies in the developing context are basically conducted in developing countries. This categorization depended on the International Statistical Institute (2014) definition of developed and developing countries. According to the institute, countries with yearly Gross National Income (GNI) per capita of 11,905 US Dollars or less are considered developing countries. Arguably most countries in Africa, South America and Asia are developing countries. Studies from these regions were classified in the developing country's context. It must, however, be noted that some studies were conducted across regions and were classified as cross-country or global contexts.

It was discovered that most studies on digital business strategies were conducted from the developed countries' perspective. Figure 3.2 displays the distribution of the articles according to the context within which the study was carried. Insightful findings were revealed in this

regard. For instance, 72.7 percent of the articles reviewed were conducted from the developed countries perspective. Such studies were conducted in the United States of America (e.g. Choi et al., 2017; Grover & Kohli, 2013; Mithas et al., 2013; Setia et al., 2013) and others were conducted in Europe in countries such as Germany (e.g. Dellermann et al., 2017; Yeow et al., 2018) and the United Kingdom (e.g. Pagani, 2013).

On the other hand, 27.3 percent of the digital business strategy articles were conducted from the developing countries perspective. Such articles were conducted in Iran (e.g. Arasti et al., 2017), Taiwan (e.g. Chuang & Lin, 2017), Singapore (e.g. Woodard et al., 2013). The paucity of literature from the developing countries perspective can be attributed to the low rate of digitization of the economies of developing countries, as asserted by Davison & Ou (2017).

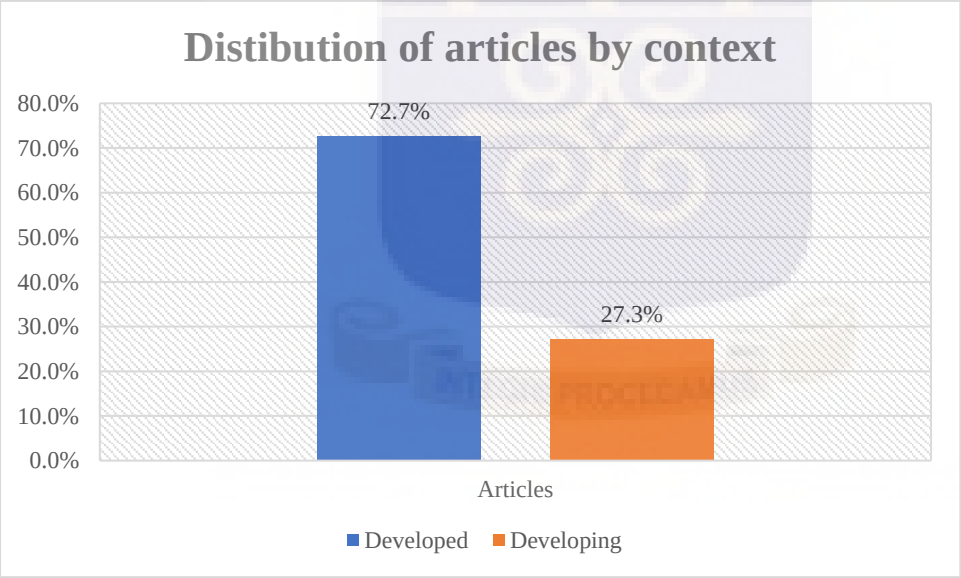


Figure 3.2. Distribution of articles by Context

3.3.3 Distribution of Literature based on the Level of Analysis

The level of analysis classification also focused on three major categories. Similar to Heeks' (2010) study, micro, meso and macro levels of analysis were identified. The micro-level of analysis focuses on individuals (employees, managers, entrepreneurs, etc.) whereas the meso-

level deals with firms. The Macro-level studies move beyond the firm to look at economies and countries.

The review of digital business strategy literature indicated that 18.20 percent of the articles were conducted at the macro level. The focus of the studies was on industries and economies of countries. For instance, Pagani (2013) researched on providing a framework for the dynamic network of control points in value creation and digital business strategies for the broadcasting industry of America and Europe. Similarly, Dellermann et al. (2017) researched on how innovations are supposed to be handled in the energy sector of Germany.

It was also discovered that most of the articles reviewed (54.5%) were conducted at the meso-level. These articles (Arasti et al., 2017; Chuang & Lin, 2017; Lam, Yeung, Lo, & Cheng, 2019; Mithas et al., 2013; Yeow et al., 2018; Zhou, Zhang, Chen, & Han, 2017) were conducted at the firm level.

On the other hand, 27.3 percent of the articles were also conducted at the micro-level. The focus of other articles (e.g. Choi et al., 2017; Davison & Ou, 2017; Setia et al., 2013) were on individuals within the firm. The dominance of firm-level studies in the analysis shows the focus of digital business strategy, which is supposed to be a firm-wide strategy for achieving competitive advantage, growth or survival.

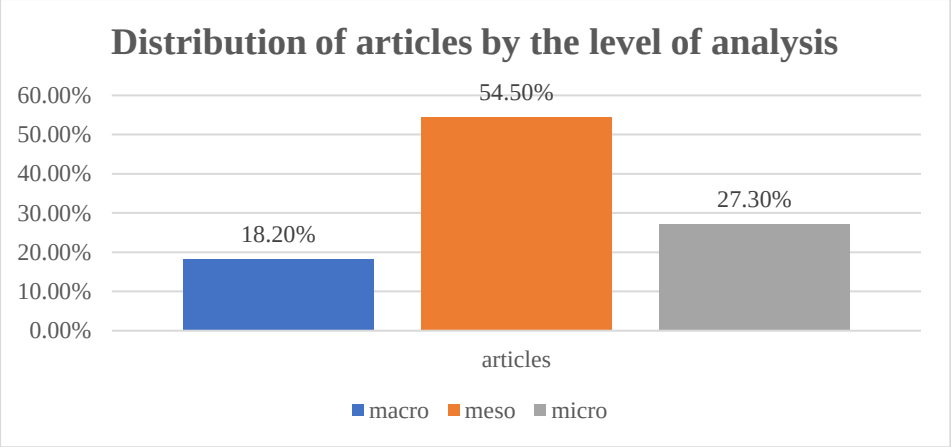


Figure 3.3. Distribution of articles by the level of analysis

3.3.4 Publication Outlets

This subsection presents the distribution of the articles based on the journals that published them. The Management Information Systems (MIS) Quarterly recorded the highest number of studies (15.7%). This can be attributed to the keen interest shown in digital business strategy by the Editors of the journal leading to a special edition in 2013 in this regard. The second highest journal (6.1%) was Information and Management. The third highest journals were the Journal of Information Technology (4.3%) and Information Technology and Management Journal (4.3%). Journals such as Technological Forecasting and Social Change, Management Decision, Journal of the Association of Information Systems, Journal of International Business Studies, Journal of Strategic Information Systems, Journal of Business Strategy, Information Systems Management, Strategic Management Journal, International Journal of Information Management and the Journal of Management Information Systems all recorded 3.5 percent. Other journals which recorded 2.6 percent include Computers in Human Behavior, Journal of International Development, Information and Organization, Electronic Commerce Research and Applications, Information Systems Journal, Journal of Enterprise Information Management, Communications of the Association of Information Systems and the Journal of Technology Analysis & Strategic Management. On the other hand, journals which recorded 1.7 percent

include Business Strategy Review, Information Systems Frontiers, Scandinavian Journal of Management, Technological Forecasting and Social Change and the Journal of Information, Communication & Ethics in Society.

Finally, Journals which recorded 0.9 percent consists of Long-Range Planning, Procedia-Social and Behavioral Sciences, International Journal of Offender Therapy and Comparative Criminology, MIT Sloan Management Review and Journal of Management, Transforming Government: People, Process and Policy. Figure 3.4 displays the analysis of the publication outlets of the articles.

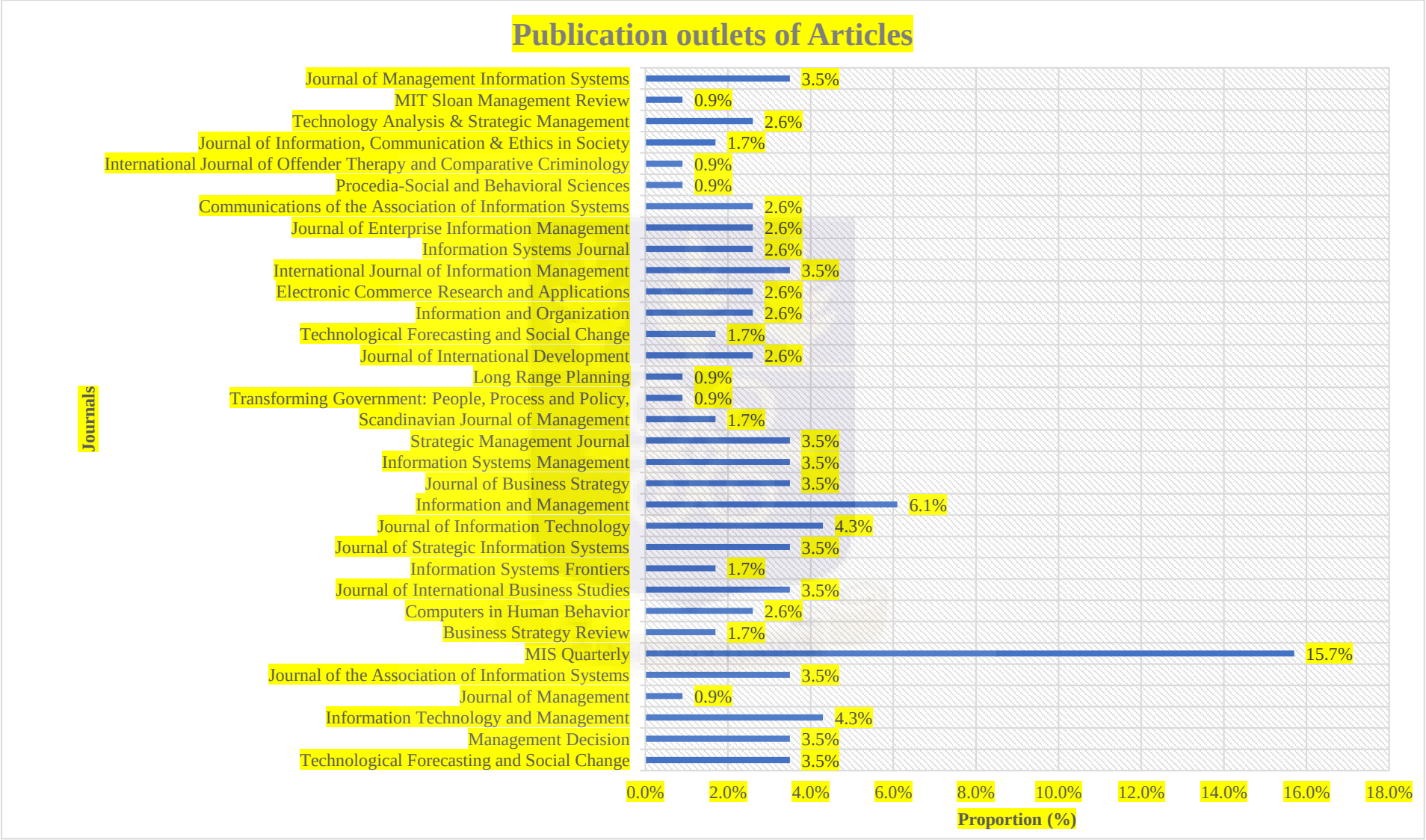


Figure 3.4. Publication outlets of article

3.3.5 Distribution of Articles by Years of Publication

The classification analysis based on the year of publication of the articles highlighted a growing trend in digital business strategy. Thus, from a marginal 10 articles published in 2010, there was a rise in 2013 to 40 articles which can be explained by the increasing rise in the number of digital firms in the digital economies of countries hence requiring research attention. Even though there was a marginal drop to 20 articles in 2016, there was a significant rise in 2017 to 59 articles. Figure 3.5 provides the distribution of the articles based on the years of publication. It should, however, be noted that considering the trend in the number of published articles, it can be proposed that research on digital business strategy will continue to rise.

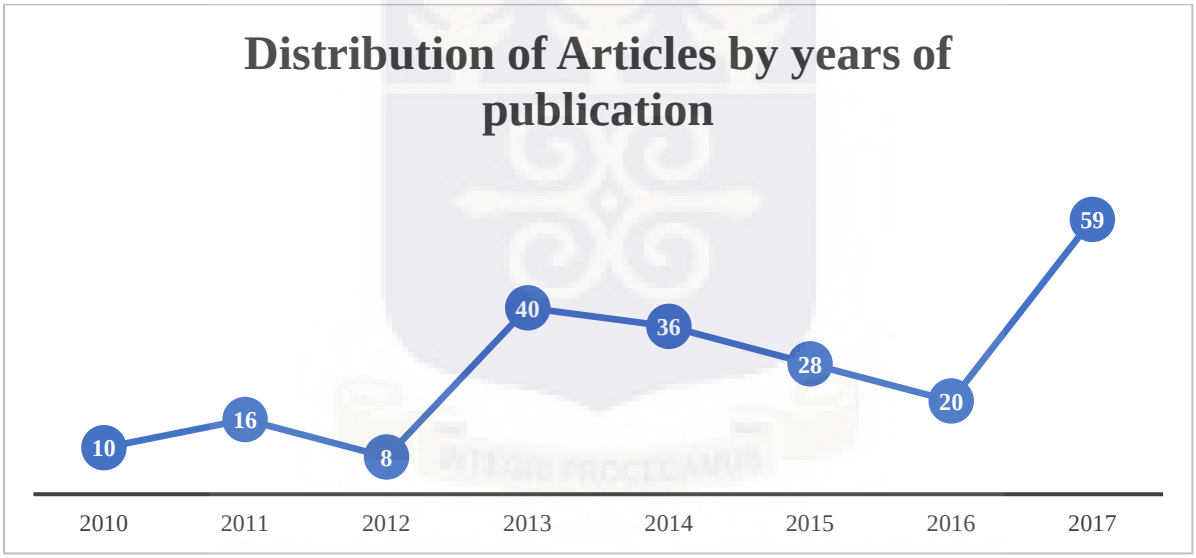


Figure 3.5. Distribution of articles by years of publication

3.4 Dominant themes in Digital Business Strategy Research

Four dominant themes were identified from the review of digital business strategy literature. These themes include the scope, the speed, the scale and the sources of business value creation and capture in digital business strategy. Similar to the review of Bharadwaj et al. (2013), these

four major themes, as shown in Figure 3.6, highlight the significant research nuances in digital business strategy.

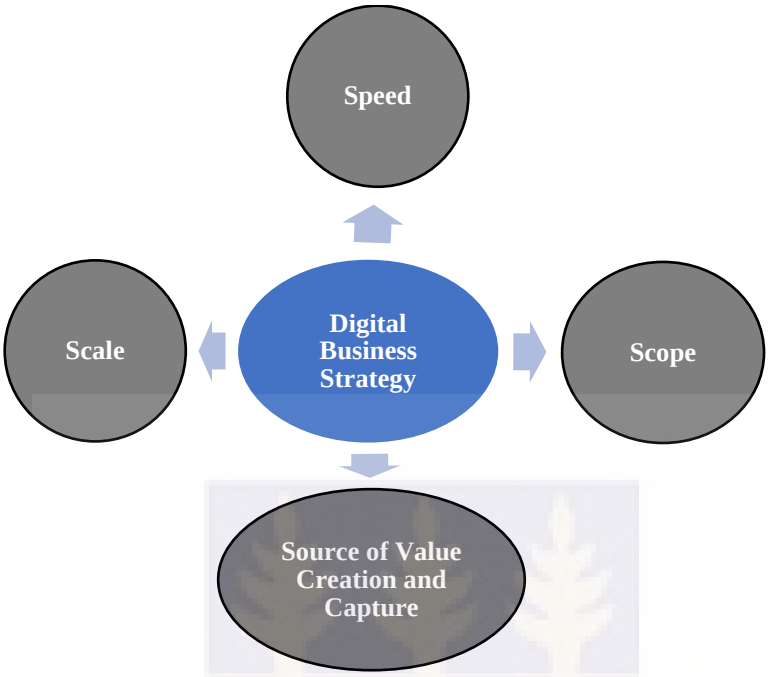


Figure 3.6: Research Perspectives of Digital Business Strategy

3.4.1 Scope of Digital Business Strategy

The review of the literature revealed varied scopes in the application of digital business strategy. The corporate scope has been a significant issue in strategic management research (Pérez-Aróstegui & Martínez-López, 2014; Wade & Hulland, 2004). The scope of a business is referred to as "the portfolio of products and businesses as well as activities that are carried out within a company's direct control and ownership" (Bharadwaj et al., 2013). The scope of a business contributes to its profitability (Nevo & Wade, 2010). Similarly, the scope of the digital business strategy also impacts on the output of the business.

The issue of drawing the boundaries of digital business strategy has been at the forefront of strategic management (Bharadwaj et al., 2013). It is worthwhile to note that the digital business

strategy transcends one functional area in the business. Digital business strategy is viewed beyond merely being an IT strategy – its scope spans the whole organisation (Rai et al., 2012). Bharadwaj et al. (2013), for instance, assert that the digital business strategy consists of all the strategic processes and functions related to digital resources. The knowledge of the scope of the digital business strategy allows for understanding the relationships between the firm's IT infrastructure, business strategy and the external environment. In this regard, attention was given to the scope of digital business strategy in this thesis.

The review of digital business strategy literature highlighted four major dimensions which fall under its scope. These include *Coordination* (Choi et al., 2017; Choi & Lee, 2012; Folmer, Matzner, Räckers, Scholta, & Becker, 2016; Pu, Chan, & Chong, 2016; Uotila, Keil, & Maula, 2017; van de Kaa, de Vries, & van den Ende, 2015; Zhao & Xia, 2014), *Flexibility* (Drnevich & Kriauciunas, 2011; Karpovsky & Galliers, 2015; Marabelli & Galliers, 2017; Rindova, Martins, & Yeow, 2016; Sia, Soh, & Weill, 2013; Yeow et al., 2018), *Governance* (Bøe et al., 2015; Chen & Kamal, 2016; Constantiou & Kallinikos, 2015; Liu, Kauffman, & Ma, 2015; Nwankpa, 2015; Qu, Pinsonneault, Tomiuk, Wang, & Liu, 2015; Reyns & Henson, 2016; Wang, Su, Wang, & Zou, 2019) and *Competence* (Chae, Koh, & Prybutok, 2014; Chuang & Lin, 2017; Devece, Palacios-Marqués, Galindo-Martín, & Llopis-Albert, 2017; Mao, Liu, Zhang, & Deng, 2016; Nevo & Wade, 2010; Pan, Pan, & Lim, 2015; Pérez-Aróstegui & Martínez-López, 2014). Figure 3.7 illustrates the four major scopes identified from the review of digital business strategy literature.

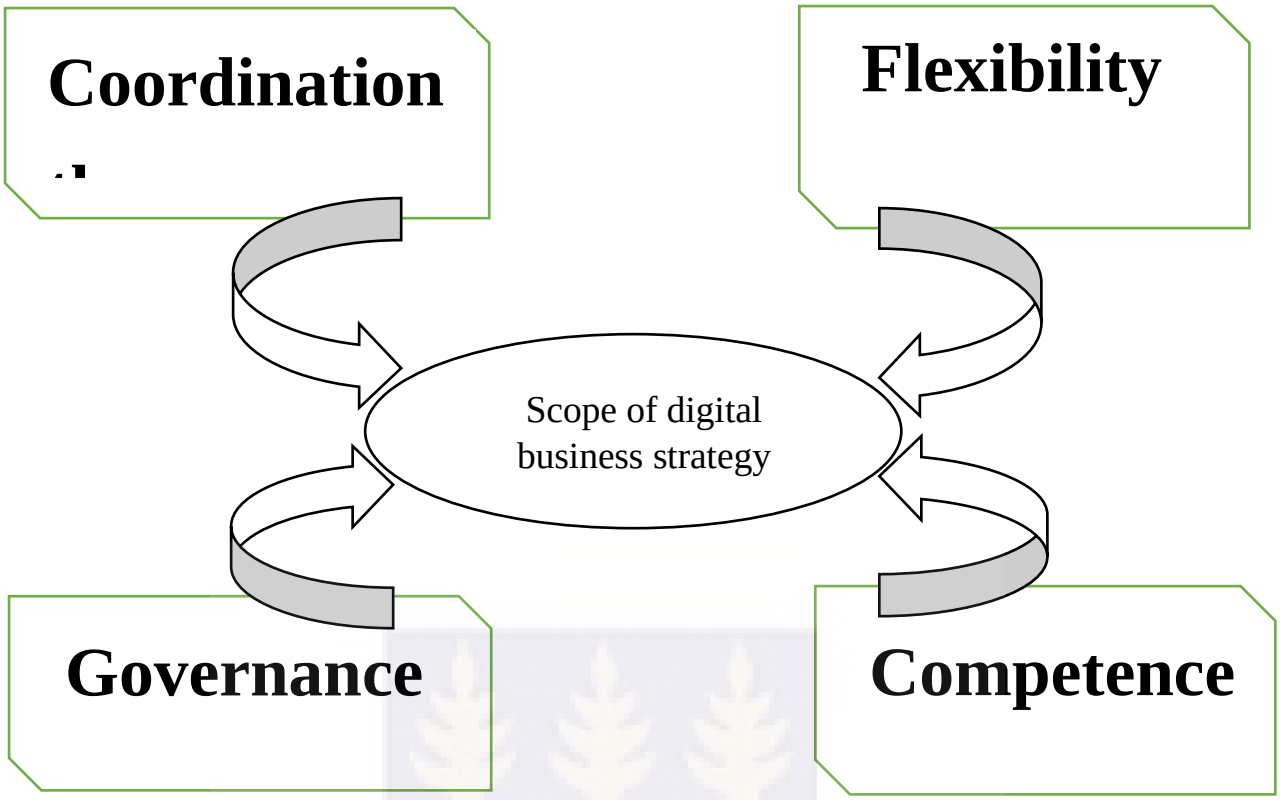


Figure 3.7: Scope of digital business strategy

3.3.1.1 Coordination

Coordination was highlighted to be one of the dimensions under the scope of digital business strategy literature review. The survival of firms depends heavily on their ability to earn profit from their investments. The return on investment (ROI) should be higher. Firms are supposed to be competitive in this regard. According to Porter (2008), the performance of a firm in the industry is mostly dependent upon its ability to cooperate, collude or coordinate with rival firms which allow for preventing or limiting new competitors from entry and also exert authority over both its customers and suppliers. The focus of coordination is on the enterprise's ability to manage its relationships with the industry players – competitors, government agencies, regulators, suppliers, among others – to survive, grow or remain in the competition.

Studies on digital business strategy that viewed the strategy from the perspective of coordination (e.g. Rai et al., 2012) asserted that the exchange of rich information enabled by digital platforms both within and outside the firm allows for maximizing returns and making the firm competitive.

3.3.1.2 Governance

Williamson (1991), who is a business strategy researcher, asserts that firms will be deemed to have a perfect governance structure when activities are efficiently partitioned. Operations which are performed outside of the organisation are effectively separated from those within. Studies on digital technologies and governance have focused on using Information Technologies in managing and monitoring supplier networks and the performance of workers' contracts. For instance, earlier studies (e.g. Bøe et al., 2015; Chen & Kamal, 2016; Constantiou & Kallinikos, 2015; Nwankpa, 2015; Reyns & Henson, 2016) investigated the role of digital technologies on the cost of transactions. According to Bøe et al. (2015), the elements of transaction cost which include specification, search and contract negotiation do not address the problem of transactions risks and opportunism which have become the major focus of strategic management research in the 21st century.

3.3.1.3 Competence

Competence as a scope in the review of digital business strategy literature places emphasis on the capabilities and the resources which the firm uses to capture and create value. According to Drnevich and Croson (2013), the firm acquires these capabilities and resources through consciously building them, through inheritance or chance. In the competence-base perspective, the focus is mostly on balance between the creation of value and its capture. This serves as the mechanism for determining the economic benefits of investments for the firm. Studies on the

competence scope of digital business strategy (Drnevich & Kriauciunas, 2011; Mithas et al., 2013) highlight the major role of digital technology in the creation and capture of value which makes firms competitive in the industry. Mithas et al. (2013), for instance, studied the digital posture of firms in a competitive environment.

3.3.1.4 Flexibility

Digital business strategy literature on the scope of flexibility highlights the ability of businesses to respond quickly to changes that occur in both the internal and external environments leads to an improvement in efficiency and effectiveness. Emphasising on the dynamic nature of the digital technologies which requires that products are quickly produced, Henfridsson, Mathiassen and Svahn (2014) assert that firms need to adopt digital strategies which will enable them to be flexible and stay competitive. A major advantage of flexibility is the firm's ability to adapt to new situations at minimal costs and also being able to seize opportunities quickly (Drnevich & Croson, 2013).

3.4.2 Scale of Digital Business Strategy

The second major theme from the review of digital business strategy literature is the scale of the digital strategy. The scale refers to the extent of the impact of the strategy, which, according to Bharadwaj et al. (2013) determines the profitability of the firm in the digital economy. Scale can also be looked at from the supply chains, the geographic coverage or the physical factors of production (Rai et al., 2012).

Studies on large scale digital business strategy (e.g. Arasti et al., 2017; Davison & Ou, 2017; Mathrani, Mathrani, & Viehland, 2013) were conducted from the perspective of multinational organisations and corporations. For instance, Arasti et al. (2017) investigated the digital

strategy of the Iran Khodro Company (IKCO) which is the largest manufacturer of cars in the Middle East and a multi-business diversified group in Iran. Also, Davison and Ou (2017) also studied challenges involved in working digitally in a global hotel chain.

On the other hand, studies conducted at the small-scale level (e.g. Arbussa, Bikfalvi, & Marquès, 2017; Hacklin, Björkdahl, & Wallin, 2017; Heracleous, Papachroni, Andriopoulos, & Gotsi, 2017) focused on digital strategies of smaller firms or start-ups. For example, Arbussa et al. (2017) investigated the digital business strategy of a Small-Medium Scale Enterprise (SME). Hacklin et al. (2017) also focused on 14 small scale firms whiles Heracleous et al. (2017) studied the digital strategy of a single firm called Xerox in the United States of America.

In terms of the scale of the strategy in its application at the units of the organisation, digital technologies such as cloud computing are applied at the organisation-wide level (Bharadwaj et al., 2013). Cloud computing supports the various departments of the organisation, including the services, supply chains, marketing and the other departments of the organisation (Oliveira, Thomas, & Espadanal, 2014).

3.4.3 Speed of Digital Business Strategy

Time has been recognised to be a significant factor in terms of strategy implementation and also in the achievement of competitive advantage (Stalk & Hout, 1990). Time takes on a more central position in the settings of digital businesses. In elaborating on the significance of time in digital business strategy, Bharadwaj et al. (2013) cite instances of Facebook, Apple, Amazon and Google in the development of products and services through utilizing the advancements in technology which include software, hardware and internet connectivity. The sequential release of the iPhone by Apple is also an indication of the dynamic nature of digital technologies which

require managers to always race with time to catch up on the new opportunities presented. Rai et al. (2012) for instance attributes the changes in the speed of execution of digital strategies to the ability of firms to outsource most of their non-core tasks to other partners which later allows the firm to focus on their core mandates and enhance efficiency.

There has been extensive research on maturity models for digital enterprises (Peels, Bons, & Plomp, 2016; Teece, 2018). Poeppelbuss, Niehaves, Simons and Becker (2011) for instance, outlined seventy-six different maturity models published in leading Information Systems journals over fifteen years. This huge number can be attributed to the dynamic nature of digital technologies which makes it difficult for researchers to study their nature of growth.

3.4.4 Sources of Value Creation and Capture

The review of digital business strategy literature also highlighted the new innovative sources for the capture and creation of value by businesses. The implementation of digital business strategy presents new dimensions for the capture and creation of value. One of such new dimensions is the added value derived from Information (Bharadwaj et al., 2013). Information has become one of the essential resources in the digital economy leading to the creation of information-based businesses such as e-Bay, Facebook and Google. The primary revenue model of these information-based businesses is Advertising which has become a dominant feature in the digital economy.

3.5 Theoretical and Conceptual Approaches to Digital Business Strategy Research

Several issues have been realised from the classification of digital business strategy literature, as shown in Table 3.1. These issues include the four-broad categorisation of digital business strategy literature into the scope of digital business strategy, the speed of digital business

strategy, the scale of digital business strategy and the sources of business value creation and capture in digital business strategy. This thesis focuses on the scope of digital business strategy because the four dimensions (Coordination, Flexibility, Governance and Competence) identified from the scope capture all issues from the other main themes (Scale, Speed and Source of Value Creation and Capture). Each dimension has received a fair share of research attention.

Focusing on the four dimensions of the scope of digital business strategy (Flexibility, governance, coordination and competence) corresponding strategic management theories and frameworks were identified. Some of these theories include Structure-Conduct- Performance theory, I/O Economics theory, Transaction Cost Economics theory, Agency theory, Resource-Based View, Knowledge-Based View, Dynamic capabilities theory and Real Options theory. Table 3.1 below shows the major theoretical approaches in the study of digital business strategy as applied in Information Systems research.

Table 3.1. Theoretical approaches to the study of Digital business strategy

Scope of digital business strategy	**Core Theories**	**Determination of Profit**	**Articles**
Coordination	Structure-Conduct-Performance, I/O Economics	Ability to restrain competition and restrict entry	Choi et al. (2017); Choi & Lee (2012); Folmer et al. (2016); Pu et al. (2016); Uotila et al. (2017); van de Kaa et al. (2015); Zhao & Xia (2014)
Competence	Resource-Based View, Knowledge-Based View	Ability to exploit resources to create and capture value	Chae et al. (2014); Chuang and Lin (2017); Devece et al. (2017); Drnevich and Croson (2013); Lam et al. (2019); Mao et al.

			(2016); Pan et al. (2015); Pérez-Aróstegui and Martínez-López (2014)
Flexibility	Dynamic Capabilities, Real Options	Being agile and adapting to changing conditions in the industry	Drnevich and Kriauciunas (2011); Karpovsky and Galliers (2015); Marabelli and Galliers (2017); Rindova et al. (2016); Sia et al. (2013); Yeow et al. (2018)
Governance	Transaction Cost Economics, Agency Theory	Ability to efficiently allocate resources to create and capture value	Aubert et al. (2017); Bøe et al. (2015); Chen and Kamal (2016); Constantiou and Kallinikos (2015); Liu et al. (2015); Nwankpa (2015); Qu et al. (2015); Reyns and Henson, (2016)

3.6 Gaps for Future Research

This section discusses the gaps identified from the review of digital business strategy literature. These gaps were deduced from the classification of related literature based on the issues identified.

In the first place, a gap was identified in terms of the theories and frameworks used to study digital business strategy. These theories and frameworks for studying digital business strategy have been borrowed from other fields or disciplines. This is in line with the assertion by Sarker, Chatterjee and Xiao (2013) that Information Systems, as a field of study, is seen to interact well with other disciplines such as psychology, sociology and others. These theories are mostly from both social and technical perspectives. For instance, many Information systems scholars (Georgiadis et al., 2013; Kautz & Jensen, 2013; Mutch, 2013; Sarker et al., 2013) have

observed that the fundamental Information Systems theories come from other social science perspectives. These scholars argue that the fundamental issues in Information Systems research and scholarship stem from the interaction between humans and the technical systems. In the same vein, studies on digital business strategy have utilized theories and models from a variety of perspectives. These studies have tried to theorize the character of and examine business-level value attributable to Information Technology investments (Grover & Kohli, 2013; Mithas et al., 2013; Oestreicher-singer & Zalmanson, 2013). Also, these studies tend to use one theory or the other due to the dimension of the strategic action being reviewed. There is a need for the development of a native framework for digital business strategy that integrates the strategic management theories used for evaluating the various dimensions of digital business strategy. This will be similar to Venkatesh et al. (2003) integration of eight technology adoption theories and frameworks to develop the Unified Theory of Acceptance and Use of Technology (UTAUT). It must be pointed out that researchers are confronted with a myriad of strategic management theories and models from which they are expected to "pick and choose" constructs across these models. In some situations, these researchers must choose a "favoured model" and largely ignore the contributions from alternative models. This situation necessitates a review and a synthesis to progress towards a unified view of digital business strategy consisting of all the dimensions.

The second gap identified was the absence of a multidimensional scope for digital business strategy. Four major dimensions were identified based on the scope of digital business strategy – governance, coordination, competence and flexibility. This situation can be attributed to the absence of strategic management theories and framework for studying digital business strategy from a multidimensional perspective.

In terms of context, there was a gap in terms of the location for conducting digital business strategy research. Arguably, most of the literature reviewed were conducted in the more developed contexts where structures are more formalized than the developing countries. For instance, none of the published papers in the special issue on digital business strategy in the MIS Quarterly journal was conducted from the developing country perspective. This context gap needs to be filled to provide a more encompassing view to digital business strategy, especially from Africa.

3.7 Summary of Chapter

This chapter reviewed literature related to digital business strategy, thus serving as "a means to an end" (Yin, 2003). The end being the identification of themes and issues related to digital business strategy. In summary, by adopting Boateng et al. (2009) method of classification, this review classified digital business strategy literature into four major themes – the scope of digital business strategy, the speed of digital business strategy, the scale of digital business strategy and the sources of business value creation and capture. Four dimensions were identified – Coordination, Flexibility, Governance and Competence. The next chapter presents an overview of the four theories dominant in the four dimensions identified. Through this, the research framework will be formulated.

CHAPTER FOUR

THEORETICAL REVIEW

4.1 Chapter Overview

The previous chapter reviewed the literature on digital business strategy. Four themes were identified from the initial review – Scope, scale, speed and source of value capture and value creation. With a focus on the scope of digital business strategy, four major dimensions were realised – Governance, Coordination, Flexibility and Competence. Further discussions on the four major dimensions showed the dominance of corresponding strategic management theories. This chapter discusses these corresponding theories aimed at deriving a framework for the research. This is in response to the main objective of this thesis which is the development of a comprehensive digital business strategy framework.

The Agency theory is reviewed concerning the Governance dimension of digital business strategy, whiles the dynamic capabilities theory is reviewed in relation to the Flexibility dimension. Again, the resource-based view is reviewed in relation to the Competence dimension, and the Structure-Conduct-Performance framework is reviewed concerning the Coordination dimension of digital business strategy.

4.2 Governance Dimension of Digital Business Strategy

The dominant theories used in studies on the governance dimension of digital business strategy literature were the Agency theory and the Transaction Cost Economics. The focus of studies on the governance dimension is the ability of the digital enterprise to allocate resources to create and capture value efficiently. For instance, Aubert et al. (2017) studied and tested the factors that determine the completeness of contracts when outsourcing IT projects using Transaction Cost Economics framework. It was discovered that the managers of firms must

ensure there is a complete contract spelling out all instructions on the execution of outsourced IT projects. Again, Liu et al. (2015) researched on understanding how the mobile payment system has evolved, especially in terms of the regulatory forces' role in promoting or delaying innovation in businesses. The findings suggested that patterns in innovations are industry-specific which influence cooperation, competition and regulation within enterprises.

The Agency theory relates to understanding the application of division of labour which is necessitated by the problems involved in cooperating parties with different goals. The focus of the agency theory is on the relationship between parties where one party (the principal(s)) engages another person (the agent) to undertake some task on their behalf (Jensen & Meckling, 1976). The theory postulates that the cooperating parties (principal and agent) are individuals with rational economic-maximizing interests. The agent, in most cases, takes decisions which are not in the interest of the principal due to the separation of ownership and control. These decisions result in costs – agency cost – in guiding the behaviour of the agent. For instance, the principal incurs costs in monitoring and controlling the behaviour of the agent – monitoring costs. The agent also incurs costs in demonstrating compliance with the principal's guidelines – bonding costs.

4.2.1 Review of the Agency Theory

The agency model is considered as one of the oldest theories in the literature of management and economics (Daily, Dalton, & Cannella, 2003). Agency theory discusses the problems that arise in firms due to the independent interests of owners and managers and emphasises on the reduction of this problem. This theory helps in implementing the various governance mechanisms to control the agents' action in the jointly held corporations. Berle and Means (1932), in their study, found that the American companies had dispersed ownership, and it led

to the separation of ownership from control. For instance, in a joint-stock company, the ownership is held by individuals or groups in the form of stock, and these shareholders (principals) delegate the authority to the managers (agents) to run the business on their behalf (Jensen & Meckling, 1976; Ross, Weill, & Robertson, 2006). The primary issue, however, is whether these managers are performing for the owners or themselves. Agency theory attempts to address these issues. Figure 4.1 provides an elaboration of the Agency theory as postulated by Jensen and Meckling (1976).

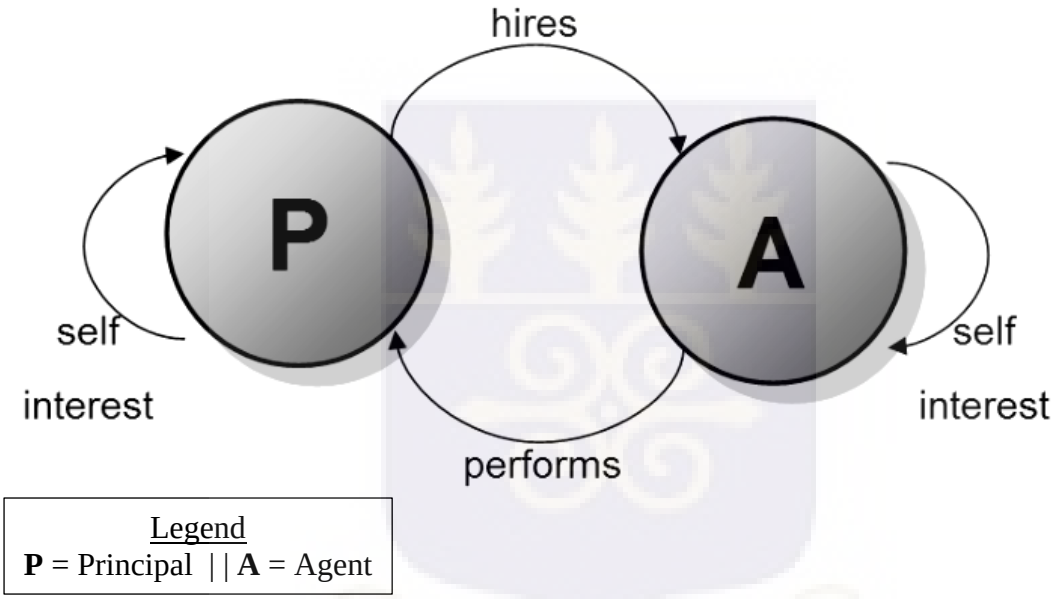


Figure 4.1: The agency theory (Adapted from Jensen and Meckling (1976))

Smith (1937) is perhaps the first author to suspect the presence of the agency problem. Since then, it has been a motivating factor for the economist to develop the aspects of agency theory. Smith forecasted in his work – The Wealth of Nations – that if an organisation is managed by a person or group of persons who are not the real owners, then there is a chance that they may not work for the owners' benefit. Berle and Means (1932) fostered this concern by asserting that agents appointed by business owners control large firms and carry the business operations. They argued that the agents might use the property of the firm for their end, which will create the conflict between the principals and agents.

The financial literature in the 1960s and 1970s described the agency problem in organisations through the issue of risk-sharing among the cooperating parties (Eisenhardt, 1989; Hoenen & Kostova, 2015). There are individuals and groups in the firm having different risk tolerance and their action differs, accordingly. The principal or the owners invest their capital and take the risk to acquire the economic benefits. In contrast, the agents, who manage the firm are risk-averse and concerned in maximising their interests. Both the principal and agent are having opposite risk preferences, and their problem in risk-sharing creates the agency conflict, which is broadly covered under the agency theory.

The agency relationship is also a kind of contract between the principal and agent, where both parties work for their self-interest that leads to the agency conflict (Jensen & Meckling, 1976; Omar, Sell, & Rover, 2017). In this context, principals exercise various monitoring activities to curb the actions of the agents to control the agency cost. In the principal-agent contract, the incentive structure, labour market and information asymmetry play a crucial role, and these elements help in building the theory of ownership structure.

Jensen and Meckling (1976) portrayed the firm as a black box, which operates to maximise its value and profitability. The maximisation of the wealth can be achieved through proper coordination and teamwork among the parties involved in the firm. However, when the interest of the parties differs, the conflict of interest arises, and it can only be relegated through managerial ownership and control. The self-interested parties also know that their interest can only be satisfied if the firm exists. They perform well for the survival of the firm.

In line with the focus of this chapter, selected digital business strategy studies that focus on the governance dimension and guided by the Agency theory are summarized in Table 4.1.

Table 4.1: Digital business strategy Studies on Governance guided by Agency theory

Author(s)	Study focus	Theory	Methodology and context	Findings
Bøe et al. (2015)	Examination of motivations underlying intention to continue using information and communication technology (ICT)	Agency theory and Information Systems Continuance Theory (ISCT)	Quantitative Norway	Both personal and managerial influence determines commitment
Cruz and Haugan (2019)	The study examined the effect of maintenance capabilities on the performance of firms' resources	Agency theory and Resource-Based View theory	Quantitative Colombia	Absence of continuous training for users and technicians has a negative impact on performance
Glassman, Prosch and Shao (2015)	To explore and analyse the effects of filtering and monitoring on "cyberloafing" at the workplace	Agency theory	Mixed method Arizona, USA	Compliance was promoted through blocking, confirmation and the use of quota modules
Dawson, Denford and Desouza (2016)	Investigate factors that are associated with IT-based innovation in organisations	Agency theory	Qualitative USA	It is very critical for the whole team to approach innovation as a unit to achieve success

(Source: Author's construct)

4.2.1.1 Weaknesses in the Agency Theory

Agency theory is one of the theories to be used in the management field ranging from the fields of Accounting (e.g. Brown, Farrington, & Sprinkle, 2016), economics (e.g. Pepper & Gore, 2015), marketing (e.g. Harris, Brown, Mowen, & Artis, 2014), finance (e.g. Heide, Kumar, & Wathne, 2014), organizational behaviour (e.g. Tumbat & Grayson, 2016), political science (e.g. Kostova, Nell, & Hoenen, 2016) and sociology (e.g. Kolev, Wiseman, & Gomez-Mejia, 2017). The field of Information Systems has also received a fair share of research using the Agency

theory, especially in terms of information systems serving as a strategic tool for businesses (Bøe et al., 2015).

On the other hand, the Agency theory assumes a perfectly stable relationship between the principal(s) and the agent(s). This is not always the case. Sometimes the agent resists the pressure to obey the principal, because of individual differences. The Agency theory is deficient in explaining why some agents are more likely to exhibit independent behaviour than others (Antoniadis, Lazarides, Sarrianidis, & Goupa, 2008).

Another weakness of the theory which Kivisto (2008) asserts to be the greatest is related to the narrowness of the behavioural assumptions and its focus. The primary focus of the theory is on the self-interested and opportunistic behaviour of parties in a business. This means the theory ignores a broader range of other human intensions which sometimes may be personal. The theory is also limited in scope by its behavioural assumptions. It mainly pays attention to the formal and economic aspects of the relationship between principals and agents (Arthurs & Busenitz, 2003). On the other hand, in addition to the formal and economic relationships in business, Kivisto (2008) asserts there are also sociocultural organisations such as norms, incentives and organisational structures which influence behaviours and relationships.

4.3 Flexibility Dimension of Digital Business Strategy

The flexibility dimension of digital business strategy is dominated by theories such as the Dynamic Capabilities and Real Options. In terms of flexibility, the output of the digital business strategy is the digital enterprise being agile and adapting to changing conditions in the industry. In addressing the issue of alignment in the agile digital ecosystem, Yeow et al. (2018) discovered that organisations move towards a digital strategy where there are initial

misalignments between the organisations' resources and strategy which leads to tensions. Sia et al. (2013) also studied how a bank in Asia responded to the digital disruptions and opportunities through the adoption of a digital business strategy. The study focused on how the firm developed some capabilities to survive in the agile digital economy. It was discovered that the managers of the firm must cultivate leadership for digital transformation.

Dynamic Capabilities theory conceptualises those features of the enterprise which are presumed to consist of both managerial and organizational processes. These processes allow the enterprise to identify its needs or opportunities for change in most dynamic environments (Helfat et al., 2007). These Dynamic Capabilities may be referred to as a process (Ambrosini & Bowman, 2009), or as consisting of a set of processes (Teece, Pisano, & Shuen, 1997). Again, these capabilities are, by implication very dynamic – operate within time and space. It is argued that Dynamic Capability arises out of three learning processes which are generic. These learning processes are; accumulation of experience; articulation of knowledge; and codification of knowledge (Zollo & Winter, 2002). In another breadth, the dynamic capability may be seen as a set of processes which are identifiable and specific that reconfigure or integrate resources, including product development and alliancing (Eisenhardt & Martin, 2000).

4.3.1 Review of Dynamic Capabilities Theory

The Dynamic Capabilities theory addresses the question of how firms can cope with changing environments. The theory has gained increasing attention in the management literature in recent years, in its not only original domain (strategic management) but also in many other areas within business administration (Yeow et al., 2018).

The emergent discussion of dynamic capabilities in literature is grounded in the evolutionary theory of the firm (Nelson & Winter, 1982). Dynamic capabilities theory traces its intellectual roots from Teece, Pisano and Shuen's (1990) working paper which was probably the first contribution to developing the notion of dynamic capabilities explicitly. In the paper, it was indicated that the most significant activity in the firm is its ability to learn and accumulate new skills and capabilities, instead of a bundle of resources which is the focus of the Resource-Based View. These ideas were formally published by Teece et al. (1997). They explained that the Resource-Based View was not able to provide explanations as to how some successful firms demonstrated timely responsiveness and rapid and flexible product innovation, along with the management capability to coordinate and redeploy internal and external competencies effectively.

Dynamic capabilities include the sensing, seizing, and transformations needed to design and implement a business model (Helfat et al., 2007). These activities can enable an enterprise to upgrade its ordinary capabilities and direct these, and the capabilities of partners, toward high-payoff endeavours. This requires developing and coordinating, or "orchestrating," the firm's (and partner firms') resources to address and even shape changes in the marketplace, or the business environment more generally. The strength of a firm's dynamic capabilities determines the speed and degree (and associated cost) of aligning the firm's resources, including its business model(s) with customer needs and aspirations. Organizations must be able to sense and seize opportunities continuously and to periodically transform aspects of the organization and culture to be able to proactively reposition to address yet newer threats and opportunities as they arise (Teece, 2018). An enterprise with strong dynamic capabilities will be able to build and renew resources, assets profitably, and ordinary capabilities, reconfiguring them as needed to innovate and respond to (or bring about) changes in the market. The firm's resources must

be orchestrated astutely and coordinated with the activities of partner firms to deliver value to customers.

Dynamic capabilities are underpinned in part by organizational routines and processes, the gradual evolution of which is punctuated by non-routine managerial interventions. Setting up an early-stage business model, for example, depends as much on art and intuition as on science and analysis. It is a part of the dynamic capabilities that is unlikely to be fully routinized (Teece, 2018). Organizational processes, such as frequent status meetings to evaluate the short-term results of a new business model, are helpful. Still, they are inadequate by themselves to determine the best choices from among the variety of available options. A vital element of a firm's dynamic capabilities for seizing new opportunities in most cases will be the managerial competencies for devising and refining business models (Teece, 2018). In fact, over the past decade, managerial competencies have developed into the sub-field of dynamic managerial capabilities (Helfat & Martin, 2015), of which designing and implementing new business models is an important feature. In the world of the Internet, it may even be the most important feature.

Dynamic capabilities are hard for rivals to replicate because they are built on the idiosyncratic characteristics of entrepreneurial managers and the history-honed routines and culture of the organization (Teece, 2018). Also, there is the uncertain imitability of a complex system that even those directly involved may not fully understand (Setia et al., 2013). Because they are a unique and valuable general-purpose resource, strong dynamic capabilities can serve as a firm foundation for sustainable competitive advantage.

In line with the focus of this chapter, selected digital business strategy studies that focus on the flexibility dimension and guided by the Dynamic Capabilities theory are summarized in Table 4.2.

Table 4.2: Digital business strategy studies on Flexibility guided by Dynamic capabilities theory

Author(s)	Study focus	Theory	Methodology and context	Findings
Trkman (2010)	To identify both generic and case-specific critical success factors of BPM programs.	Dynamic capabilities and task–technology fit theory	Qualitative Slovenia	A critical success factor identified was the need to invest more funds and time into the training and consequently, empowerment of employees within the firm.
Yeow et al. (2018)	To analyse the evolution of a B2B company's journey to implement its B2C digital strategy	Dynamic Capabilities theory	Qualitative Denmark	As a firm shift towards a digital strategy, misalignments between the emergent strategy and resources give rise to tensions.
Wang et al. (2019)	To investigate the effects of intellectual capital and its sub-dimensions on dynamic technology capability of a firm	Dynamic capabilities theory	Quantitative China	Intellectual capital efficiency (ICE) have significantly positive impacts on dynamic technology capability of the firm
Chen et al. (2014)	Examine the mediating role of business process agility and the moderating roles of environmental factors on firm performance	Dynamic capabilities theory	Quantitative China	IT capability enhances process agility, which in turn improves firm performance.

(Source: Author's construct)

4.4 Competence Dimension of Digital Business Strategy

Studies on the competence dimension of digital business strategy focus on the ability of the enterprise to exploit resources to create and capture value. These studies explore how the enterprise can manage its resources to remain profitable and competitive. Dominant theories in this regard are the Knowledge-Based view and the Resource-Based View of the firm. In a study by Chuang and Lin (2017) on identifying resources to develop digital business strategy, it was discovered that a strategy that combines resources consisting of humans, business and IT resources should be integrated with an innovation strategy to achieve profitability.

The ability of the management of the firm to effectively combine the set of specific resources to exploit market opportunities and remain competitive is the main focus of the Resource-Based View (RBV) of a firm (Penrose, 1959). Also, it has been asserted by Grant (1999) that resources of the firm are the most fundamental unit of analysis in the firm's processes. The Resource-Based View theory argues that enterprises possess a collection of resources which may lead to enhancing their advantage competitively (Barney, 2001). It is worth noting that the attainment of the competitive advantage is primarily dependent on the characteristics of the resources in question which may include; being unique and difficult for others to imitate; appropriate; durable; non-substitutable; rare; imperfectly mobile or immobile; and have value in the industry (Birkinshaw & Goddard, 2009). Nevo and Wade (2010), for instance, conducted a study on identifying a firm's IT assets which play strategic roles for competitive advantage. It was discovered that these IT assets could only be used to achieve strategic advantages when organisational resources are combined with them, leading to the creation of IT-enabled resources.

4.4.1 Review of Resource-Based View Theory

It has been widely asserted that the Resource-Based Theory was introduced by Barney (1991) in his work titled "Firm Resources and Sustained Competitive Advantage." Some scholars, however, dispute this assertion arguing that there was evidence of fragmentary resource-based theory from the 1930s. Barney (1991) examined the link between resources and sustained competitive advantage, where he found four empirical indicators for resources to generate sustained competitive advantage: value, rareness, imitability and sustainability.

The Resource-Based View theory postulates that organizations are composed of a set of specific resources and the ability of the management in combining these resources allows the organisation to exploit market opportunities which contribute to competitive advantage and increased performance (Barney, 2001; Penrose, 1959). Grant (1999) assert that the most fundamental unit of analysis in the organisational process is the available resources. In other words, a firm can be viewed through a collection of its resources and capabilities, enabling it to continue its life. Specifically, a prevailing paradigm has emerged to ascertain the relationship between a firm's resources and its sustained competitive advantage (Wade, Piccoli, & Ives, 2011). Competitive advantage generally can be generated and sustained through unique and distinguishing resources that may be durable, rare, appropriate, non-substitutable, immobile or imperfectly mobile, difficult for others to imitate, and have value in the firm's environment and marketplace (Barney, 2001; Birkinshaw & Goddard, 2009; Wade & Hulland, 2004).

In line with the focus of this chapter, selected digital business strategy studies that focus on the flexibility dimension and guided by the Resource-Based View theory are summarized in Table 4.3.

Table 4.3: Digital business strategy studies on Competence dimension guided by Resource-Based View theory

Author(s)	Study focus	Theory	Methodology and context	Findings
Chuang and Lin (2017)	analysed the factors affecting information-value offerings in e-service systems	Resource-Based View theory	Qualitative Taiwan	e-service capability and service innovation orientation directly influence information-value offerings.
Mao et al. (2016)	Examined the moderating role of resource commitment to invoke a contingent resource perspective.	Resource-Based View theory	Quantitative China	IT resources positively affect knowledge management capability (KMC) of the firm.
Zhou et al. (2017)	Investigate the impacts of IT on the resource orchestration processes of modern enterprises.	Resource-Based View theory	Qualitative China	Firms that adopt modern ITs in their resource orchestration process are more likely to achieve improved organizational performance.
Lam et al. (2019)	Examine the impact of Social Commerce on the performance of firms	Resource-Based View theory and opportunity–motivation–ability framework	Quantitative USA	social commerce creates the opportunity for an increase in the stock returns of firms

(Source: Author's construct)

4.4.1.1 Weaknesses in the Resource-Based View Theory

The Resource-Based View theory has been widely used in strategic management research and the Information Systems field because of its focus on the resources of the firm which lies at the heart of the organisation. On the other hand, it has been argued that the theory has been deficient in looking at strategy from multiple dimensions. It is limited by its focus on only the internal resources of the firm without the external environment (Barney, 2001). The theory's

focus is basically on the competence dimension of digital business strategy. For instance, an assumption that a firm can be profitable in a highly competitive market as long as it can exploit advantageous resources does not always hold true (Rumelt, 1991). The theory ignores external factors concerning the industry as a whole.

Another criticism against the Resource-Based view theory is its tautological assertions as postulated by Priem and Butler (2001). Thus, in logic, a tautology is a formula or assertion that is true in every possible interpretation. For instance, statement x equals y (x=y) or the statement "the ball is green, or the ball is not green." It is either one or the other—it cannot be both, and there are no other possibilities. It is argued that resources on their own may not lead to a competitive advantage. The firm must develop capabilities which in some situations must be dynamic to achieve competitive advantage.

4.5 Coordination Dimension of Digital Business Strategy

The coordination dimension of digital business strategy literature is dominated by theories such as the Structure-Conduct-Performance framework and the Input-Output (I/O) Economics theory. In terms of coordination, profitability is achieved when the firm can restrain competition and restrict the entry of new firms into the industry. Studies on Coordination look beyond the boundaries of the enterprise into the industry and how the firm can collaborate with competitors and other stakeholders to achieve profitability. Choi et al. (2017), for instance, examined how the standards of e-business are influenced by a consortium concerning group cohesiveness, centralisation and diversity. The findings of the study indicated that group effectiveness in a consortium could be improved through the active involvement of the IT users and vendors.

The basic tenets of the Structure-Conduct-Performance paradigm are that the behaviour of sellers and buyers, which is a function of the structure of the industry determines the industry's economic performance (Bain, 1956). Economic performance is viewed according to the effective utilization of resources to produce the highest returns. Conduct in the Structure-Conduct-Performance framework includes all the activities of the participants in the industry. These participants include sellers and buyers. The activities of sellers may involve; capacity installation and utilization; influencing policies on promotions and pricing; conducting market surveys and development; and finally, creating cooperation or competition between firms. The determinant of the conduct is the industry structure which according to Scherer (1980) includes issues such as; the technology; the number and size of the buyers and sellers; the level of barriers to entry; the degree of product differentiation; and the extent of vertical integration. Other elements within the industry structure include product differentiation, the concentration of buyers and sellers, and the elasticity of demand for products and services. Barriers to entry have been one of the major issues which affect the structure of the industry. For instance, Uotila et al. (2017) modelled how technology suppliers develop standards in the digital economy. It was discovered that the coordination among the suppliers facilitated the convergence of standards which in some cases may be inferior to other alternatives. It was also discovered that powerful or influential consortia mostly coordinate the selection of the standards which mostly lead to technological lock-ins where suppliers commit to inferior solutions and are not able to reverse their commitments subsequently.

4.5.1 Review of the Structure-Conduct-Performance Model

The Structure-Conduct-Performance model has its roots from the industrial economies where firms attempt to understand the industry within which they operate. This helps to know the

nature of competition and the decisions to be taken to ensure maximum returns on investments (Waldman & Jensen, 2013).

The basic tenets of the Structure-Conduct-Performance paradigm are that the economic performance of an industry is a function of the conduct of buyers and sellers which, in turn, is a function of the industry's structure (Bain, 1956; Mason, 1939). Economic performance is measured in terms of welfare maximization – resources employed, where they yield the highest valued output. Conduct refers to the activities of the industry's buyers and sellers. Sellers' activities include installation and utilization of capacity, promotional and pricing policies, research and development, and interfirm competition or cooperation. Industry structure (the determinant of conduct) includes such variables as the number and size of buyers and sellers, technology, the degree of product differentiation, the extent of vertical integration, and the level of barriers to entry (Scherer, 1980).

As indicated earlier, an industry's structure includes several important elements. Some of these elements, including buyer and seller concentration, product differentiation, and the elasticity of demand for the product, have obvious effects on the structure. Another element – barriers to entry – has what may be a less obvious effect on an industry's structure and the subsequent structure-conduct-performance relationship.

The concept of entry barriers in the Structure-Conduct-Performance paradigm was popularized by Bain (1956). Entry barriers consist of the advantage established sellers in an industry have over potential new entrant sellers. These advantages could be reflected in the extent to which the established sellers can persistently raise their prices above a competitive level without attracting new firms to enter the industry. Entry barriers may consist of economies of scale,

absolute cost advantages (independent of scale), product differentiation, and capital requirements.

Caves and Porter (1977) extended the discussion on the entry barriers to include mobility barriers. Essentially, mobility barriers represent the same conceptual features as entry barriers but refer to existing firms rather than to potential entrants. Mobility barriers prevent firms from moving from one strategic group within an industry to another, and therefore, explain intra-industry performance differences.

In summary, the Structure-Conduct-Performance model implies that the structural characteristics of an industry, particularly the level of concentration of firms and the height of entry barriers, have a significant influence on the ability of firms within an industry to price above the competitive price. Consequently, these structural characteristics can be expected to determine the performance potential of individual firms.

In line with the focus of this chapter, selected digital business strategy studies that focus on the coordination dimension and guided by the Structure-Conduct-Performance model are summarized in Table 4.4.

Table 4.4: Digital business strategy studies on Coordination guided by Structure-Conduct-Performance model

Author(s)	Study focus	Theory	Methodology and context	Findings
Magin and Stark (2015)	investigate whether the degree of tabloidisation can be explained by market structures	Structure-Conduct-Performance model	Quantitative Germany	There is a weak influence both for structure and conduct on the performance which might be explained by the similar journalistic cultures and the same reporting style of daily newspapers
Mohammed, Ismail and Muhammad (2015)	To analyse the link between concentration and competition in Banks	Structure-Conduct-Performance model	Qualitative Malaysia	Factors such as development in ICT, trade liberalisations and mergers are the leading causes of Structural changes.
Sharma and Khurana (2019)	Examine the role the cement industry plays in the Indian market	Structure-Conduct-Performance model	Mixed method India	The market structure plays a vital role in determining the performance of the firms.

(Source: Author's construct)

4.6 Summary of Chapter

This chapter sought to discuss the four principal theories and frameworks used in extant digital business strategy literature to study the four dimensions of digital business strategy. These theories and frameworks were discussed in the context of their corresponding dimensions in digital business strategy. This guided the formulation of the conceptual digital business strategy framework for the study outlined in the next chapter.

CHAPTER FIVE

CONCEPTUAL DIGITAL BUSINESS STRATEGY FRAMEWORK

5.1 Chapter Overview

This chapter explores the framework after discussing pertinent and contemporary literature relating to digital business strategy in the previous chapters. The various theories associated with the four major dimensions of digital business strategy were reviewed in the last chapter. This chapter integrates these theories into a framework to respond to the research objective of identifying and developing a digital business strategy framework for digital enterprises.

It should, however, be noted that the determination of the framework at this stage was as a result of the review of digital business strategy using the various corresponding theories and models. The framework is applied in Chapter 8 to determine the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy. It is also used in Chapter 9 to explain how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value.

5.2 The Dimensions of Digital Business Strategy and Growth of the Digital Enterprise

A conceptual framework, as defined by Liehr and Smith (2006), refers to pulling together concepts and or theories to serve as a map for the conduct of a study. In this regard, a number of issues were realized from the review of digital business strategy literature which led to the identification of the four dimensions of digital business strategy – Coordination, Flexibility, Governance and Competence.

Digital business strategy literature was reviewed in the quest to develop a conceptual framework for digital business strategy. There has been a silence on the components of digital

business strategy, especially in the digital economy where digital enterprises are not restricted to the traditional business models and practices. These digital enterprises are not restricted to developing a digital business strategy using the established legacy systems which are developed over a period but to go further and adopt new concepts and techniques to exploit their markets. A major issue for strategists includes developing a digital business strategy that holistically meets the various dimensions of the business needs, especially as the firm goes through the different stages of growth. Besides, theories and frameworks for reviewing strategy have also been deficient in looking at strategy from multiple dimensions. Resource-Based view, for instance, is limited by its focus on only the internal resources of the firm without the external environment (Barney, 2001). These deficiencies in the perspectives of the theories and frameworks on strategy calls for the development of a conceptual framework that holistically looks at the various dimensions of strategy in the different stages of growth.

The review of digital business strategy literature highlighted four major dimensions with corresponding theories and frameworks. The theories tend to focus mostly on a single dimension of the digital business strategy. These theories need to be integrated to develop a multidimensional digital business strategy framework. This is similar to the work of Venkatesh et al. (2003) in the development of the Unified Theory of Acceptance and Use of Technology (UTAUT) where they reviewed and synthesized frameworks and theories to identify a unified framework for user acceptance of technology.

The conceptual digital business strategy framework is presented in Figure 5.1.

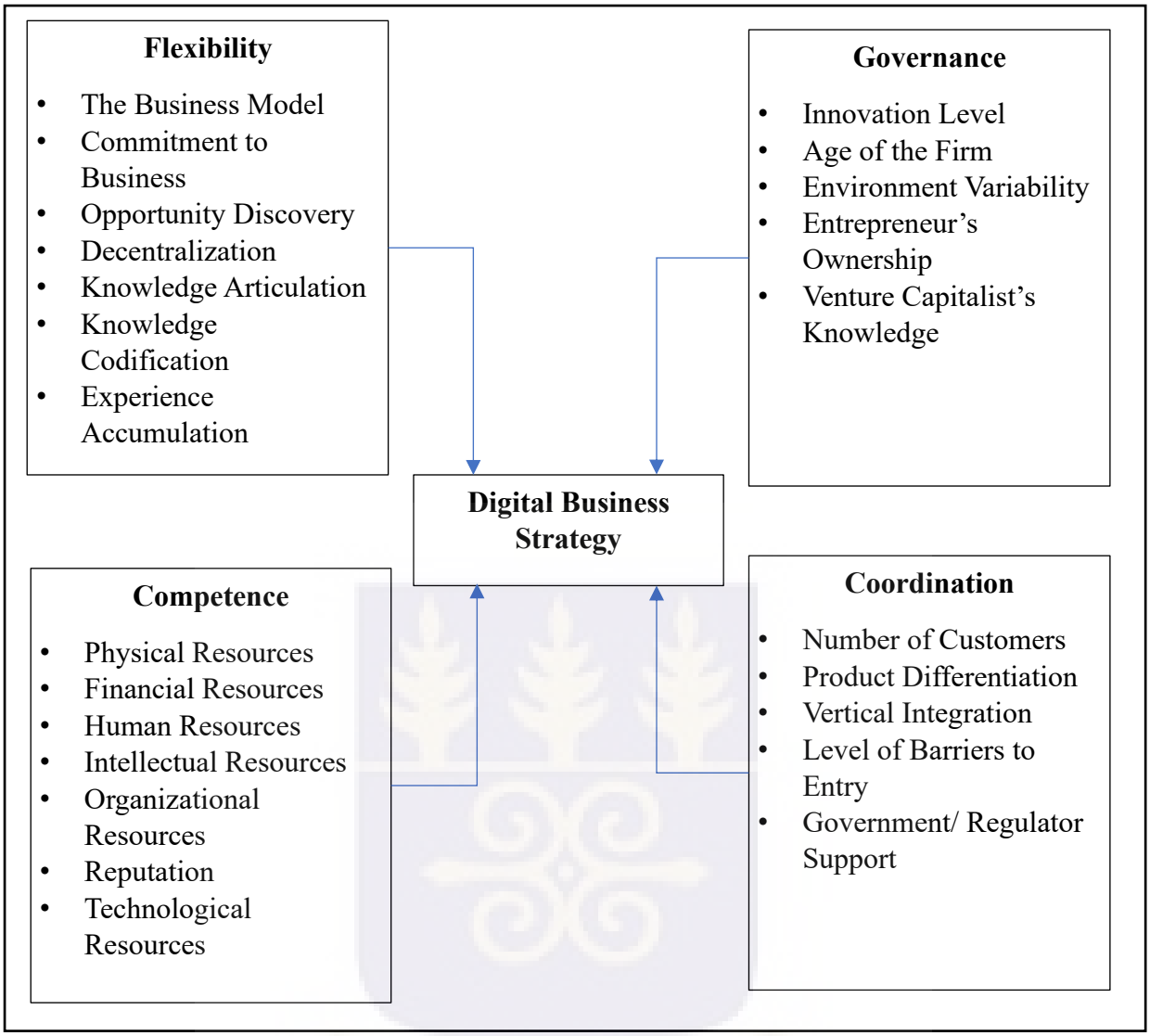


Figure 5.1: Conceptual Digital Business Strategy Framework

5.2.1 Agency Theory and the Governance Dimension

The Agency theory relates to understanding the application of division of labour which is necessitated by the problems involved in cooperating parties with different goals. The focus of the agency theory is on the relationship between parties where one party (the principal(s)) engages another person (the agent) to undertake some task on their behalf (Jensen & Meckling, 1976). The theory postulates that the cooperating parties (principal and agent) are individuals with rational economic-maximizing interests. The agent, in most cases, takes decisions which are not in the interest of the principal due to the separation of ownership and control. These

decisions result in costs – agency cost – in guiding the behaviour of the agent. For instance, the principal incurs costs in monitoring and controlling the behaviour of the agent – monitoring costs. The agent also incurs costs in demonstrating compliance with the principal's guidelines – bonding costs.

The role of the Agency theory is to review the governance dimension of strategy which deals with the ability of the digital enterprise to allocate resources to create and capture value efficiently. For instance, Liu et al. (2015) researched on understanding how the mobile payment system has evolved, especially in terms of the regulatory forces' role in promoting or delaying innovation in businesses. The findings suggested that patterns in innovations are industry-specific which influence cooperation, competition and regulation within enterprises.

The constructs of the Agency theory for the Governance dimension of digital business strategy as applied in this study are outlined in Table 5.1.

Table 5.1. Constructs for the Governance dimension of digital business strategy

Construct	Definition	Source
Innovation Level	The ability to create something new contrary to established customs and practices	Chen and Kamal (2016); Landstrom (1993)
Age of the Firm	The difference between the year of interest and the year the firm was established	Landstrom (1993); Chen and Kamal (2016)
Environment Variability	The degree of changes or unpredictability of events within the industry which influences the firm's operations	Landstrom (1993); Nwankpa (2015); Reyns and Henson (2016)

Entrepreneur's Ownership	The degree at which the entrepreneur possesses the firm. The entrepreneur's extent of involvement in the activities of the firm	Landstrom (1993); Aggarwal and Singh (2013); Pereira and Pereira (2011)
Venture Capitalist's Knowledge	The level of involvement of investors in the operations of the digital enterprise	Aggarwal and Singh (2013); Landstrom (1993)

Source: Author's construct

5.2.2 Dynamic Capabilities Theory and the Flexibility Dimension

Dynamic Capabilities theory conceptualises both managerial and organizational processes which allow the enterprise to identify its needs or opportunities for change in most dynamic environments (Helfat et al., 2007). These Dynamic Capabilities may be referred to as a process (Ambrosini & Bowman, 2009), or as consisting of a set of processes (Teece et al., 1997). Again, these capabilities are, by implication very dynamic – operate within time and space. It is argued that Dynamic Capability arises out of three learning processes which are generic. As indicated earlier, these learning processes are; accumulation of experience; articulation of knowledge; and codification of knowledge (Zollo & Winter, 2002). Dynamic capability may also be a set of processes which are identifiable and specific that reconfigure or integrate resources which may include product development and alliancing (Eisenhardt & Martin, 2000).

Dynamic Capabilities theory focuses on the flexibility dimension of digital business strategy - the ability of the digital enterprise to be agile and adapt to changing conditions in the industry. Sia et al. (2013), for instance, studied how a bank in Asia responded to the digital disruptions and opportunities through the adoption of a digital business strategy. The study focused on how the firm developed some capabilities to survive in the agile digital economy. It was discovered

that the managers of the firm must cultivate leadership for digital transformation. Constructs of Dynamic capabilities theory related to the flexibility dimension of digital business strategy are outlined in Table 5.2.

Table 5.2. Constructs for the Flexibility dimension of digital business strategy

Construct	Definition	Source
The Business Model	The design of the nature of the operations of the firm which may include the sources of revenue, products and services, the customer-base among others	Yeow et al. (2018)
Commitment to the business	The owner or entrepreneur's willingness or dedication to ensuring the success of the business	Chen et al. (2014); Roberts and Grover (2012)
Managerial competence	The ability of management to efficiently take decisions which lead to the profitability of the digital enterprise	Trkman (2010); Wang et al. (2019)
Decentralization	the transfer of authority or decision making from the central administrative unit to other local units and personnel of the business	Roberts and Grover (2012)

Knowledge articulation	Knowledge-based and human-oriented activities which contribute to technological innovation, value creation and competitiveness	Wang et al. (2019)
Knowledge codification	Search and selection involve the identification of opportunities and formulation of actions, including the allocation of resources	Queiroz, Tallon, Sharma and Coltman (2018)
Experience accumulation	The knowledge or mastery of an event or subject gained through involvement in it or exposure to it	Wang et al. (2019): Yeow et al. (2018)

Source: Author's construct

5.2.3 The Resource-Based View Theory and the Competence Dimension

The ability of the management of the firm to effectively combine the set of specific resources to exploit market opportunities and remain competitive is the focus of the Resource-Based View (RBV) of a firm (Penrose, 1959). Also, it has been asserted by Grant (1999) that resources of the firm are the most fundamental unit of analysis in the firm's processes. The Resource-Based View theory argues that enterprises possess a collection of resources which may lead to enhancing their advantage competitively (Barney, 2001). It is worth noting that the attainment of the competitive advantage is primarily dependent on characteristics of the resources in question. These characteristics may include being unique and challenging for others to imitate; appropriate; durable; non-substitutable; rare; imperfectly mobile or immobile; and having value in the environment of the firm (Birkinshaw & Goddard, 2009). Nevo and Wade (2010), for instance, conducted a study on identifying a firm's IT assets which play strategic roles for

competitive advantage. It was discovered that these IT assets could only be used to achieve strategic advantages when organisational resources are combined with them, leading to the creation of IT-enabled resources.

The review of the digital business strategy literature further provided the constructs of Resource-Based View related to the Competence dimension of digital business strategy, as shown in Table 5.3.

Table 5.3. Constructs for the Competence Dimension of digital business strategy

Construct	**Definition**	**Source**
Physical resources	These include the tangible items that are required and are available for the digital enterprise to function	Chuang and Lin (2017)
Financial resources	The set of liquid assets of the enterprise which include cash and bank deposits	Mata et al. (1995); Nevo and Wade (2010)
Human resources	The people who make up the workforce of the enterprise	Cruz and Haugan (2019)
Intellectual resources	This consists of the pool of intellect which includes skill and expertise that is a part of the enterprise	Cruz and Haugan (2019)
Reputation	The beliefs or opinions that are generally held about the digital enterprise which influences profitability	Lam et al. (2019); Wiles, Jain, Mishra and Lindsey (2010)

Technological resources	These are the Information and Communication tools, or devices utilized by the firm to achieve profitability	Mao et al. (2016); Zhou et al. (2017)

Source: Author's construct

5.2.4 Structure-Conduct-Performance Framework and Coordination Dimension

The basic tenets of the Structure-Conduct-Performance framework are that the behaviour of sellers and buyers - a function of the structure of the industry - determines the industry's economic performance (Bain, 1956). Economic performance is viewed according to the effective utilization of resources to produce the highest returns. Conduct in the Structure-Conduct-Performance framework includes all the activities of the participants in the industry. These participants include sellers and buyers. The actions of sellers may involve; capacity installation and utilization; influencing policies on promotions and pricing; conducting market surveys and development; and finally, creating cooperation or competition between firms. The determinant of the conduct is the industry structure which according to Scherer (1980) includes issues such as; the technology; the number and size of the buyers and sellers; the level of barriers to entry; the degree of product differentiation; and the extent of vertical integration. Other elements within the industry structure include product differentiation, the concentration of buyer and seller, and the elasticity of demand for products and services. Barriers to entry have been one of the major issues which affect the structure of the industry. For instance, Uotila et al. (2017) modelled how technology suppliers develop standards in the digital economy. It was discovered that the coordination among the suppliers facilitated the convergence of standards which in some cases may be inferior to other alternative or undiscovered standards or solutions. It was also discovered that powerful or influential consortia mostly coordinate the

selection of the standards which mostly lead to technological lock-in where suppliers commit to inferior solutions and are not able to reverse their commitments subsequently.

The structure-conduct-performance framework focuses on the coordination dimension of digital business strategy where profitability is achieved when the firm can restrain competition and restrict the entry of new firms into the industry. Choi et al. (2017), for instance, examined how the standards of e-business concerning group cohesiveness, centralisation and diversity are influenced by a consortium. The findings of the study indicated that group effectiveness in a consortium could be improved through the active involvement of the IT users and vendors.

The review of the digital business strategy literature further provided the constructs of the structure-conduct-performance model related to the Coordination dimension of digital business strategy, as shown in Table 5.4.

Table 5.4. Constructs for the Coordination Dimension of digital business strategy

Construct	**Definition**	**Source**
Market structure	The collection of the key traits of a market, which include the number of firms, the similarity of the products they sell, and the ease of entry into and exit from the market	Choi et al. (2017); Lelissa and Kuhil, (2018); Tucker, 2010)
Conduct	The pattern of behaviour that influences the enterprise in adopting or adjusting to the markets within which it operates	Lelissa and Kuhil (2018); Mohammed et al. (2015)
Performance	The economic results of the operations of the enterprise in terms of its pricing efficiency and flexibility to adapt to changing situations within the market	Lelissa and Kuhil (2018); Sharma and Khurana (2019)

Source: Author's construct

5.3 Strategy and the Growth of the Digital Enterprise

In the development of a conceptual digital business strategy framework, it becomes imperative also to identify the various stages of growth of the digital enterprise and the corresponding digital business strategy dimension. Some of the dimensions may be more significant or relevant than others at different stages of growth of the digital enterprise. This assertion is corroborated by Zaheer, Breyer, Dumay and Enjeti (2018) who discovered that competence was the dominant dimension of digital business strategy in the initial stages of the growth of most influential digital enterprises. For instance, Amazon, Facebook, Uber, and Airbnb started with highly committed entrepreneur(s) with a simple business model which involved a single product or service.

The review of literature on growth models highlighted numerous multistage models which attempt to explain the growth of firms using a diverse array of features. Dodge, Fullerton and Robbins (1994) assert that the overriding consensus in the various models is the predictable pattern of changes that occur in the different stages of the development of the organization. Growth models may categorize the stages based on;

1. The sequence of activities that outline how changes occur over time (Van de Ven, 1992).
2. A progression which is hierarchical and irreversible (Quinn & Cameron, 1983).
3. A wide range of activities and structures in the firm (Kleiner & Corrigan, 1989).

Dodge et al. (1994) postulate that the life cycle of firms is seen to consist of between three to ten stages. The study reviewed the four-stage growth model – (1) entrepreneurial; (2) collectivity; (3) formalization and control; and (4) structure elaboration and adaption – was adopted. It has been asserted that the growth pattern of small businesses is known to be S-

shaped, and the most critical stages are the first three stages. The first three stages, as provided by Dodge et al. (1994), are adapted for the conceptual model.

The first stage - the start-up stage - involves the entrepreneur directly performing all the business activities. The second stage occurs where there are supervised operations – entrepreneur employs and directly supervises the employee(s) as the business expands. Phase 3 is the indirect supervision stage – employees are not directly supervised. Team heads are utilized at this stage.

Figure 5.2 summarizes the conceptual framework for the evolution of digital business strategy developed based on the review of the literature and the three major stages of growth of the digital enterprise. It is envisaged that levels of importance of the various dimensions will be influenced by the stages of growth of the digital enterprise. This section of the framework is specifically applied in Chapter 9 of this thesis which is in response to explaining how the strategic actions of digital enterprises are developed/oriented to create value.

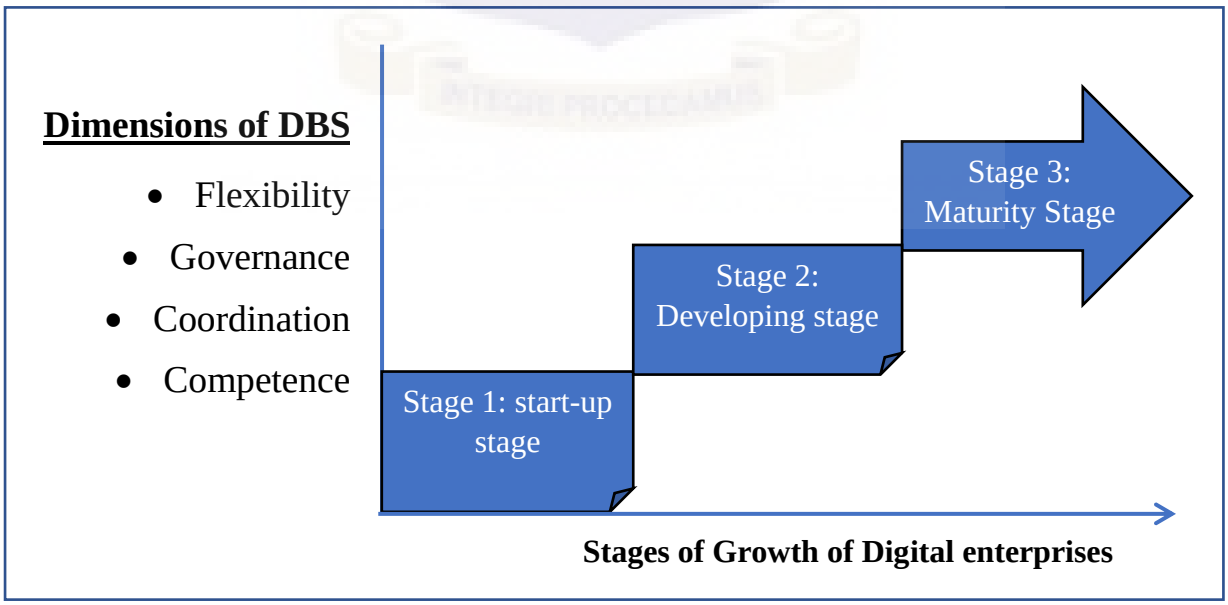


Figure 5.2: Conceptual Framework for the evolution of digital business strategy

5.4 Summary

Throughout this review, the argument has been to view digital business strategy holistically by focusing on governance, coordination, flexibility and competence. The determination of these four major dimensions serves as the nascent stage towards the development of a comprehensive digital business strategy framework. This contributes to the Information Systems literature on Strategy in terms of theorization, which has been deficient as Davison and Ou (2017) asserted. This serves as a steppingstone for further studies on digital business strategy.

This thesis applies the two conceptual frameworks (Figures 5.1 and 5.2) explicitly in reviewing the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy in response to research objectives two and three. Figure 5.1 is applied in Chapter 8 in response to research objective two. Figure 5.2 is, however, used in Chapter 9 to explain how the strategic actions of business models of digital enterprises in a developing economy are developed or oriented to create value in response to objective three of this thesis.

CHAPTER SIX

METHODOLOGY

6.1 Chapter Overview

The previous chapter discussed the development of the conceptual digital business strategy framework deduced from the review of digital business strategy literature. The conceptual framework was developed from the theories which make up the four dimensions of digital business strategy which determine the productivity of the business. This chapter elaborates on the methodology which was employed to undertake the study. Explanations and justifications are provided on the choices made in conducting the study.

Boateng (2016a) and Saunders, Lewis and Thornhill (2009) assert that research methodology consists of a set of systematic and scientific approaches to providing answers to research questions. These systematic and scientific approaches follow a procedural framework which determines the success or otherwise of the research (Creswell & Clark, 2010). It should, however, be noted that the appropriate selection of the research methodology is a challenging task (Kothari, 2008) considering the varying nature of research projects. Researchers are faced with the audacious task of selecting from a host of research approaches and strategies which are influenced by the researcher's paradigm.

This chapter begins with a discussion of the dominant research paradigms in Information Systems, leading to the selection of Critical Realism with a justification for this study. Based on critical realism, the next subsection discusses the research approaches in answering the research questions. This is followed by the discussion and selection of the appropriate research strategy has the choice of the population, sample and sampling technique, data collection

instruments and methods. The technique for data analysis is also discussed. The chapter concludes with a discussion of some ethical issues addressed while conducting the study.

6.2 Research Paradigm

Every research is founded on some form of philosophical assumptions, which are determined by the researcher's beliefs and views about what reality is (Turyasingura, 2011). The research methods selected are influenced by the researcher's paradigm. Sarantakos (1998) see research methodology to be "a model which entails theoretical principles as well as a framework that provides guidelines about how the research is done in the context of a particular paradigm". Paradigm is a "set of beliefs, values and techniques which is shared by members of a scientific community, and which acts as a guide or map, dictating the kinds of problems scientists should address and the types of explanations that are acceptable to them" (Kuhn, 1970). From Creswell's (2014) point of view, there are four main worldviews or paradigms. These include the post-positivism, the constructivism, the advocacy or participatory and the pragmatism worldviews.

6.2.1 Philosophical Assumptions

Distinctions between paradigms are made clear by the set of taxonomies that come together to formulate the paradigms (Creswell, 2014). Ontology, Epistemology, and Methodology are the three fundamental elements that characterize the underlying distinctions of these philosophical assumptions that form the paradigms (Lincoln, Lynham, & Guba, 2011).

6.2.1.1 Ontology as a Philosophical Assumption

Ontological assumptions refer to the nature of and form of reality and determine what constitute 'legitimate' researchable questions (Guba & Lincoln, 1994). The ontological dimension of a

research paradigm also looks at the nature of a phenomenon. It determines if it is objective and distinct from the researcher or is created by the action of the researcher. Qualitative researchers embrace the idea of multiple realities – subjective. The qualitative researchers conduct their study with the intent of unearthing and reporting these multiple realities. On the other hand, quantitative researchers embrace the idea of a single reality which is objective.

6.2.1.2 Epistemology as a Philosophical Assumption

Epistemology deals with the nature of knowledge and what counts as knowledge (Ritchie & Lewis, 2003). This assumption concerns the extent of proximity the researcher establishes with his respondents in his enquiry. Epistemology relates to how best knowledge is acquired, whether through inductive or deductive logic. Inductive logic involves building knowledge from the bottom up through observations of the world, which in turn provides the basis for developing theories or laws, and deductive logic is a top-down approach of knowledge. It starts with a theory from which propositions are derived and applied to observations about the world.

Qualitative researchers posit that the researcher is not independent of what is being researched. Knowledge to the qualitative researcher is context and time dependent. Knowledge is established through the meanings attached to the phenomenon studied. Quantitative researchers, on the other hand, posit that the researcher is independent of what is being researched hence creating a distance or objective separateness between the researcher and the object of study. Knowledge is discovered and verified through direct observations or measurements of variations in the phenomenon.

6.2.1.3 Methodology as a Philosophical Assumption

On the other hand, the methodological dimension of a research paradigm refers to the procedures researchers use to investigate what they believe can be known, and the rationales behind these procedures which include quantitative, qualitative or mixed methods (Lincoln et al., 2011). The methodology also refers to the procedures the researchers use in investigating what they believe can be known and the rationales behind these procedures.

Qualitative research is characteristically inductive, emergent and is shaped by the researchers' experience in collecting and analyzing the data. The research questions may change or emerge in the middle of the study to provide a better appreciation of the research problem. The data collection strategy planned before the study needs to be modified to accompany the new questions. Data is analysed in a manner that seeks to develop an increasingly detailed knowledge of the topic being studied.

On the other hand, quantitative researchers start with the specific hypothesis or questions derived from theory or previous research. They later select a sample representative of the population and use objective instruments (fixed choice questionnaires, attitude scales, etc.). The qualitative researchers present their results using statistics and making inferences to the population. Again, quantitative researchers emphasise "distance" between the researcher and the subject while following the research problem.

6.2.2 Paradigms in Information Systems

Although there are several paradigms, over the years, three dominant paradigms have evolved in information systems research. These are the positivist paradigm, interpretive or the

constructivist paradigm and the critical paradigm (Mingers et al., 2013; Myers & Avison, 2002). Figure 6.1 shows the dominant paradigms in Information Systems.

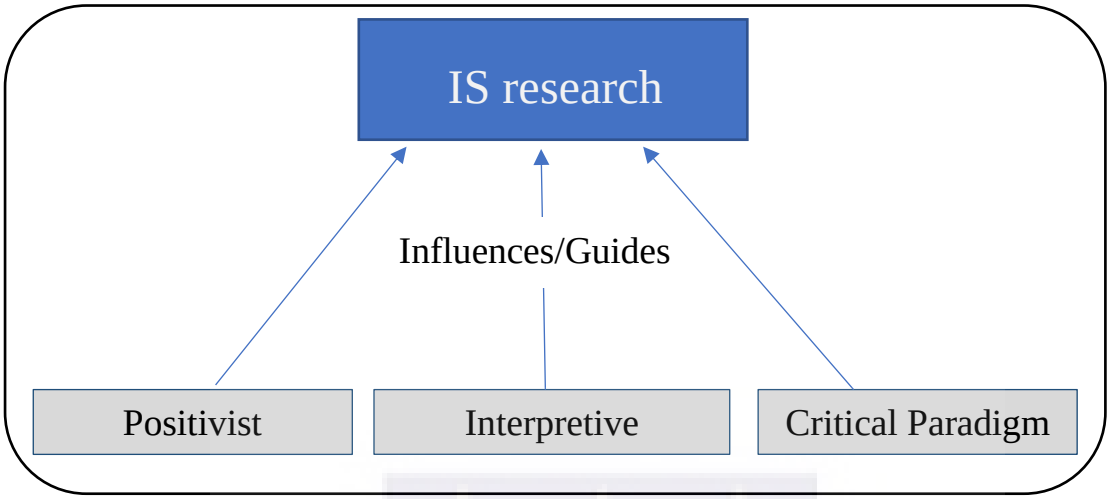


Figure 6.1: Major IS research paradigms (Myers & Avison, 2002)

6.2.2.1 The Positivist Paradigm

The positivist paradigm has an objective reality, which is single and concrete. The researcher is independent of what is being researched. Positivist researchers instrumentally predict or describe reality – the social reality is captured using formal propositions, predictions and control (Lee, 1991). It is also postulated that positivists presume that reality is objectively given and can be described by measurable properties, which are independent of researchers and the instrument they use (Weber, 2004). The reality in a positivist's research can be known approximately. The hypothesis can be rejected or provisionally confirmed, but not definitively proved. Reality is unaffected by the research process, and facts and values are separate (Ritchie & Lewis, 2003). Orlikowski and Baroudi (1991) also propose that information systems research is seen as positivist if there is a formal proposition of evidence. Deductive reasoning is used to postulate possible relationships and models before data is collected, and reality is unaffected by the research process. Facts and values are separate and, objective, value-free inquiry is possible.

According to Orlikowski and Baroudi (1991), there are two (2) main limitations of a positivist paradigm; the pursuit of universal laws has led to a disregard for historical and contextual concerns that form a phenomenon; and the human participants who take part in research studies. The positivist paradigm seeks to explain and predict external reality as being independent of humans through deterministic approaches. It, however, fails to account for political complexities in the social world.

6.2.2.2 The Critical Paradigm

The Critical paradigm researchers assume that social reality is historically constituted and people reproduce them. McAulay, Doherty and Keval (2002) postulated that critical researchers recognize the ability of people to change their social and economic situations but contend that this ability is constrained by various forms of social, cultural and political dominations as well as laws and resources limitations. This is in accordance with extant studies which indicated that critical paradigm researchers typically want change in the status quo and want to help liberate the less fortunate in society from their peculiar circumstances (Myers & Avison, 2002; Orlikowski & Baroudi, 1991). The main task of critical research is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light. Critical research focuses on the oppositions, conflicts and contradictions in contemporary society, and seeks to be emancipatory (Myers & Klein, 2011). Concerning the methodological assumptions of the critical paradigm, critical researchers employ the use of ethnography to analyse and compare events, both past and present to enable them to identify the influencing forces between the events (Myers & Klein, 2011; Orlikowski & Baroudi, 1991).

6.2.2.3 The Interpretive Paradigm

Interpretive researchers assume the existence of reality or the real world; however, knowledge of this reality is subjective and not objective (Weber, 2004). This implies that in interpretivism, objective knowledge is non-existent. According to Myers and Klein (2011), interpretivism assumes it is only through social constructions such as conscious language and meanings that are shared that reality can be accessed. Kaplan and Shaw (2004) noted that positivists focus on the complexity of making sense as situations emerge – dependent and independent variables in the study are not defined. Information systems researchers who use the interpretive paradigm focus on understanding the context and how information systems impact and are impacted in the context (Walsham, 2012). Immanuel Kant in 1804 indicated that there are ways of knowing about the world aside direct observation and that people use these all the time. He proposed that perception relates not only to the senses but to human interpretations of what the senses tell us. As such, knowledge of the world is based on 'understanding', which arises from reflecting on what happens, not just from having had experiences. Knowledge is produced by exploring and understanding the social world of the people being studied, focusing on their meanings and interpretations.

Table 6.1 provides a summary of the various assumptions of the three major paradigms in Information Systems research.

Table 6.1: IS paradigms and Assumptions

Paradigm	Assumptions
Positivism	**Ontology:** Assumes an objective reality which is single and concrete **Epistemology:** The researcher is independent of what is being researched. Distance or objective separateness between researcher and object of study. Knowledge is discovered and verified through direct observations or measurements of reality. **Methodology**: Instrumentally predict or describe reality. Deductive reasoning is used to postulate theories that can be tested. Belief in empiricism, the idea that observation and measurement are at the core of the scientific endeavour.
Critical	**Ontology:** two worlds – transitive and intransitive. Transitive is what is observed and learnt with the mind (the perceptions of reality). Intransitive also embodies the reality, which is independent of what the mind thinks. **Epistemology:** the transitive world is value-laden and changing continually. The intransitive world has underlying structures and mechanisms that are 'relatively enduring' and hence should be studied. **Methodology:** Researchers seek to deconstruct and understand the structures and mechanisms underlying the subjective realities that exist. Triangulation from many sources is required to try to know it. Retroductive reasoning.
Interpretivism	**Ontology:** Multiple realities exist, subject to human experiences and interpretation. Reality is socially constructed. **Epistemology:** Value-laden. Knowledge generated is subjective, time-bounds and context-dependent. **Methodology:** Knowledge is created through researchers identifying the various interpretations and constructions of reality that exist and attempting to establish patterns. Inductive logic and emergent design.

Source: (Boateng, 2016a)

6.2.3 Critical Realism as the Chosen Philosophy for this Thesis

Lopez (2013) asserts that the use of the form of reasoning (deduction and induction) as the driver of the research does not define the paradigmatic inclinations of the research process. Still, it only provides the other way around the issue. The conduct of this study was guided by the Critical Realism Paradigm which offers a breath-taking view in moving the attention of researchers toward the real-world problems and their underlying causes, and also away from a focus on data and methods of analysis (Mingers et al., 2013). As such, it offers a robust framework for the use of a variety of methods to gain a better understanding of the meaning and significance of information systems in the contemporary world. Critical realism was developed out of criticisms against both the empiricist view of science as embodied in the positivist paradigm and the idealist view of (social) science as involved in the constructivist or interpretive paradigms (Bhaskar, 1998).

The critical realist argues that science should be about objects, entities and structures that exist (even though perhaps unobservable) and events that are observed. On the other hand, science, according to empiricism and positivism, involves recording constant aggregations of observable events. This form of argument is seen to be a transcendental one which begins with some accepted phenomenon and asking what the world must be like for this phenomenon to occur. What is accepted by both empiricism (positivism) and idealism (interpretivism) is that there is a perceptual experience of the world which should be studied through experimental activity where scientists bring about outcomes. Critical realism, on the other hand, argues that neither empiricism nor idealism can successfully explain these occurrences and that they necessitate some form of realist ontology. There must be some intransitive domain of objects and events, independent of the researcher's perceptions of them, which can indeed become objects of knowledge (Mingers et al., 2013).

The critical realist is not interested in prediction but accepts a role for the socio-political account. Again, the critical realist applies theory as a vehicle for delivering causal-explanatory accounts. It also uses retroduction where the researcher goes from an observation to a theory which accounts for the observation, ideally seeking to find the simplest and most likely explanation (Sober, 1990). Critical realism accepts the existence of different types of objects of knowledge – physical, social, and conceptual – which have different ontological and epistemological characteristics. This requires a range of different research methods and methodologies to access them. For instance, a particular object of research may well have different characteristics; hence a mixed-method research strategy (i.e., a variety of methods in the same research study) will be necessary and Critical Realism supports this (Bhaskar, 1998; Mingers et al., 2013).

The methodology of the Critical Realist is to provide a causal explanation to issues – explanation through uncovering and understanding causal mechanisms. The Critical realist deconstructs and accepts genealogy. Critical Realism embraces various methodological approaches from different philosophical positions by taking "a critical stance towards the necessity and validity of current social arrangements" without following "the extant paradigms' assumptions at face value" (Mingers, 2004). Critical Realism also employs theories and hypothesis/questions to study social phenomena. Methods such as case studies and unstructured or semi-structured in-depth interviews are acceptable and appropriate within the paradigm, as statistical analysis such as those derived from structural equation modelling and other techniques (Mingers, 2000; Mingers et al., 2013). Figure 6.2 shows the domains of Critical Realism and how it is applied in research.

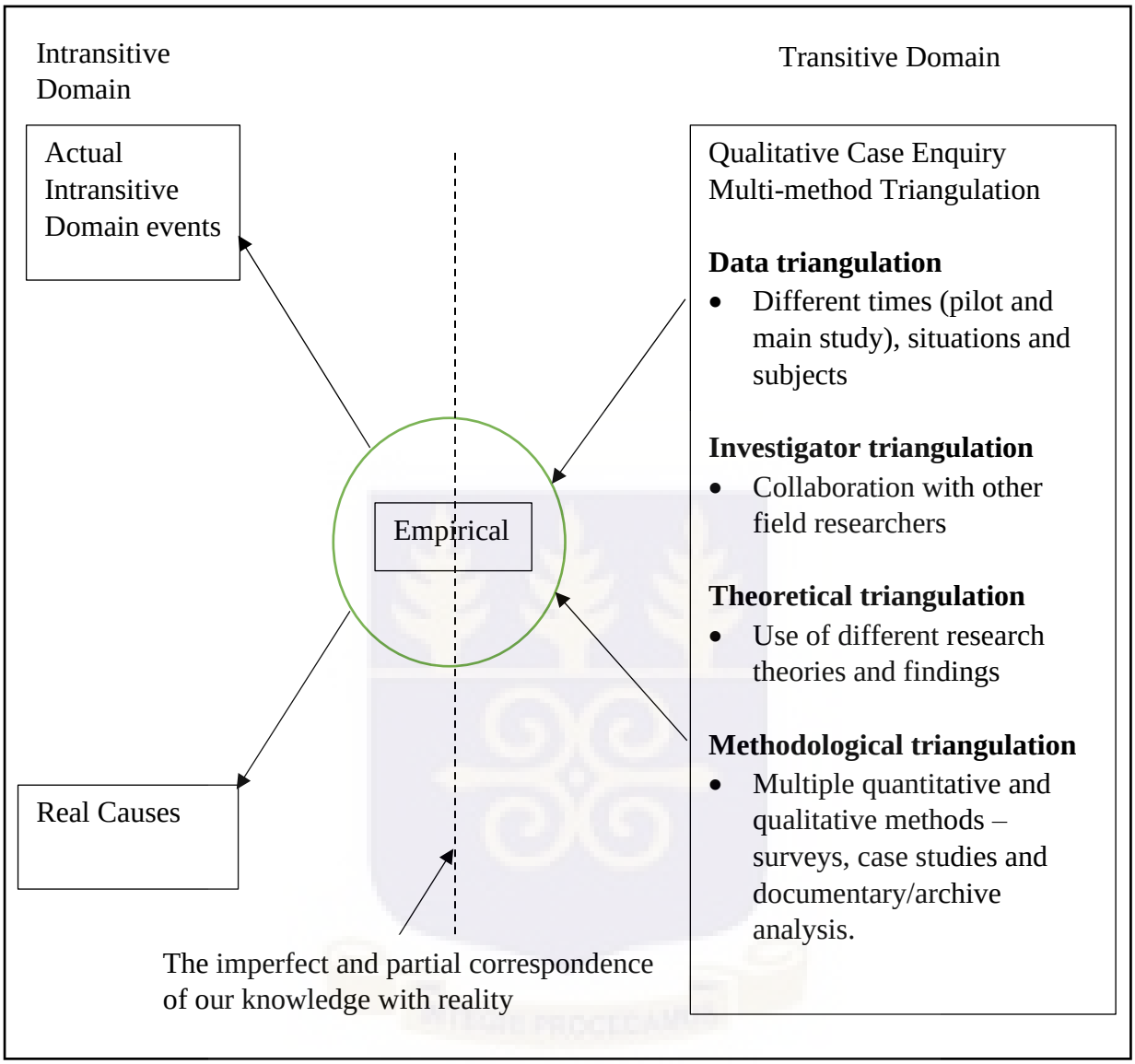


Figure 6.2. The domains of Critical Realism (Adapted from Downward and Mearman, 2007; pp. 93)

6.3 Research Design and Methods

Johnson and Onwuegbuzie (2004) define research design as the pattern for collecting, unionizing, and integrating research data for unearthing research findings. They further postulate two widely used broad categories of research methods as quantitative and qualitative.

Qualitative research is "typically used to answer questions about the complex nature of phenomena, often to describe and understand the phenomena from the participants‟ point of view" (Leedy & Ormrod, 2010). On the other hand, quantitative research is used to answer questions about relationships among measured variables to explain, predict, and controlling phenomenon. Newman and Benz (1998) are of the view that dichotomy does not exist; instead, there is an interactive continuum between the two approaches. The quantitative method has been linked with the positivist paradigm whiles the qualitative to the Interpretivism paradigm, and the mixed-method with the Critical paradigm (Mingers, 2004).

Research methods are tools for data collection and analysis (Sarantakos, 1998). The two broad categories (qualitative and quantitative) are based on experiments, surveys, or case studies. All these three instances - experiments, surveys, and case studies – have different questions to be answered. The choice of any research design is influenced by “three conditions: the type of research question posed, the extent of control the investigator has over actual behavioural events and the focus on contemporary as opposed to historical events” (Yin, 2003). Table 6.2 summarizes the choices of strategies or designs accompanied by the relevant questions. Experimental research is where an experimental variable is manipulated, and alternative influences on the dependent variable are controlled (Powell & Connaway, 2004). This is done to test a causal relationship – “causality suggests that a single event (the “cause”) always leads to another single event (the “effect”)”.

In a case study, no basic laws exist to determine which factors and relationships are essential, and when the factors and relationships can be observed directly (Fidel, 1984). A case study is used in areas characterized by a rapid pace of change in the nature and complexities of artefacts and issues involved (Benbasat, Goldstein, & Mead, 1987).

Table 6.2: Relevant situations for different research strategies

Strategy	Form of research question	Requires control of behavioural events	Focuses on contemporary events
Experiment	How, why	Yes	Yes
Survey	Who, what, where, how much/ many?	No	Yes
History	How, why	No	No
Case study	How, why	No	Yes

Source: (Yin, 2003)

A survey is defined as a research strategy that encompasses any measurement procedure that involves asking questions of respondents (Powell & Connaway, 2004). Direct or indirect contact is made with the units of the study (e.g. individuals, organisations, communities) by using systematic methods of measurement such as questionnaires and interviews. The questions that form the research agenda include "who, what, where, how much, how many" (Yin, 2003).

The critical realism paradigm allows for the integration of research methods – a triangulation of methods in a single study – to enhance the findings and to provide a better perspective to the issues under discussion. Benbasat et al. (1987) assert that the choice of a research strategy is dependent upon the nature of the research topic and the goal of the research. This study adopted the sequential mixed methods approach where various approaches were appropriately applied to the research questions and objectives. The next sections elaborate on the approaches in responding to the three research questions driving this thesis.

6.4 Approach to Research Question One

The first research objective was to map out the digital enterprises in Ghana based on the business models that have evolved from the application of innovative digital technologies. The research question was;

What are the business models of digital enterprises in a developing economy?

The approach to answering this question was guided by the Critical Realism Paradigm, which moves the attention of researchers towards real-world problems and their underlying causes and also away from a focus on data and methods of analysis (Mingers et al., 2013). As such, it offers a robust framework for the use of a variety of methods to gain a better understanding of the meaning and significance of information systems in the contemporary world. As such, an exploratory survey design was adopted. The following subsections provide elaborations on the strategies adopted in this regard.

6.4.1 Survey as a Research Strategy

The method adopted to describe the business models of digital enterprises in Ghana was the exploratory survey. The survey is a type of quantitative research approach (Neuman, 2011). While a case study examines one or more case(s) in detail and follows it through for a while, a survey can include several different individual things or people, not studied in as much detail or during as much time. Also, a survey is deemed appropriate for studying the cause of a phenomenon with empirical evidence concerning attitudes and behaviours of institutions (Hair, Black, Babin, & Anderson, 2010).

According to Creswell (2014), “survey provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of the population.” From the results of the sample, the researcher can then make a claim or generalize about the population. In

justifying the motives for choosing a quantitative approach as against qualitative and mixed approaches aside being fit for the study in context, was to unearth conclusive evidence rather than just provide information as postulated by Zikmund (2003). Again, the limited time scale for the research makes the survey approach appropriate since it allows for the investigation of a phenomenon (digital business strategy) to some depth in a short time.

Survey as a strategy for answering the first research question was used in this study by following its nature of application in extant Information Systems studies (Domingo & Garganté, 2016; El-Ebiary, Al-Sammarraie, Al Moaiad, & Alzubi, 2016; Moyle, Jones, Murfield, Dwan, & Ownsworth, 2018). Descriptive Statistics was used to present the quantitative data in all the Information Systems studies which guided this study.

6.4.2 Questionnaire Development

In developing the survey instrument, the proposal from extant literature (Churchill, 1979; Straub, Boudreau, & Gefen, 2004) for designing a survey instrument was used as a guide to ensure reliability and validity. It is asserted that the process of survey instruments development involves initial instrument development and refinement.

After the initial questionnaire was developed from constructs postulated by literature on digital business models (see Section 2.5), the second stage of refinement was undertaken to ensure reliability and accuracy. In addition, items capturing the enabling factors of the digital enterprise were adapted from the survey instrument developed by Remane and Hanelt (2016). The pre-test of the initial questionnaire was conducted by seeking an expert opinion from Information Systems Researchers in the Department of Operations and Management Information Systems – University of Ghana Business School, who have experience in the

digital economy and strategy. This was done to validate the content of the survey instrument (Hair et al., 2010). Content validity in the first place measures the extent to which the items on the questionnaire adequately captures different dimensions of a construct (Hair et al., 2010; Straub et al., 2004). This was carried out through a thorough examination of interpretation, wording, consistency, logical sequencing and overall impression from look and feel of the survey. Constructive feedback was provided, which helped to improve the questionnaire during the refinement stage. The final questionnaire for data collection is attached in Appendix E.

6.4.2 Population and Selection of Sample for the Study

A population is a large group to which one hopes to apply a result (Fraenkel & Wallen, 2000). However, Cooper and Schindler (2003), defines a population as the total collection of elements or participants about which the researcher makes some inferences. Target population refers to the entire group of individuals or objects to which researchers are interested in generalizing the conclusions. The target population for this study was digital enterprises operating in Ghana's digital economy. It must be noted that there is no known defined number of digital enterprises operating in Ghana.

According to Neuman (2011), sampling, like the random assignment, is a process of systematically selecting cases for inclusion in a research project. A researcher uses a set of cases (elements) or samples, which are more manageable and cost-effective to work with than a pool of all the cases (Zikmund, 2003). Sampling reduces costs, reduces labour requirements and quickly gathers vital information. A sample is a small part of something intended as the representation of a whole. Sampling is that part of statistical practises concerned with the selection of an unbiased or random subset of individual observations within a population of

individuals. This selection is intended to yield some knowledge about the population of concern, especially to make predictions based on the sample frame (Creswell, 2014).

A purposive sampling technique was adopted for the study. The purposive sampling technique, also known as judgment sampling, is "the deliberate choice of an informant due to the qualities the informant possesses" (Tongco, 2007). The intrinsic bias of this type of sampling has contributed to its efficiency; enabling it to stay robust even when tested against random probability sampling hence able to be employed with both qualitative and quantitative techniques (Tongco, 2007). Besides, digital enterprises were theoretically sampled. According to Glaser and Strauss (1967), theoretical sampling is conducted when the participants for a study are selected because they possess some particular characteristics which are related to the theoretical propositions or definitions in the study. In the context of this study, a digital enterprise is a firm whose business model is enabled by digital technologies (Rouse, 2011). Again, the digital enterprise must operate within Ghana's digital economy to qualify to be included in this study.

There is no defined answer to what constitutes an acceptable or sufficient size for a sample (Fraenkel & Wallen, 2000). The authors suggest that the best response is that a sample should be as large as the researcher can obtain with a reasonable expenditure of time, energy and financial resources. Alreck and Settle (1995) also opined that most experienced researchers consider a sample size of about 200 to 1000 respondents for a population of 10,000 or more.
It should be noted that there is a lack of a single database that provides a list of digital enterprises in Ghana. This adversely impacted on knowing the population of digital enterprises operating in Ghana. Google search engine and referrals of known digital firms were used to identify the firms for data collection. Again, incubator projects designed for information

technology start-ups were contacted for a list of their graduates who have set up digital firms. For instance, the Meltwater Entrepreneurial School of Technology which trains, mentors, and invests in world-class tech-entrepreneurs from Ghana and Nigeria (The Meltwater Entrepreneurial School of Technology (MEST), 2016), was consulted for information about their graduates and other digital start-ups within their scope. The study also depended on data from CrunchBase which according to Marra, Antonelli, Dell'Anna and Pozzi (2015) is the world's most comprehensive database for technology start-ups. Several researchers have used data from CrunchBase to analyse digital enterprises (e.g. Marra et al., 2015; Remane, Hanelt, Hildebrandt, & Kolbe, 2016; Spiegel, Abbassi, Fischbach, Putzke, & Schoder, 2011; Werth & Boeert, 2013; Yu & Perotti, 2015).

A maximum of Three hundred staff of digital enterprises operating in Ghana was targeted to respond to the questionnaire for the study. It must, however, be noted that the level of analysis was the digital enterprises operating in Ghana. That is, the Operations Officer, Chief Executive Officer or the General Manager representing one enterprise were expected to respond to the survey. These officials of the digital enterprises were selected due to the strategic leadership positions they occupy. These officials formulate or implement the major strategic decisions of the digital enterprise. From the critical realist stance, these multiple sources of data collection help to augment the triangulation of participants' perspectives and also provide a rigorous approach for collecting and analysing the data (Mingers, 2004). In the end, 91 digital enterprises were sampled and used for the analysis. Table 6.3 presents the distribution of the sources of digital enterprises used for the study.

6.4.3 Data Collection

Digital enterprises were selected based on the definition adopted for this study. Rouse (2011) defines a digital enterprise to be an organization that uses technology as a competitive advantage in its internal and external operations. These digital enterprises must necessarily operate within the digital economy of Ghana. This formed the basis for the inclusion and exclusion of enterprises used for this study. Hundred digital enterprises were initially identified. However, ninety-one digital enterprises were used for the analysis. This was because nine digital enterprises could not meet the inclusion criteria, which was basically a digital enterprise currently operating in Ghana. These enterprises were, however, dormant and not in active operations, hence, were not used for the analysis.

The unit of analysis was the digital enterprises operating in Ghana. Questionnaires for data collection were administered to the Operations Officer, Chief Executive Officer or the General Manager representing the selected digital enterprises for the study. These top-level management staffs are seen to be better positioned to provide information concerning the strategies of the enterprises. The questionnaires were posted or emailed to the respondents for self-administration. Links to the google form developed with the questionnaire (snapshot in Appendix E) were posted on social media platforms to solicit for responses from digital enterprises in Ghana. The use of Google forms has been hailed in extant literature (Wiemken et al., 2018) to offer a robust means of reaching out to respondents who are not readily available to fill questionnaires physically. This activity was carried out between May and August 2017, after which responses were received from 91 digital enterprises. Table 6.3 presents the distribution of the sources of digital enterprises used for the study.

Table 6.3: Distribution of the sources of digital enterprises for the study

Source	Frequency	Percentage
Meltwater Incubator Programme	33	36.3
Crunchbase.com	17	18.7
Google Search engine	21	23.1
Snowballing/Personal network	20	22.0
TOTAL	91	100

Source: Author's construct

6.4.3.1 Data Analysis

Data collected were analysed using the Descriptive statistical technique. The descriptive statistics were used to analyse the data in response to mapping out and determining the nature of the strategic actions of digital enterprises which is the first research objective. Descriptive statistics have been applied in extant IS research (e.g. Domingo & Garganté, 2016; El-Ebiary et al., 2016; Moyle et al., 2018). El-Ebiary et al. (2016), for instance, conducted a study on the impact of Management Information Systems in educational processes using descriptive statistics as the method of data analysis. Descriptive statistics are applied in studies to describe the basic features of the data in the study. Besides, descriptive statistics provide simple summaries about the sample and the measures. According to Hair et al. (2010), descriptive statistics form the basis of virtually every quantitative data analysis which mostly provide a graphical presentation of the data.

The analysis and discussion of findings related to the first research question are presented in Chapter Seven of this thesis.

6.5 Approach to Research Question Two

The second research objective was;

To determine the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy.

This research objective required the adoption of a qualitative approach, as indicated in section 1.4 of this study. A qualitative research approach emphasizes the qualities of entities, processes and meanings that are not experimentally examined or measured in terms of quantity, amount, intensity or frequency (Denzin & Lincoln, 2008; Lincoln & Denzin, 2000). Creswell (2014) explains that in a qualitative research approach, the researcher simply collects open-ended, emerging data from which themes are developed. In other words, the researcher relies on the perspectives and experiences of a small number of persons associated with the phenomenon in understanding and forming judgments about it.

6.5.1 Case Selection

Case study research is an increasingly popular approach among qualitative researchers (Thomas, 2011). Case study research is carried out by investigating and analyzing a single or collective case, intended to capture the complexity of the object of study (Stake, 1995). Stake (1995) asserts that qualitative case study research draws together "naturalistic, holistic, ethnographic, phenomenological, and biographic research methods." He sums this up as "a palette of methods." Case study research has a level of flexibility that is not readily offered by other qualitative approaches such as grounded theory or phenomenology. Using a narrative approach, the researcher may present the genesis of ideas, explore what happened and why,

give an account of the human side of the project, its dynamism and investigate the phenomenon. The researcher presents outcomes in their complexity without being subjected to the confines inherent in most of the other evaluation methods. The freedom to collect multiple kinds of information makes the case study method useful for exploring ideas and constructing theories about project dynamics.

This study was centred on a Digital enterprise hereinafter referred to as Amigo (a pseudonym) as the case. This digital enterprise was identified during the mapping survey based on the definition discussed in Section 2.2. Rouse (2011) defines a digital enterprise to be "an organization that uses technology as a competitive advantage in its internal and external operations." This digital enterprise fulfilled the criteria to be considered as a digital enterprise. The focus of the study also called for a digital enterprise which had gained a considerable reputation in the digital economy of Ghana. This digital enterprise has been operating in Ghana since 2014. In summary, this case digital enterprise was theoretically sampled as highlighted by Glaser and Strauss (1967) concerning participant selection based on the theoretical propositions or definitions in the study. Discussion of the profile of the case is presented in Section 8.2.

6.5.2 Data Collection and Analysis

Two main data sources were used in this study: primary data and secondary data. In this study, primary data was gathered mainly through open-ended interviews (see Appendix C). This was to ensure a guided interaction; respondents could speak extensively on a topic without straying from the relevant context. Secondary data used in this study were obtained from publicly available documents such as reports, newsletters, journal articles, news bulletins, documentaries, and other web resources. Table 6.4 outlines the types of secondary data collected with justification. Collecting Secondary data does not only save time but also

provides baseline data with which Primary data is compared. Data collection was carried out between January and March 2019.

Table 6.4: Secondary data examined

Document	Amigo
Organisational Chart	• To ascertain the organisational structure of the digital enterprise
Reports (including financial reports)	• To compare current practices with past practices. • To assess the case enterprise's past engagements with client companies.
Web contents	• To assess additional information which was not collected during the field interview. E.g. detailed company profile, information on other services not mentioned in the interview.

Source: Author's construct

Data collection involved in-depth interviews with three representatives of the digital enterprise; Operations officer, Sales manager and IT officer. These participants were purposively selected because of their positions within the firm, which exposes them to first-hand information concerning the strategic actions of the firm. The interview sessions for each respondent lasted averagely One hour. During the discussions, the respondents were encouraged to relate experiences and attitudes relevant to the study.

The research technique also involved structured and unstructured interviews. The data was collected in textual form as field notes and tape-recorded interviews. The analysis was done by drawing themes from the tape-recorded interviews, which were transcribed verbatim without paraphrasing. The analysis followed Miles and Huberman's (1994) data analysis approach, as described in Section 6.6.3.

6.6 Approach to Research Question Three

The third research objective was to explain how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value. The research question was;

How are the strategic actions of business models of digital enterprises in a developing economy developed/oriented to create value?

In this regard, activities aimed at answering this research question were guided by the Critical Realism paradigm which has arguably been seen to provide researchers with the opportunity to view real-world problems from their underlying causal mechanisms (Mingers et al., 2013) instead of a situational analysis. The in-situ analysis which is a feature of both the interpretive and Positivist paradigms has been argued to be deficient in providing answers to the mechanisms behind the strategic evolution of digital enterprises (Henfridsson & Bygstad, 2013). Little, if any, research has been conducted on the development of a comprehensive understanding of the various activities and contingencies of causal structures in the strategic evolution of digital enterprises. Therefore, adopting the Critical Realist paradigm, this study examines the evolution of the digital business strategy of a Ghanaian digital enterprise.

6.6.1 Case Selection

The selected case for this study was Digix Enterprise (a pseudo name). The case is a Ghanaian Digital enterprise satisfying the study's definition of a digital enterprise. Digix Enterprise was identified in the mapping of the business models of digital enterprises in Ghana. It was selected as a case for this study considering its existence in Ghana's digital economy since 2011 – surviving beyond the 42-month survival threshold. The case firm was also theoretically sampled (Glaser & Strauss, 1967) because it possesses all the features of the theoretical

propositions and constructs of this study in responding to the third research objective as highlighted in section 1.4. The third objective required a digital enterprise which has grown from the start-up stage into the maturity stage within the digital economy of Ghana. The profile of the case firm is presented in section 9.2.1.

6.6.2 Data Collection

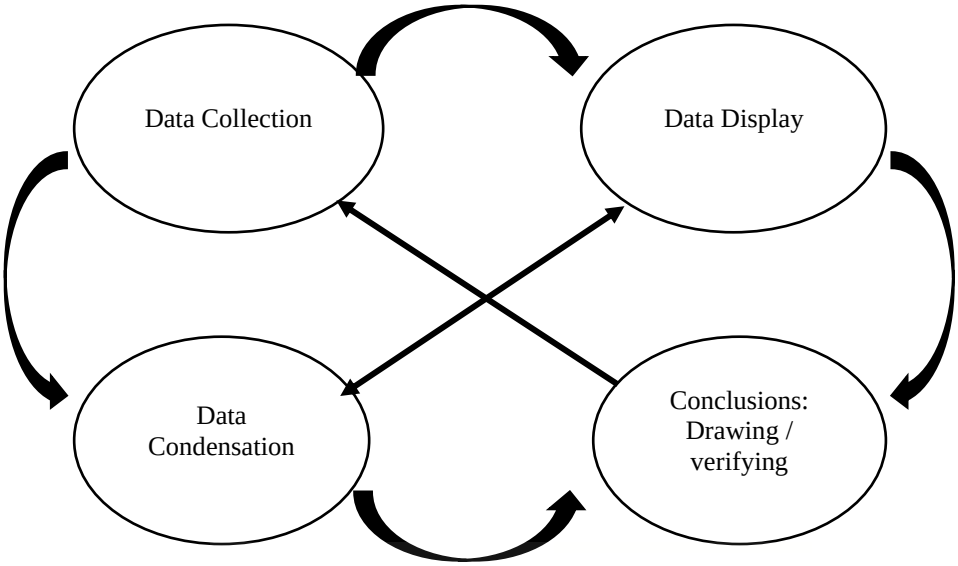
In conducting this study, data was collected from multiple sources. Creswell (2014) and Merriam (2014) are of the view that case study research requires an intensive data collection, using multiple forms of data to offer an evaluation of the activities being studied. Similarly, Benbasat et al. (1987) suggest that "a case study must employ two or more sources of data, and these sources must converge in order to support the research findings." As a result, data was collected from multiple sources – informal discussions, observations, documents and semi-structured interviews. From the critical realist stance, these multiple sources of data collection augment the triangulation of participants' perspectives and also provide a rigorous approach for collecting and analysing data (Mingers, 2004).

Three methods of data collection were used for the study: interviewing, observation of participants, and document analysis. The first interview, which lasted for forty-five minutes, was with the owner, who is also the manager of the enterprise. The enterprise's documents (financial records, receipts, company registration records, partnership records, agreements, etc.) were reviewed to ensure literal replication – whether the documents considerably confirmed information earlier collected through the interviews. Apart from the owner, one auxiliary staff of Digix (the administrator) was interviewed to find out any start-up-specific growth patterns and to confirm or disprove the patterns of behaviour identified in the earlier interview. This interview lasted for one hour. Also, two Digix enterprise's customers and a

mentor were interviewed – each lasting for thirty minutes. The information obtained did not lead to any new pattern. Specific growth concepts were explored in-depth to enrich the understanding of the phenomena. Responses from interviewees were mainly audio-recorded in addition to taking notes. Data collection was discontinued because there was no new information to be obtained. The data collection was carried out from February 2018 to March 2018.

6.6.3 Data Analysis

Boateng (2016b) asserts that data analysis begins as soon as data collection starts in qualitative research. According to Bogdan and Biklin (2007), qualitative data analysis is "working with data, organising it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned; and deciding what you will tell others". Again, Greene (2007) refers to data analysis as a "systematic and essentially taxonomic process of sorting and classifying collected data." This research adopted Miles and Huberman's (1994) transcendental realism technique which highlights three main components for analysis; data reduction, data display and drawing and verifying conclusions. Figure 6.3 shows Miles and Huberman (1994) data analysis approach.



Source: *Miles and Huberman (1994, p.12)*
Figure 6.3: Miles and Huberman's Data Analysis Approach

Table 6.5 presents a detailed plan on how Miles and Huberman's data analysis approach presented in Figure 6.3 was utilized in this thesis.

Table 6.5: In-depth data analysis

Steps	**Tasks**	**Outputs**
Step 1: Coding of key events	1.Identification of key events in the data collected 2.Establishment of a timeline of the major events	Presentation of a chronology of key events of the case
Step 2: identification and typifying components	1.Identification of networks of social and technical components 2.Display of components and related data	A set of components and related data, as shown in Figure 9.2.
Step 3: Retroduction of mechanisms	1.Investigation of the interplay between the micro and macro elements to explain outcomes 2.Identification and analysis of selected mechanisms through the assessment of their explanatory powers. 3.Definition of the mechanisms and development of measures to be used.	Mechanisms developed for the various dimensions of the digital business strategy, including definitions.

(Source: Author's construct)

6.7 Summary and Justification of Research Methods

This study took into consideration the propositions made by Alvesson and Skoldberg (2009) concerning ensuring validity in the research process. This was intended to limit the methodological biases in responding to the various research questions. In this regard, this study adopted the following measures.

a. Assessment of research methods to determine their suitability with the three objectives of the study.
b. Checks with study participants to confirm and ensure the accuracy of data collected.
c. Consultations with Supervisors of the thesis to provide guidelines for the research.
d. Engagement with peers to ascertain their views to include the diversity of thought.
e. A fair representation of participant responses.

The conceptual digital business strategy model was used to review the strategic digital business actions of two digital enterprises operating in Ghana. Amigo is a Nigerian-owned e-commerce retail enterprise. Amigo currently has offices in 14 African countries, making it one of the leading digital enterprises in Africa. Amigo operates in Ghana with founders originating from Nigeria. On the other hand, Digix is a Ghanaian-owned digital start-up firm drawing on global resources in the import of cars.

The conceptual framework was applied differently on these two digital enterprises based on their nature and set-up characteristics and the research objectives. For the international brand, Amigo, the focus was on the nature of the strategic actions which underpin its business model in a developing economy. The study reviewed its strategic actions in the face of its competitive forces (see Chapter 8). The study examined how the strategic actions of Digix were developed or oriented to create value. This led to the review of the various stages of growth of Digix and how the dimensions of the framework influenced them (see Chapter 9).

It is worth noting that these two digital enterprises were selected not to draw comparisons between their strategic actions. They were, however, selected to aid in applying the conceptual framework in different contexts involving digital enterprises from various industries and backgrounds. Table 6.6 presents a summary of the data analysis methods which were used by this study.

Table 6.6: A summary of the Data Analysis Methods used by this study

Area of Study Applied	Stage	Activity	Application in some Information Systems Studies	Section of Thesis applied
Data Analysis method used for Research Question One				
General Quantitative Analysis mainly guided by the digital business model archetypes	Data collection	Self-administered questionnaires through emails and google forms	Remane, Hanelt, Nickerson and Kolbe (2017)	Chapter six Pp102
	Data reduction	Screening of data to improve relevance in responses and eliminate participant biases.	Vila and Kuster (2011)	Chapter six Pp102-103
		Development of a descriptive coding scheme based on the constructs of the theory and categorization of coded data to find out existing relationships and differences using a data analytics software.	Remane et al. (2017)	Chapter two Pp31-34
	Data display	Explanation of data with graphical displays.	Boateng (2016b)	Chapter Seven pp119-123
	Conclusion drawing	A quantitative discussion that explains the findings.	Ansong, Boateng, Boateng and Anderson (2017)	Chapter Seven pp124-133
Critical Realist analysis to unravel causality of observed integration issues	Phenomenon description	Exploratory survey to identify the distinctive features of digital enterprises. Criteria for inclusion and exclusion of digital enterprises were determined.	Rouse (2011); Weill and Woerner (2015)	Chapter Two Pp21-25 Chapter Seven pp 119
	Retroduction Analysis	Different levels of abstraction to draw out themes from the data.	Boateng, Boateng, Awuah, Ansong and Anderson (2016)	Chapter Seven pp124-133
	Assessment and Elimination	Development of relationships between the statistical data analysed and tracing the results with possible reasons.	Boateng et al. (2016)	Chapter Seven pp124-133
		Application of the digital business model archetypes to complement empirical findings	Yu and Perotti (2015)	Chapter Seven pp124-127
	Action	Relay of attributed reasons and proposal for governmental agencies and other entrepreneurs	Henfridsson et al. (2014)	Chapter Seven pp 133-134 Chapter Ten pp 199-203

Area of Study Applied	Stage	Activity	Application in some Information Systems Studies	Section of Thesis applied
Data Analysis method used for Research Question Two				
General Qualitative Analysis mainly guided by Porter's five competitive forces model and the conceptual digital business strategy framework	Data collection	Transcription of recorded interview sessions	Yeow et al. (2017)	Chapter Eight pp138-141
	Data reduction	Summarization of transcribed data to improve relevance in responses and eliminate participant biases.	Henfridsson et al. (2014)	Chapter Eight pp138-141
		Development of a descriptive coding scheme based on constructs of the theory and categorization of coded data to find out existing relationships and differences.	Georgiadis, Stiakakis, Ravindran, et al. (2013)	Chapter Eight pp141-143
	Data display	Explanation of data with graphical displays.	Boateng (2016b)	Chapters Eight pp 142-149
	Conclusion drawing	A qualitative discussion that explains the findings.	Andoh-Baidoo, Babb and Agyepong (2012); Henfridsson and Bygstad (2013)	Chapter Eight pp 141-149
Critical Realist analysis to unravel causality of observed integration issues	Phenomenon description	Exploratory interviews to identify the various competitive forces existing within the industry of the case firm. Delineation of the boundary of the phenomenon identified. Identification of the intensity of competition and the digital strategic actions to overcome them.	Henfridsson and Bygstad (2013)	Chapter Two pp 22 Chapter Five pp 66-75 Chapter six pp 104-106
	Retroductive analysis	Boundary revision to focus on the five competitive forces and how strategic actions are targeted at them	Indiatsy, Mwangi, Mandere, Bichanga and George (2014)	Chapter Eight pp 138-141
		Different levels of abstraction to draw out themes on participants' views on the digital business strategy of the firm which enable it to survive.	Henfridsson and Bygstad (2013)	Chapter Eight pp 143-149
	Assessment and Elimination	Development of relationships between observed competitive forces by trailing their impact on the firm and providing reasons for the impact and actions taken to overcome them	Andoh-Baidoo et al. (2012)	Chapter Eight pp 138-141
		Application of Porter's five competitive forces model and the digital business strategy model to complement empirical findings	Indiatsy et al. (2014)	Chapter Eight pp 138-144

Area of Study Applied	Stage	Activity	Application in some Information Systems Studies	Section of Thesis applied
	Action	Provision of recommendations and proposals for other digital businesses to develop strategic actions to remain competitive and survive in the digital economy	Mingers (2004)	Chapter Ten pp199-203
Data Analysis method used for Research Question Three				
General Qualitative Analysis mainly guided by the conceptual digital business strategy framework	Data collection	Transcription of recorded interview sessions	Yeow et al. (2018)	Chapter Nine pp151-161
	Data reduction	Summarization of transcribed data to improve relevance in responses and eliminate participant biases.	Henfridsson and Bygstad (2013)	Chapter Six Pp107-110
		Development of a descriptive coding scheme based on theoretical constructs and categorization of coded data to find out existing relationships and differences.	Boateng (2016b)	Chapter Six Pp107-110
	Data display	Explanation of data with graphical displays.	Boateng (2016b)	Chapters Nine pp 160-163
	Conclusion drawing	A qualitative discussion that explains the findings.	Henfridsson et al. (2014)	Chapter Nine pp 161-171
Critical Realist analysis to unravel the evolution of the digital business strategy of the digital enterprise	Phenomenon description	Exploratory interviews to identify the evolution of the digital business strategy of the digital enterprise. Delineation of the boundary of the phenomenon identified. Identification of structures and mechanisms that influenced the evolution	Henfridsson and Bygstad (2013)	Chapter Two pp 22 Chapter Five pp 61-68 Chapter Nine pp 148-159
	Retroductive analysis	Boundary revision of digital business strategy to focus on the three stages of growth of the digital enterprise	Andoh-Baidoo et al. (2012)	Chapter Nine pp 151-157
		Different levels of abstraction to draw out themes on participants' views on digital business strategy of the firm	Henfridsson and Bygstad (2013)	Chapter Nine pp 163-166
	Assessment and Elimination	Development of relationships between observed issues of digital business strategy by trailing their order of generation through the various stages of growth.	Henfridsson and Bygstad (2013)	Chapter Nine pp 161-167

Area of Study Applied	Stage	Activity	Application in some Information Systems Studies	Section of Thesis applied
		Application of the digital business strategy framework to complement empirical findings	Yeow et al. (2018)	Chapter Nine pp 161-171
	Action	Provision of recommendations and proposals for other digital businesses to develop strategic actions to remain competitive and survive in the digital economy	Mingers (2004)	Chapter Nine pp 199-203

(Source: Author's construct)

6.8 Ethical Considerations of Study

For the primary sources of data, permission was sought from each selected institution prior to engagement with potential participants. Potential participants were informed of the essence of the research as a way of appealing to their good intentions. Willingness to participate was at the discretion of participants. No coercive measures were used on participants. For respondents, the anonymity of identity concerning provided information was assured. Periods that were convenient to participants followed to ensure unbiased responses and a relaxed atmosphere during interview sessions. Data collected were presented and analysed objectively in line with the principles of critical realism research. Findings were impartially reported.

Furthermore, all studies that provided insight, clarification and support for this study have been duly cited in accordance with the regulations of the University of Ghana. The aim is to adhere to standards that will ensure quality research conduct and outcomes.

In addition, the case-study approach which was chosen as the suitable approach for Research Questions Two and Three provided a distinct advantage in situations when 'how' or 'why' questions are asked about a contemporary set of events over which the investigator has little or no control (Yin, 2003). As indicated earlier, case studies typically allow for the combination of collection methods such as interviews, questionnaires and observations (Creswell, 2014). Finally, case-study research is used to tackle areas that are still in the understanding, discovery and description stage and is a recommended way to research an emerging area (Creswell, 2014; Yin, 2003). These reasons informed the decision to select the two digital enterprises (Amigo and Digix) to be used as cases for the study. Amigo is a multi-national digital enterprise, whereas Digix is a locally owned digital enterprise. The choice of these two digital enterprises with different backgrounds was premised on the research objectives of the study. The second

research objective was to determine the nature of the digital strategic actions which underpin the business models of digital enterprises in a developing economy. The multinational digital enterprise was selected in this regard. The locally owned digital enterprise was, however, selected as the case for the third research objective. This warranted a review of how its strategy has evolved as it strives to survive in the digital economy.

6.9 Summary

This chapter provided detailed information concerning the research method used to answer the research questions posed at the beginning of the study by taking into consideration the research paradigm, research method, sampling techniques, data collection and analysis methods of this study. The critical realism was selected out of the other dominant paradigms discussed in the chapter. The dogma, principles, standards and techniques of the critical realist fit well with the research methods and techniques adopted for this study.

The next chapter presents the analysis and discussion of findings concerning the modelling of the digital economy of Ghana. This is in response to the first research objective.

CHAPTER SEVEN

BUSINESS MODELS OF DIGITAL ENTERPRISES IN GHANA

7.1 Chapter Overview

The previous chapter presented a discussion of the methodology for this thesis. The various research approaches adopted for this thesis were discussed with justification. The critical realism paradigm was selected as the guiding lens for this study.

This chapter responds to the first research objective of this thesis, which is;

To determine the business models of digital enterprises in a developing economy.

The underpinning question of this chapter is, "What are the Business Models of Digital enterprises in Ghana and what factors make them survive?" This question is in response to the gaps identified in the review of the extant literature on digital business strategy. In this regard, research that maps out the business models of digital enterprises in Ghana will be opportune and a good step toward modelling the digital economy of Ghana, by identifying the dominant business strategies and models in a developing economy context. Ghana has been selected to be the site for this research because of the presence of digital enterprises and also the traces of relatively scarce resources as exhibited by other developing countries (Boateng et al., 2017; Effah, 2012).

7.2 Analysis and Discussion of the Business Models of Digital Enterprises

The statistical analysis of the survey data is presented in this section. The enterprises' revenue models/ streams served as a guide in categorizing their business models – an analytical schema adopted by Weill et al. (2005). It was conjectured that many companies would have more than one business model; hence such models were classified separately for each revenue stream the

company reported. Nonetheless, it is worthy to note that a company with multiple revenue streams, did not necessarily have multiple business models. Besides, like the study of Remane et al. (2016), an established coding scheme from Weill et al. (2005) was used to categorize the business models of the enterprises identified for the study. A total of 91 digital enterprises were identified and reviewed for the study. Refer to section 6.4.2 for the distribution of the digital enterprises used for the study.

7.2.1 Dominant Features of Digital Enterprises in Ghana

The 91 digital enterprises sampled for the study were initially profiled according to their country of origin, mode of operation, year of establishment, primary ownership type, founders and number of employees. It was discovered that most of the digital enterprises have their roots in Ghana (91.2%). They primarily belong to the natives of Ghana. 3.3 percent originated from the United States of America, while others originated from the United Kingdom (2.2%), Nigeria (2.2%) and South Africa (1.1%).

The proliferation of foreign digital enterprises in Ghana can be attributed to the various trade agreements the Government of Ghana has signed with economic communities, which provide a business-friendly environment for international businesses to operate. Some of such agreements have been made with the Economic Community of West African States (ECOWAS), the Economic Partnership Agreement (EPA) with the European Union and the African Growth and Opportunity Act (AGOA) with the United States of America (Hulse, 2018).

Also, most digital enterprises were established in 2015 (22%). This is closely followed by those established in 2016 (20.9%), with the oldest enterprises being established in the year 2000

(2.2%). The distribution in the establishment of the enterprises can be ascribed to the nascent nature of information technology in the developing economy, in terms of adoption and integration (see Figure 7.1).

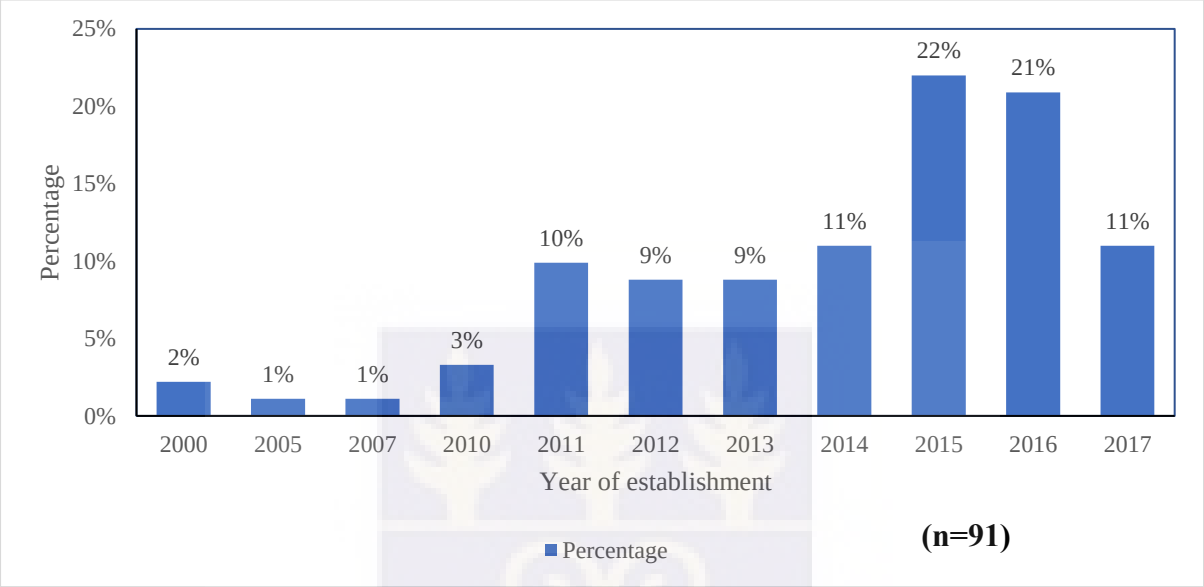


Figure 7.1: Distribution of digital enterprises according to the year of establishment

The study further delineates the ownership types of digital enterprises sampled. It emerged that majority of the digital enterprises are partnerships (39.6%), followed by sole proprietorship (38.5%), private limited liability companies (19.8%) and lastly public limited liability companies (2.2%). Again, concerning the number of founders, the analysis of the data indicated that most of the enterprises had two to four individuals (61.5%) as their founders. Those with individual founders (38.5%) followed this. This phenomenon is not different from the globally influential digital enterprises like Facebook, Google, Amazon, Spotify, Airbnb, Uber – who started as digital ventures from garages, dormitories or on dining room tables by a student, entrepreneur or a small group of people (Zaheer et al., 2018).

Next, the number of employees in these enterprises were assessed, as shown in Table 7.1. It was discovered that most digital enterprises (86.8%) had less than ten employees. Whereas 12.1 percent employed 10 to 20 workers and 1.1 percent engaged 21 to 50 workers, whereas none of the enterprises assessed had more than 50 employees. In a study conducted by Zaheer et al. (2018), it was discovered that "lean start-up" was one of the determining strategies for the survival of digital enterprises. Fewer employees help to improve the efficiency of operations of new firms. On the other hand, governments are encouraged to provide the needed support to these digital enterprises to enable them to expand their capacities to employ more people.

Table 7.1: Employee distribution in Digital enterprises

Number of Employees	**Frequency**	**Percentage (%)**
Less than 10 employees	79	86.8
10-20 employees	11	12.1
21-50 employees	1	1.1
Above 50 employees	0	0
Total	**91**	**100**

(Source: Author's construct)

The primary business activities of the digital enterprises sampled for the study were subsequently analysed. In assessing the industry or primary activity, most of the digital enterprises (26.4%) were found to be in electronic commerce, digital marketing and advertising industry. This was followed by those in the administration, professional and technical services sector (16.5%), as well as the arts, entertainment and recreation industry and the health, hospitality and food services industry (both representing 12.1%). Enterprises in the educational services and software and cloud solutions industry constituted 8.8 percent each. Enterprises in the finance and insurance industry constituted 6.6 percent and 3.3 percent operated in the agriculture, forestry and fishing industry. Precisely 5.5 percent belonged to other sectors. The dominance of enterprises in the e-commerce, digital marketing and advertising industry can be

attributed to the support from the digital ecosystem. These allow businesses to benefit from an array of components, including the Internet, networks, people, things, machines and computers, all of which are used for carrying out sophisticated operations such as advanced data analytics and marketing (Lätti, 2016). Figure 7.2 provides an elaboration on the industry distribution of the digital businesses in Ghana.

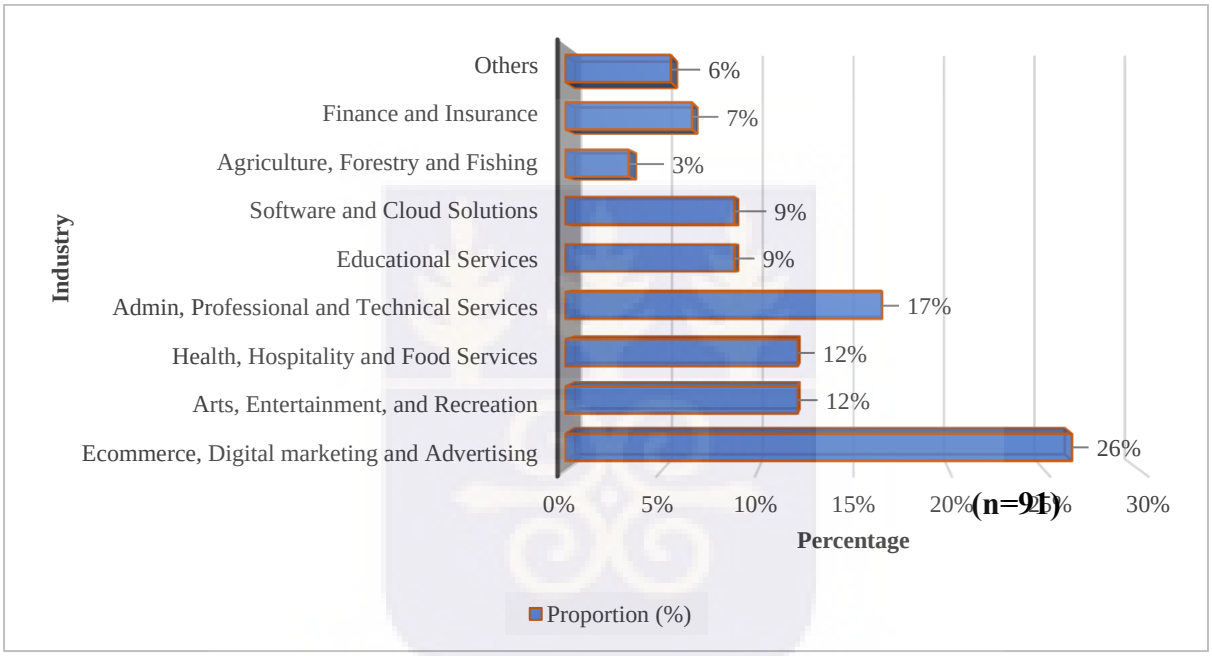


Figure 7.2: Industry of Digital Businesses in Ghana

(Source: Author's construct)

More so, the majority of the enterprises (76.9 %) indicated that they have never participated in any accelerator or incubator programs. This is contrary to the 23.1 percent who had previously participated in accelerator or incubator programs. This smaller number may be due to the fewer number of incubator and accelerator programs available, especially in developing economies. The immense role of these programs for digital enterprises cannot be overemphasized. Their influence results in start-ups gaining access to new knowledge, expertise, networks and cost-effective access to cutting-edge research (Barrow, 2001).

The above discussions point to finding one which is;

Finding one: *In developing economies, indigenous digital enterprises tend to create jobs and provide business solutions locally that would hitherto be sought from developed economies. They thereby have the potential to plough back value into the developing economy, which could have been lost to other developed economies.*

7.2.2 Digital Business Models of Ghanaian Digital Enterprises

As stated previously (see section 2.5), the study adopted the business model typology, which was proposed and used by Weill et al. (2005) to classify the top 1000 enterprises in the US economy. The digital enterprises were classified based on two dimensions – Assets involved, and Rights being sold. Table 7.2 presents a cross-tabulation that highlights the 16 business model classifications. A cross-tabulation analysis was also done per the two dimensions (rights sold, and assets involved), to map out the digital enterprises in Ghana based on their business models.

Table 7.2: Cross-Tabulation of the 16 Components Business Model

Basic Business Model Archetype		What type of asset is involved?				Total Asset by Right
		Financial	***Physical***	***Intangible***	***Human***	
What rights are sold?	***Creator*** (ownership of an asset with significant transformation)	Entrepreneur (**12.5%;** 5)	Manufacturer (**37.5%**;15)	Inventor (**50.0%**;20)	Human* Creator (**0.0%**;0)	(**31.0%**; 40)
	Distributor (ownership of an asset with limited transformation)	Financial Trader (**16.2%**;6)	Wholesaler/ Retailer (**48.6%**;18)	IP Trader (**35.1%;**13)	Human* Distributor (**0.0%**;0)	(**28.7%**; 37)
	Landlord (use of the asset)	Financial Landlord (**9.4%**;3)	Physical Landlord (**12.5%**;4)	Intellectual Landlord (**40.6%**;13)	Contractor (**37.5%;**12)	(**24.8%**; 32)
	Broker (matching of buyer and seller)	Financial Broker (**5%**;1)	Physical Broker (**25.0%**;5)	IP Broker (**30.0%**;6)	HR Broker (**40.0%**;8)	(**15.5%**; 20)
	Total by Asset Type	**(11.6%;**15)	(**28.7%**;37)	(**43.4%**;56)	(**16.3%**;21)	**100%**;

(Source: Author's construct)

Majority of the digital enterprises in Ghana sold creator rights representing 31percent, as shown in Table 7.2. Most of the enterprises utilized intangible assets such as brand image, intellectual property and goodwill. Examples of enterprises that utilized intangible assets include TinyDavid Limited and Vokacom Enterprise that are the developers of the digital addressing systems "Snoocode" and "AsaaseGPS." Also, other technological tools such as social media and cloud computing form part of the intangible assets employed by these enterprises to achieve their business objectives. The dominance of intangible assets possesses some logical consistency; given that it is peculiar to most enterprises operating purely online business models.

The enterprises, which operated using physical assets, were made up of 37.5 percent of the creator rights sellers and these assets include laptops, mobile devices, clothing and others. However, financial assets were found to be the least utilized by digital enterprises in this study. This is probably because these digital enterprises face significant challenges in gaining the needed acceptance and trust in a developing economy context such as Ghana. Fido Money Lending Limited (2018) is one of the few licensed financial institutions in Ghana. It is an online enterprise that offers fast and short-term loans using a mobile app. Nonetheless, none of the enterprises among the Creator right seller's category utilized human assets. This is because it is unlawful in Ghana to create a human in any form (this is added for logical reasons).

From the cross-tabulation above, distributors ranked second (28.7%) in terms of the rights being sold by the enterprises. Among the distributor enterprises, the majority use physical assets (48.6%). These technology-driven enterprises offer mainly e-commerce, retail and advertising services to their target customers. Saya, Zished, Ahonya and OMG Digital are prime examples of such digital enterprises in Ghana. But due to the digital nature of their

business operations, they also employ some intangible assets (35.1%). Again, the findings reveal low patronage for financial assets, and there were no distributors of humans involved for the same legal reason as that of creators of humans.

The third rights sold by digital enterprises is the Landlord. These enterprises sell the rights to use but not to own the assets for a specified period. Owing to the online nature of these enterprises, they tend to sell rights to more intangible assets as intellectual landlords (40.6%). These intellectual landlords offer online services on subscription bases. Rappa (2004) presents a similar business model, which he classified as the subscription model, where users are charged periodically; be it daily, monthly, or annual fees for using a service. Examples of such digital enterprises include Devless, SMSGH and Asoriba, among others. The findings also show that the human landlords (contractors) formed 37.5 percent of the enterprises that sold the rights to use assets. In this case, the assets are people who perform services for interested parties but are not owned or directly employed by the contracting firm. These enterprises outsource services such as cleaning, delivery, technical support services, among others. Examples of these enterprises include Farmerline, eCoach Solutions, Ansbyte Solutions and others, which employ few physical (12.5%) and financial (9.4%) assets.

The final and the least category among the business models are the Broker enterprises (15.5%). These enterprises do not sell assets or rights directly, but rather serve as matchmakers between buyers and sellers. Rust and Hall (2003) suggest that matchmakers might be "more appropriate for trading standardized commodities and assets for which the volume is sufficiently large to produce – 'thick' and 'active' markets." Tonaton, Jumia, OLX Ghana and SellGh are some popular examples of digital enterprises involved in matchmaking services. The human resource brokers in this category ranked highest (40%), and this is due to the increasing number of

recruitment and job-seeking services offered in the digital economy space. Examples of such digital enterprises include AfricanJober, Jobberman, Mo'Go, JobHouse Ghana, among others. The Internet protocol brokers representing 30 percent, who utilize intangible assets to match buyers and sellers online, follow these. The second finding made was that:

Finding two: *Among human, physical and intangible assets, financial assets are the least used assets in the operations of the digital enterprises. The online financial business sector is still in its nascent stages in most developing economies.*

7.3 Critical Enablers of Digital Enterprises in Ghana

This section discusses the critical survival factors for digital enterprises in Ghana. The factors examined include economic factors, technological factors and social networking channels. These are elaborated in the ensuing sections.

7.3.1 Economic Factors that enable the Survival of Digital Enterprises

This section takes a closer look at the financial factors that facilitate the operations of emerging digital enterprises in Ghana. Hudson and Khazragui (2013), in their study, indicated that enterprises in the early stages of development encounter the financial gap, which limits their ability both to innovate and to commercialize their products. This phenomenon has been dubbed "The Valley of Death". Figure 7.3 displays the sources of funding or start-up capital for digital enterprises. It was revealed that the major source of funding for almost all the digital enterprises studied was from Own/Family/Friends sources (97.8%).

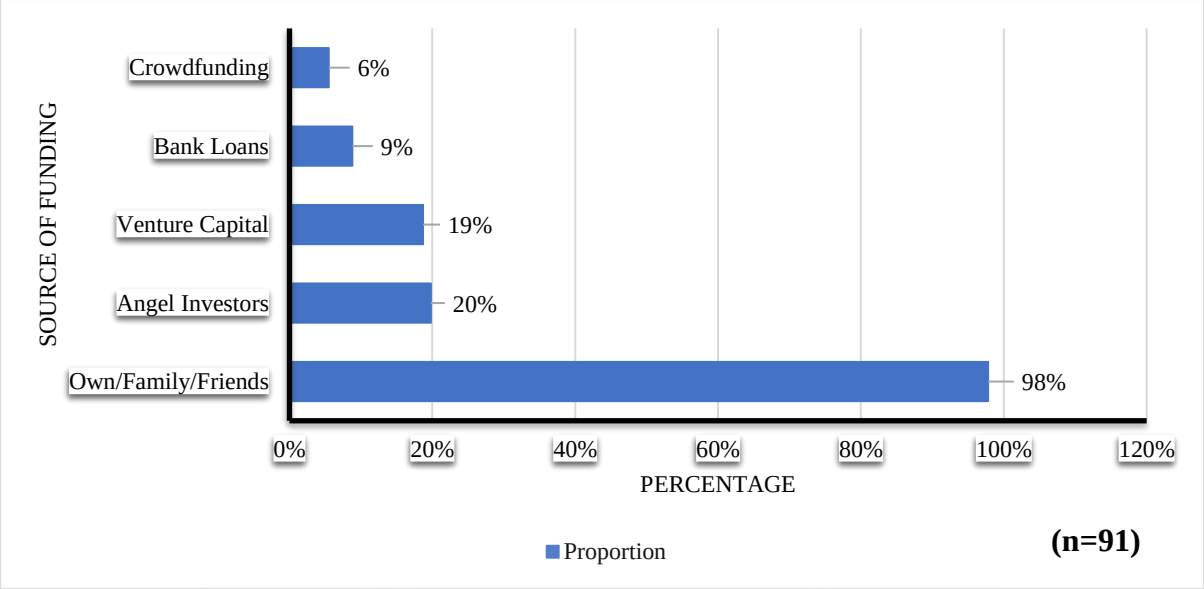


Figure 7.3: Digital Enterprises' Sources of Funding
(Source: Author's construct)

This finding is corroborated in the literature (e.g. Alden, 2011) where it is asserted that most new enterprises, especially digital enterprises, rely heavily on personal savings and support from family and or friends due to their limited debt capacity. Thus, digital enterprises are generally not able to repay the loans. This can be attributed to the uncertainties in the digital economy where the banks and investors find it very risky to offer support; considering the low survival rate where most new enterprises do not survive beyond 42 months after their establishment (Allen et al., 2007). The only available source of funding is personal savings and family and friends support.

Regarding equity, the key investors for digital enterprises are angel investors and venture capitalists. Angel investors are usually wealthy individuals who are willing to invest in small projects that fit with their intrinsic values and agenda and as such, only require a proven establishment in the market despite its limited history. Whereas Jozić (2011) posited that venture capital funds are mostly focused on high-risk projects with a potentially high return on investments, the angel investors seek to support young, creative and innovative people who

want to start a business. Studies portray venture capitalists as valuable contributors in both filling the financial gap and providing value-added services like financial, technological, managerial support and networks (Bertoni, Colombo, & Grilli, 2011). The findings of the study reveal that few digital enterprises benefit from equity financing (19.8% for Angel Investors and 18.7% for Venture capitalists).

Bank loans are probably one of the oldest formal sources of financial support for many entrepreneurs, especially in developing economies. However, Åstebro and Bernhardt (2003) have opined that the correlation between bank loan and sustainability is negative. The findings from the study show that digital enterprises in Ghana do not depend on bank loans except for 8.8 percent. Calopa, Horvat and Lalic (2014) asserted that most digital enterprises seek to avoid bank loans as they are usually related to complex procedures and are given based on the firm's credit history and property which most digital enterprises lack.

In recent times, crowdfunding has become an alternative source of funding for digital enterprises, especially those who lack access to traditional sources of financing. According to Ordanini (2009), the concept of crowdfunding is a collective effort of various individuals, who come together to 'pool' funds, to support new potential projects, organizations and businesses. However, crowdfunding thrives on some level of trust and confidence in the vision of the project up for support. For this reason, the findings suggest crowdfunding as the least source of funding for digital enterprises in Ghana. For crowdfunding to be a viable alternative to traditional sources of funding, there needs to be a trustworthy online community (Belleflamme, Lambert, & Schwienbacher, 2010). This is, however, not so for the Ghanaian online community, hence the low record for crowdfunding.

7.3.2 Technological Factors that enable the Survival of Digital Enterprises

The potential of the digital economy has been expanded substantially by new-generation technologies that are opening the doors for the rapid growth of digital enterprises globally. This study focused on three core technologies that are enhancing the growth of many online enterprises, namely: social networks, cloud computing and big data analytics. Figure 7.4 shows the cumulative results of digital enterprises concerning the dominant technologies they employ in their business operations. These technologies are instrumental in the actions of the digital enterprises.

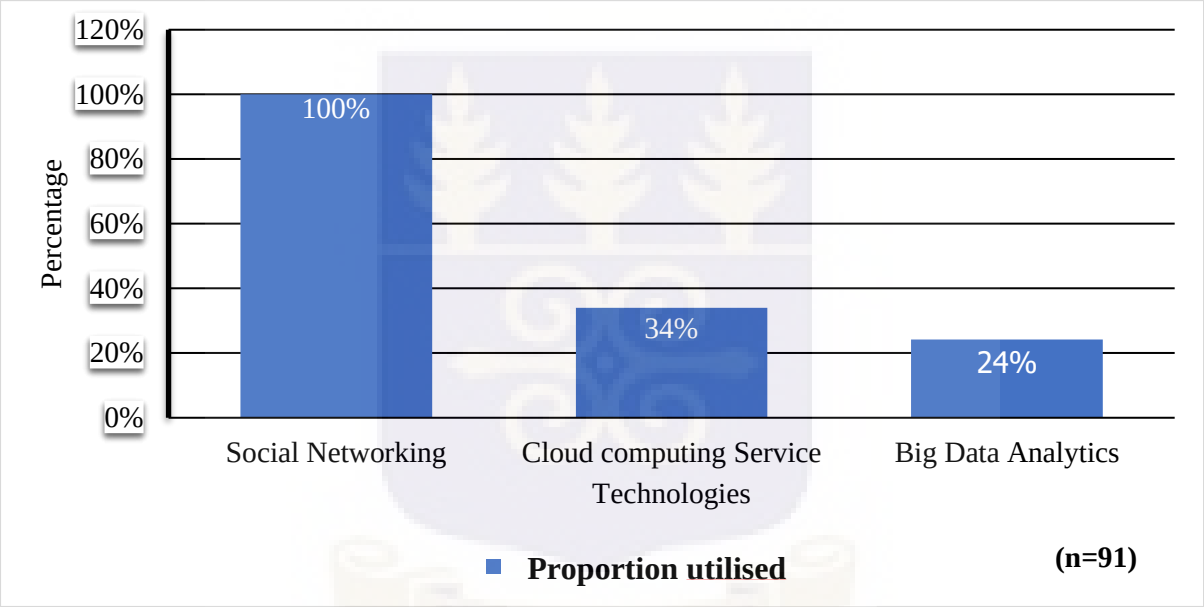


Figure 7.4: Technologies Utilized by Digital enterprises in Ghana
(Source: Author's construct)

The results show that all the digital enterprises studied are leveraging on social networking channels as an enabling platform for creating value and engaging with their customers. Again, 34 percent of the enterprises utilize cloud computing services, while 24.2 percent of them are using big data analytics to spiral growth in their operations. The findings indicate that social networking is the leading technological enabler (100%) for digital enterprises in Ghana. In congruence with the results, Lewis, Gonzalez and Kaufman (2012) posited that the development of social networking is perhaps one of the most significant events in recent years,

as it represents a new means of communication, interaction and organization in contemporary societies. Understanding the role of social networking is critical due to advances in Web 2.0 that have promoted more significant interaction between people and organizations (Pacheco, Kuhn, & Grant, 2010). Nascimento and Da-Silveira (2016), in a social media mapping study, found that social media is utilized in content creation for service and innovation improvement by businesses. Some social networking sites used by these enterprises include Facebook, Twitter, LinkedIn, Instagram and Google+ (see Figure 7.5).

Cloud Computing, according to Yamin (2013), presents the opportunity for new businesses with very little capital to have access to data storage, software, infrastructure, and services. Other studies found that cloud computing, although slow in adoption will significantly change the landscape of the affordability of computing power and infrastructure of the third world nations (Abubakar, Bass, & Allison, 2014). There is a gradual widespread adoption of cloud services by digital enterprises in developing economies because it provides scalable and flexible infrastructure and software for businesses at competitive prices (Allan, 2012). It was expected that some digital enterprises in Ghana (34%) would be utilizing cloud computing services. Nonetheless, the rate of utilization is not as much as social networking (100%), perhaps due to data integrity, confidentiality and security issues.

Finally, within the innovation landscape, big data analytics technologies have been recognized as the "next big thing for innovation" (i.e., a potential source of business value and competitive advantage). The findings show that big data analytics was the least (24.2%) used technological innovation among digital enterprises in Ghana. The adoption of Big Data technologies is not that widespread in developing economies perhaps because of the limited expertise in data mining (including other related skills) and the absence of efficient computational algorithms

for handling the volume, variety and velocity of data. This finding corroborates a study by Villars, Olofson and Eastwood (2011) who discovered that enterprises are unable to run proper analysis on data without high computing power since the process tends to be slow and laborious. In the long-term, it is hoped that the digital enterprises in Ghana will identify the opportunities presented by Big Data technologies and leverage them for sustainable competitive advantage, just like social networking.

7.3.3 Social Networking Channels that enable the Survival of Digital Enterprises

With the proliferation of social networking sites, digital enterprises and small companies have improved collaboration within their operations (Krell, 2011), as well as customer engagement. With regards to the outcome of the analysis, social media platforms used by digital enterprises in Ghana, as shown in Figure 7.5, indicates that the dominant social networking platform used is Facebook (1st), followed by Twitter (2nd), LinkedIn (3rd) and was Instagram (4th).

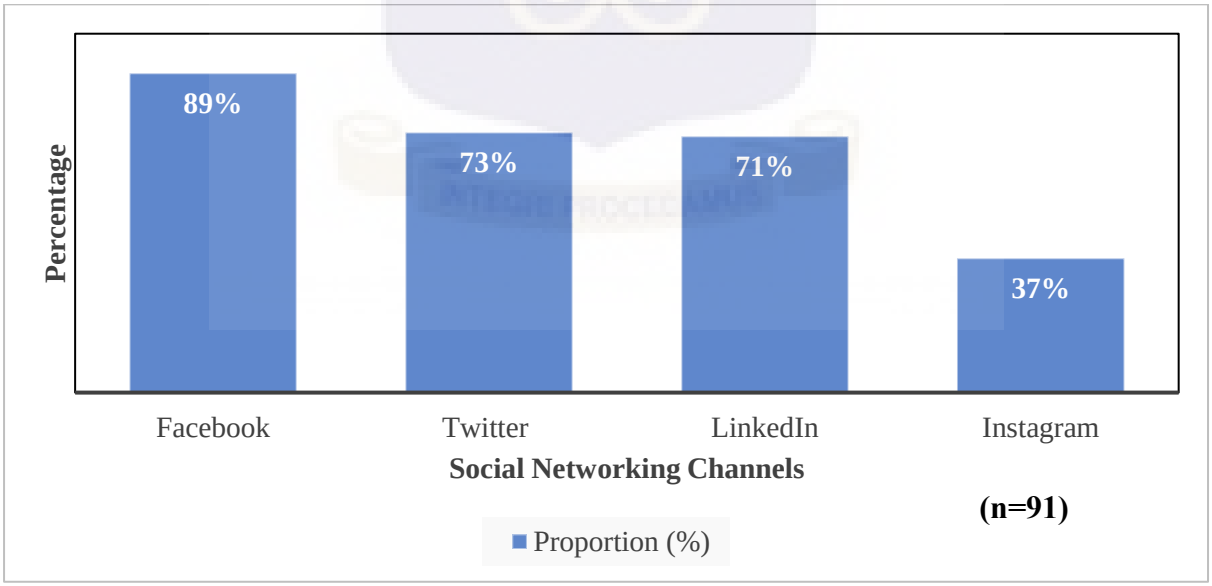


Figure 7.5: Social Networking Channels Enabling Digital enterprises in Ghana
(Source: Author's construct)

The finding indicates that the nature of social commerce activities undertaken by the digital enterprises in Ghana hinges on the use of Facebook and Twitter predominantly. Even though LinkedIn is highly used by management and employees to create and promote professional networks, Facebook dominates their business operations. These digital enterprises consider social media platforms to be effective means through which their products could be marketed, and services rendered. The finding is in line with a study by Needleman (2010) which found out that Facebook has a primary potential of being the most popular social networking site, as more companies were deploying it in their marketing and business strategies. It also confirms the findings of Zhao et al. (2013), who argued that the emergence of social networking sites had changed the focus of doing business in most developing economies. Finding three is made;

Finding three*: In developing economies, digital enterprises tend to leverage accessible and low-cost social networking services as part of their operations and use them as an avenue to engage with their target customers.*

7.4 Summary

This chapter sought to map out digital enterprises in Ghana based on their business models and to explore some economic and technological enablers that facilitate their growth and development. This was in response to the first research objective of this thesis.

The study contributes to knowledge by providing a mapping review of the digital business models of Ghanaian digital enterprises. This knowledge is arguably the first of its kind in the context of a developing economy. It provides a stepping-stone for future studies to explore other areas in the digital economy, especially in developing economy contexts.

Also, the study draws the attention of current and hopeful entrepreneurs to the fierce competition in the digital economy, as well as the opportunities available. It provides awareness to entrepreneurs who wish to venture into the digital ecosystem of Ghana, on the economic, financial and technological factors that enable the survival of digital enterprises in the digital economy. Besides, it provides potential investors in the digital economy with information on the dominance of online matchmakers and application developers, as well as the paucity of online financial service providers in this developing economy.

Nonetheless, in terms of policy, the Government needs to realize that there is an increasing rise in digital enterprises in developing economies. These enterprises are creating jobs and providing business solutions locally that would hitherto be sought from more developed economies. There is a need for some legal frameworks to be established to cushion these enterprises from the fierce competition that stagnates their growth. Furthermore, infrastructure and financial support should be given to these enterprises to enable them to develop and employ more people. Finally, more accelerator and incubator programs should be set up to provide exposure for the innovative ideas of these enterprises and enable them to attract funding from alternative sources.

CHAPTER EIGHT

SURVIVAL STRATEGIES OF DIGITAL ENTERPRISES IN THE DIGITAL ECONOMY OF GHANA

8.1 Chapter Overview

The analysis and discussion of findings related to the modelling of the digital economy of Ghana were presented in the previous chapter. This was in response to mapping out the digital enterprises in Ghana.

The focus of this chapter is on responding to the research objective two which is;

> *To determine the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy.*

This objective is in response to the gaps identified in the extant literature review on digital business strategy (see section 1.2). The previous chapter presented the business models of digital enterprises operating in Ghana's digital economy. This chapter goes further to explore the nature of competition and the survival strategies of the digital enterprises by expounding their digital strategic actions (governance, coordination, competence and flexibility) in dealing with the market forces in the digital economy. This exposition contributes to the literature on digital business strategy of digital enterprises from a developing economy perspective. Again, the findings of the chapter contribute to informing business managers and policymakers on the nature of digital business strategic actions to undertake to deal with the competitive forces.

8.2 Profile of the Case for the Study – Amigo Ghana Limited

Amigo is an online shopping destination where customers browse and shop for an assortment of products – computers, laptop, tablets, mobile devices, among others. These items are delivered at the doorstep of the buyer. Amigo's value proposition is to provide customers with

the broadest selection of new and branded products at best prices combined with the ease of not having to visit a shop physically. Amigo's vision is to become the "Amazon of Africa." The product range is already quite impressive with over 10,000 stock-keeping units (SKU) online since their launch in Ghana on August 2014, and it covers categories such as phones, computing, appliances, fashion and many more. However, it is still a long way to go compared to its Nigerian counterpart, which has roughly over 140,000 SKU's or its US idol Amazon (4.1 billion SKUs live).

Amigo has been a registered company in Ghana since August 2014. The firm operates officially under the name "Amigo Ghana." It belongs to a group which is a holding of eight different online start-ups all operating in Africa. Even though these start-ups belong to the same group, they are distinct and autonomous acting entities. Amigo offers free return and refund within seven days after purchase. It also has various payment options such as cash-on-delivery, mobile money or bank transfer. Table 8.1 outlines Amigo's business model reviewed using Weil et al.'s (2005) 16 business model archetypes.

Table 8.1: Review of Amigo's digital business model

Basic Business Model Archetype		What type of asset is involved?			
		Financial	***Physical***	***Intangible***	***Human***
What rights are being sold?	***Creator*** (ownership of an asset with significant transformation)	Entrepreneur	Manufacturer	Inventor	Human* Creator
	Distributor (ownership of an asset with limited transformation)	Financial Trader	Wholesaler/ Retailer	IP Trader	Human* Distributor
	Landlord (use of the asset)	Financial Landlord	Physical Landlord	Intellectual Landlord	Contractor
	Broker (matching of buyer and seller)	Financial Broker	Physical Broker	IP Broker	HR Broker

Legend: = Does not apply to Amigo

Activities in the shaded portions in Figure 8.1 do not apply to the business activities of the case firm. From Figure 8.1, Amigo has a mixed business model of online retail and online marketplace. Amigo directly sells some of its products from manufacturers and suppliers. In this case, Amigo acts as a retailer as the company resells the products. However, since Amigo's goal is to offer a great variety of products, it allows suppliers/brand distributors to sell their products via the Amigo platform. This constitutes the marketplace section of the business model. For each sale going through Amigo online marketplace, it receives a commission of between 6 – 15percent. It is imperative to note that this is by no means visible to customers. Customers do not know whether the product comes directly from Amigo retail or the marketplace. This is a smart strategy as the Operations officers indicated;

This is a smart strategy as the combination of the two business models allow us to offer a vast product range. This adds value to customers since the variety for them is much bigger than in a physical shop.

It must also be noted that products sold through the retail section are physically stocked in Amigo's warehouse under a consignment agreement with the suppliers. The consignment enables Amigo to pay the supplier only when a customer buys the product. In case the product is not sold, Amigo returns the product to the supplier.

On the other hand, products sold at the marketplace are not physically stocked in Amigo's warehouse but remain at the supplier's warehouse. Once an order is placed, the product will be picked up by the delivery fleet. Amigo operates in a very agile and dynamic environment where prices and product availability change daily. Employees are trained to be in constant contact

with vendors daily to update the website and the internal systems with new prices and product availability statuses. Customers are also notified continuously of all changes to their orders.

8.3 Evaluation of Amigo's Competitive Environment

Porter's Five forces model assumes that five important forces determine competitive power in a business situation, as discussed in Section 2.6. The competitive environment of Amigo is analysed based on these five forces. Figure 8.1 summarizes the major competitive forces that influence Amigo's survival. The objective here is to evaluate the nature of forces that shape the operations of Amigo. Knowledge of these competing forces will lead to identifying the various strategic actions (governance, coordination, competence and flexibility) which Amigo takes to survive in the digital economy of Ghana.

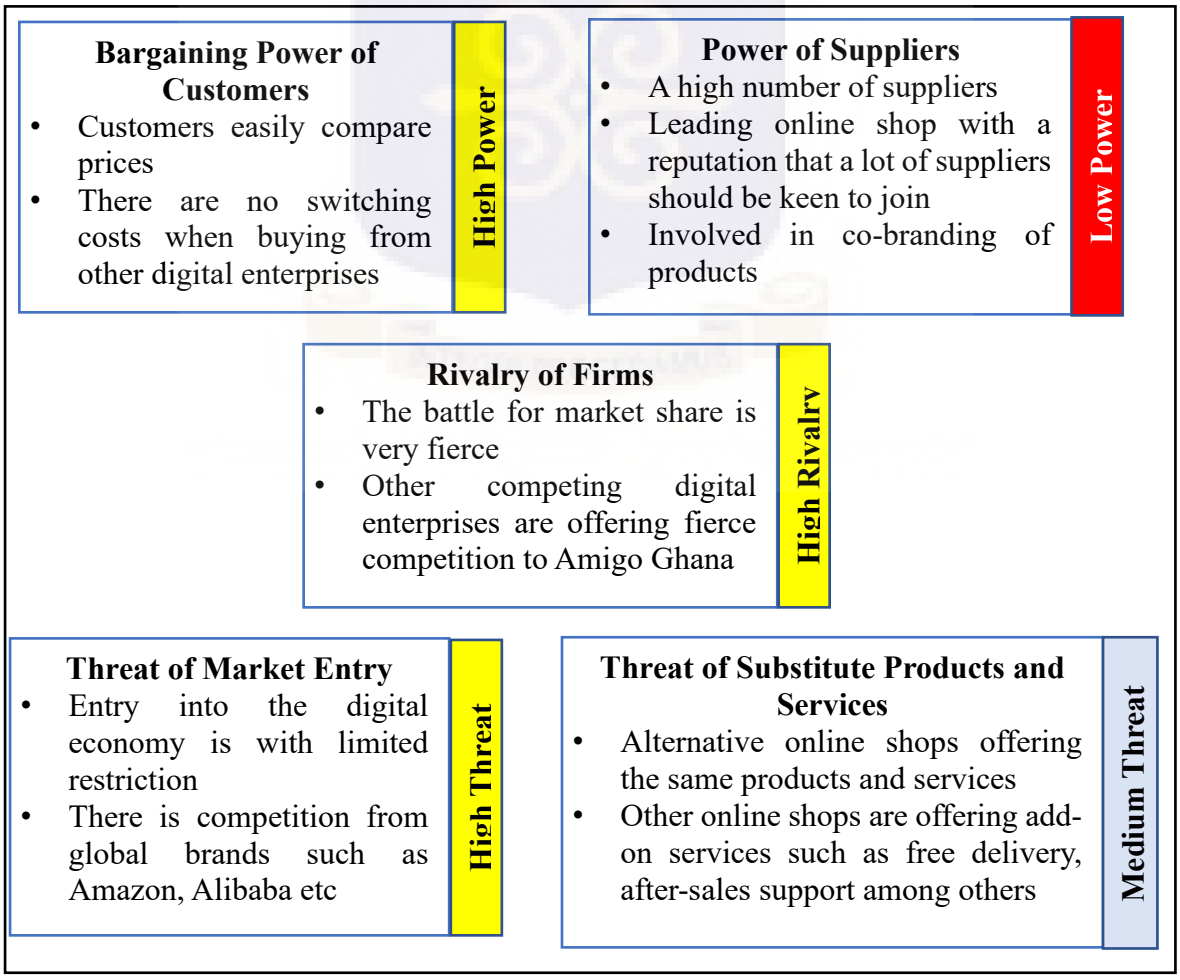


Figure 8.1: Analysis of the competitive environment of Amigo Ghana

8.3.1 Power of Suppliers

In general, the power of suppliers is high if the company works with a small number of suppliers. The fewer the alternatives a company must procure, the more dependent a company is from its suppliers. This gives the supplier a higher bargaining power which often results in unfavourable deals for the company (e.g. smaller margins). As Amigo procures its products from various sources (e.g. brands, distributors, physical shops, among others), the suppliers' bargaining power should be quite low. Besides, Amigo has the advantage of providing suppliers with a readily available market space for products and services. With already multiple thousand visitors on the website and mobile application per day, Amigo offers suppliers a lot of value. Amigo is also involved in a number of co-branding initiatives. An example of co-branding at Amigo was the launch of a smartphone model on its platform. This phone was exclusively available for purchase on Amigo which in turn offered visibility for the product through ads, newsletters and other platforms. As a result of these activities, it can be deduced that the bargaining power of suppliers is generally low.

8.3.2 Power of Customers

The power of customers is determined depending on how easy it is for buyers to drive prices down. Again, this is driven by the number of buyers, the significance of each buyer to the business, and the cost to the customer involved in switching from the products and services to competitors. It was observed that the customers of Amigo had higher bargaining power. This can be explained by the fact that customers could freely choose whether to buy from other online shopping options such as Tonaton, Zoobashop, Superprice among others or buy offline through brick and mortar businesses or street vendors. Also buying once at Amigo does not come along with any duty to buy from Amigo again. In other words, there are no switching

costs for Amigo customers. This assertion is corroborated by one of Amigo's IT managers who indicated that;

> *If the customers see a product cheaper at another place, they most likely will decide to purchase it instead of at Amigo.*

It can be concluded that there is a high customer bargaining power.

8.3.3 Competitive Rivalry

Generally, the level of competitive rivalry is determined by the number and capability of competitors. If a company has many competitors that can offer equally attractive products and services, the company is likely to have some power. In Ghana, direct competitors to Amigo are Tisu, Ahonya, Superprice, Zoobashop etc. as they also engage in online retailing of new and branded products. Amigo is therefore confronted with an intense rivalry. Note here that digital enterprises such as OLX, Kaymu or Tonaton were not considered to be direct rivals to Amigo. This is because these enterprises do not engage in direct retailing. They are preferably purely online marketplaces that allow sellers to directly advertise products with little or no intervention from these enterprises. It can be concluded that there is generally a high intensity of rivalry in the industry.

8.3.4 Threat of Substitute Products and Services

The threat of substitution is high if customers can easily find a different way of satisfying their needs. Customers might decide to buy non-branded or used products instead of buying new and branded products from Amigo. For these alternatives, Tonaton and Kaymu are actively growing online marketplaces offering similar products and services. This may speak for the high threat from substitutes. However, Amigo's provision of high-quality products at desirable

prices separates them enough from the substitutes. It can be concluded that the threat from substitutes for Amigo is medium.

8.3.5 Threat of New Entrants

The threat of new entrants depends on how much time and money are involved in entering the industry or market to compete effectively. Furthermore, the more barriers for entries (patients, legislation) exist, the lower is the chance of new entrants. Besides, the more companies already operating in the market, the lower is the threat of new market entrants. Considering the promising nature of budding Ghana's digital economy, a lot of foreign companies could be keen to enter later. One of such international firms which might be interested in joining the Ghanaian market is Amazon. It can be concluded that the threat of new entrants is also high.

8.4 Digital Business Strategy to Overcome Competition

In this study, it was argued that digital business strategy is a multidimensional concept comprising of coordination, flexibility, governance and competence (Bharadwaj et al., 2013). A digital business strategy must focus on these four dimensions, as discussed in Chapter Five. Based on this postulation, there was a review of the competitive environment of Amigo Ghana (a digital enterprise) - the case for this study. Guided by Porter's five competitive forces model, the intensities of the forces were also determined. A suggestive finding is made from the competitive industry environment of the digital enterprise;

Finding four: *There is a high intensity of rivalry between the digital enterprises in the Ghanaian digital economy. Accordingly, there is a high bargaining power of customers, a high threat from market entrants, low bargaining power of suppliers. The threat of substitute products and services was medium.*

The knowledge of the various competitive forces existing in the digital economy allows for probing further to identify the strategic actions undertaken by Amigo to remain competitive and survive. As indicated earlier, a digital business strategy has four major dimensions – governance, competence, flexibility and coordination. Based on these four dimensions, the survival strategies of the digital enterprise were reviewed. Figure 8.2 provides a summary of the digital business strategy of Amigo, which is followed by a discussion.

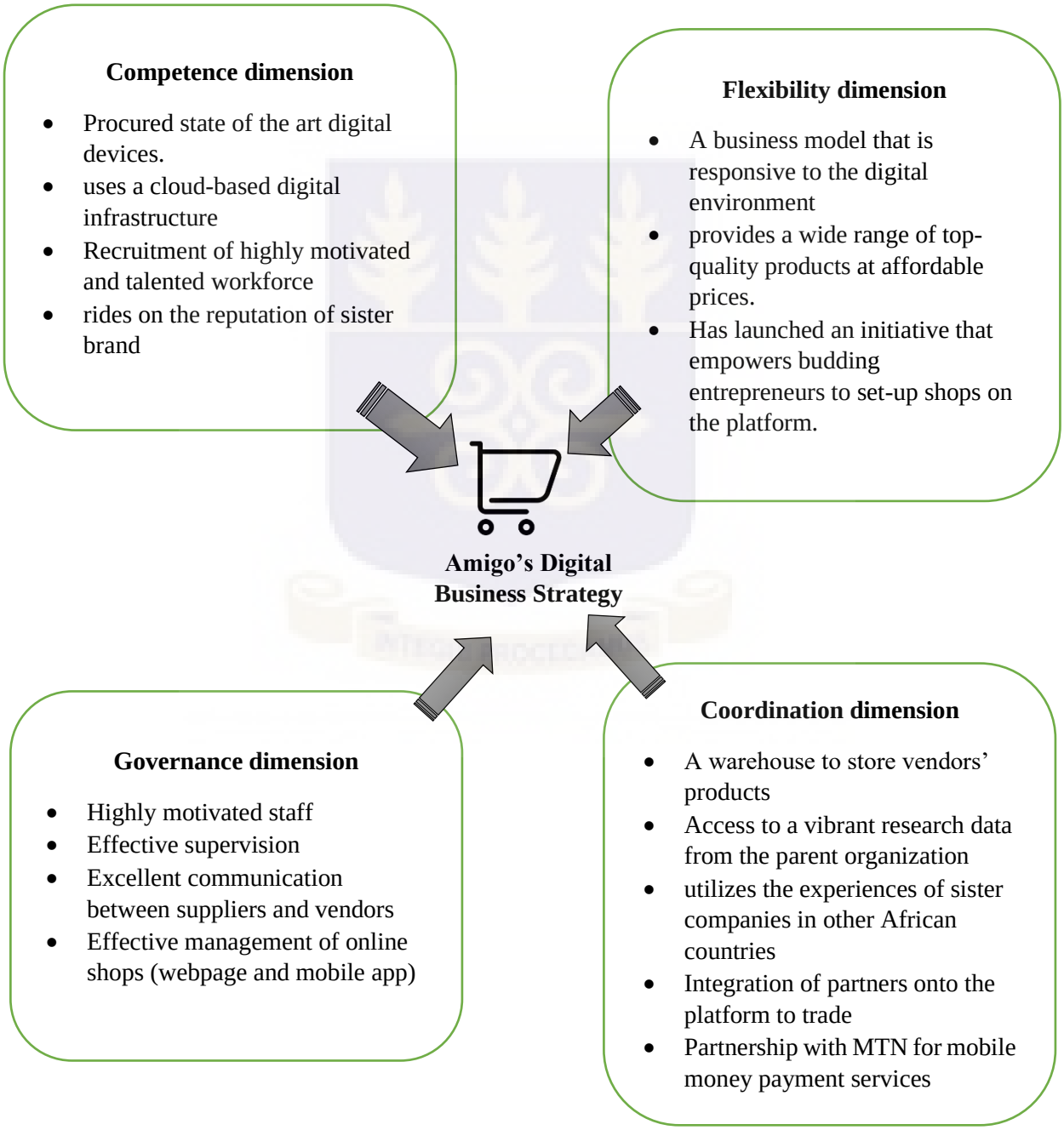


Figure 8.2: Amigo's dimensions of digital business strategy

8.4.1 Governance Dimension of Amigo's Digital Business Strategy

The focus of the governance dimension of digital business strategy is the ability of the digital enterprise to allocate resources to create and capture value efficiently. For instance, Aubert et al. (2017) studied and tested the factors that determine the completeness of contracts when outsourcing IT projects and it was discovered that the managers of firms must ensure there is a complete contract spelling out all instructions on the execution of outsourced IT projects.

Guided by the Agency theory, Amigo's strategy was analysed. Figure 8.3 presents the analysis of data concerning the governance dimension of digital business strategy.

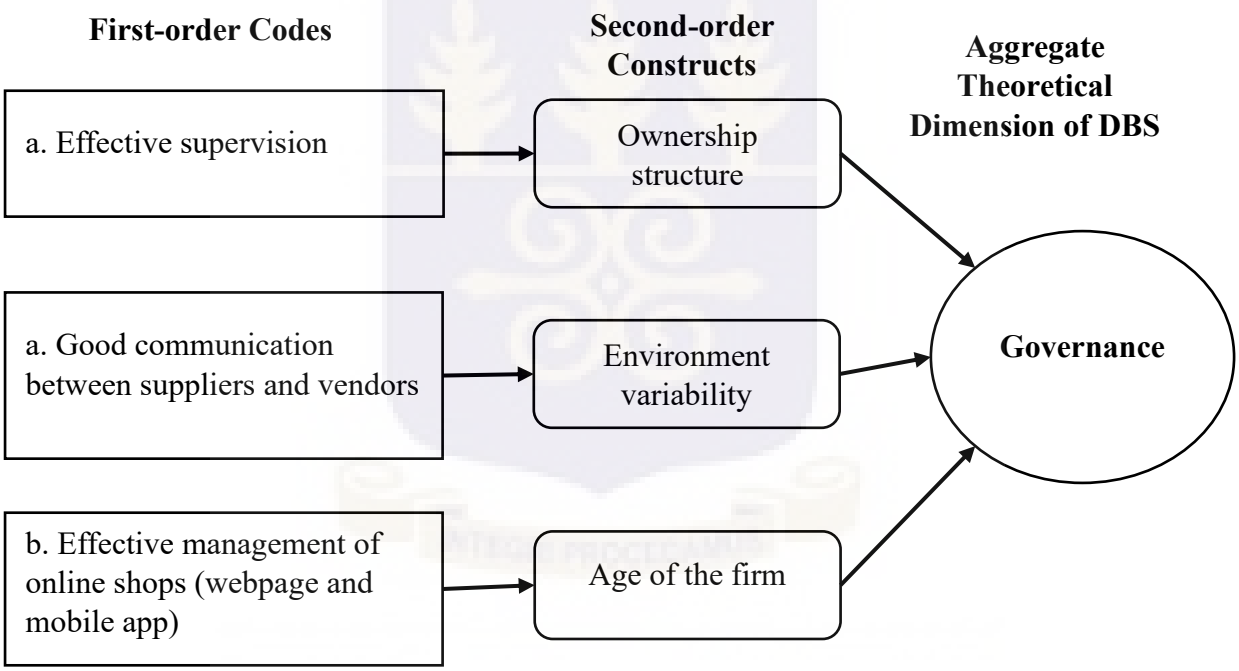


Figure 8.3: Analysis of the Governance Dimension of Amigo's digital business strategy

The analysis of data revealed that Amigo started operations in Ghana with three employees. This number of highly motivated staff has now increased to 80 young and entrepreneurial Ghanaians, including an 8-man strong customer service team who are available six days a week. The operations officer has a dashboard which provides a constant update of activities. In terms of governance, Amigo's staff are supervised continuously to provide up-to-date

information to their customers. The staff maintain excellent communication with suppliers (vendors as they are referred to by Amigo) as it is necessary for delivering up-to-date stock information to customers. If Amigo fails to do so, they may lose customers who primarily require per minute information concerning the status of their orders. This finding is corroborated by Pereira and Pereira (2011) who discovered that having more information shared between the agent who is the Management of Amigo and Principal – vendors and other parties – lead to a higher commitment which improves productivity.

Another governance issue worth noting is the management of the online shop (both webpage and mobile application). Besides content management – which concentrates on displaying products with beautiful pictures and a good description – Amigo ensures the online shop is easy to navigate. This discussion leads to a suggestive finding that;

Finding five**;** *multinational digital enterprises tend to depend on a governance strategy which is more encompassing and useful. This can be attributed to their prior operations in other digital economies which gives them an avenue to replicate their successful strategies in their new markets through effective governance of their resources.*

8.4.2 Coordination Dimension of Amigo's Digital Business Strategy

Coordination dimension of digital business strategy looks beyond the boundaries of the enterprise into the industry and how the firm can collaborate with competitors and other stakeholders to achieve profitability. Guided by the Structure-Conduct-Performance framework, it was discovered that Amigo was one of the only e-commerce enterprises in Ghana to physically store vendor products in its warehouse under the consignment business model. This allows for faster delivery and increases Amigo's control of operations. It was also

discovered that Amigo had access to robust and first-class information systems and rich research data on e-commerce in emerging markets via their parent organisation. The parent organisation of Amigo has commissioned market research projects on customer behaviour and trends in e-commerce in Africa, Asia and Latin America. Another survival strategy is Amigo's access to international vendors. Amigo can leverage its connections with other subsidiary e-commerce enterprises within Africa to market and introduce new vendors into its product line.

In terms of coordination, another issue is the simple three-step process for firms to register to become partners and trade on the Amigo platform. The first step which can be done within five minutes involves; filling a registration form; and submitting the required documents which include Business Registration and Bank Account details. The second step consists in becoming an e-commerce expert by completing a dedicated new seller training online. The third step also entails activating the seller centre account to manage the online shop by listing products to sell; uploading bestselling products; and selling.

In addition to direct bank transfers, Amigo has also entered into a partnership with MTN mobile money services which allows customers to make direct payments from their mobile money wallets for items purchased. These observations are similar to the findings of Mohammed et al. (2015) who asserted that developments in the digital economy such as the payment platforms are significant causes of structural changes in the market which businesses are entreated to capitalise on for growth. Figure 8.4 presents a summary of the analysis of data related to the coordination dimension of digital business strategy.

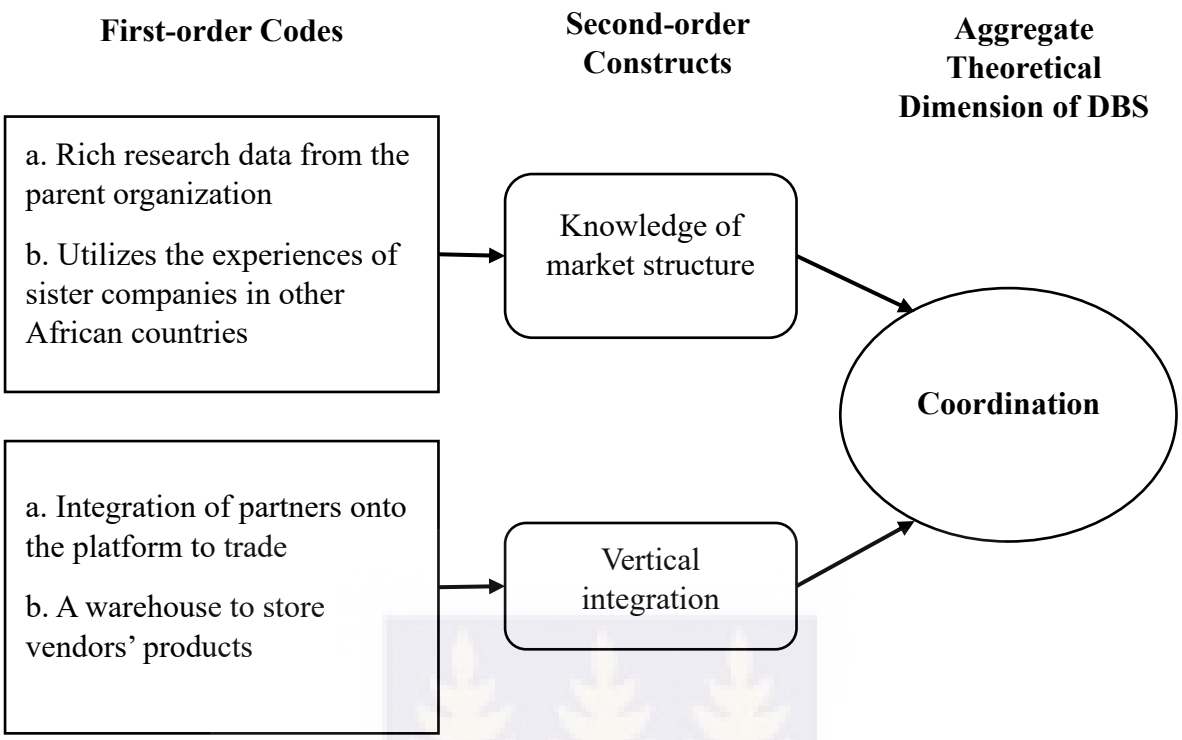


Figure 8.4: Analysis of the Coordination Dimension of Amigo's digital business strategy

8.4.3 Competence Dimension of Amigo's Digital Business Strategy

Competence dimension of digital business strategy focuses on the ability of the enterprise to exploit resources to create and capture value – the resources available to the firm and how they support in achieving competitive advantage. According to Barney (2001), a company's performance or success can largely be explained by how heterogeneous, and immobile its resources are. Resources can be distinguished into assets – anything tangible and intangible a company uses in its processes – and into capabilities – the repeatable patterns of actions to make use of assets (Nevo & Wade, 2010). The Resource-Based theory, which was used to review the competence dimension postulates that thriving companies manage to obtain a competitive advantage by holding valuable, rare, only imperfectly imitable and strategically non-substitutable assets and capabilities. Figure 8.5 presents a summary of the analysis of data related to the competence dimension of digital business strategy.

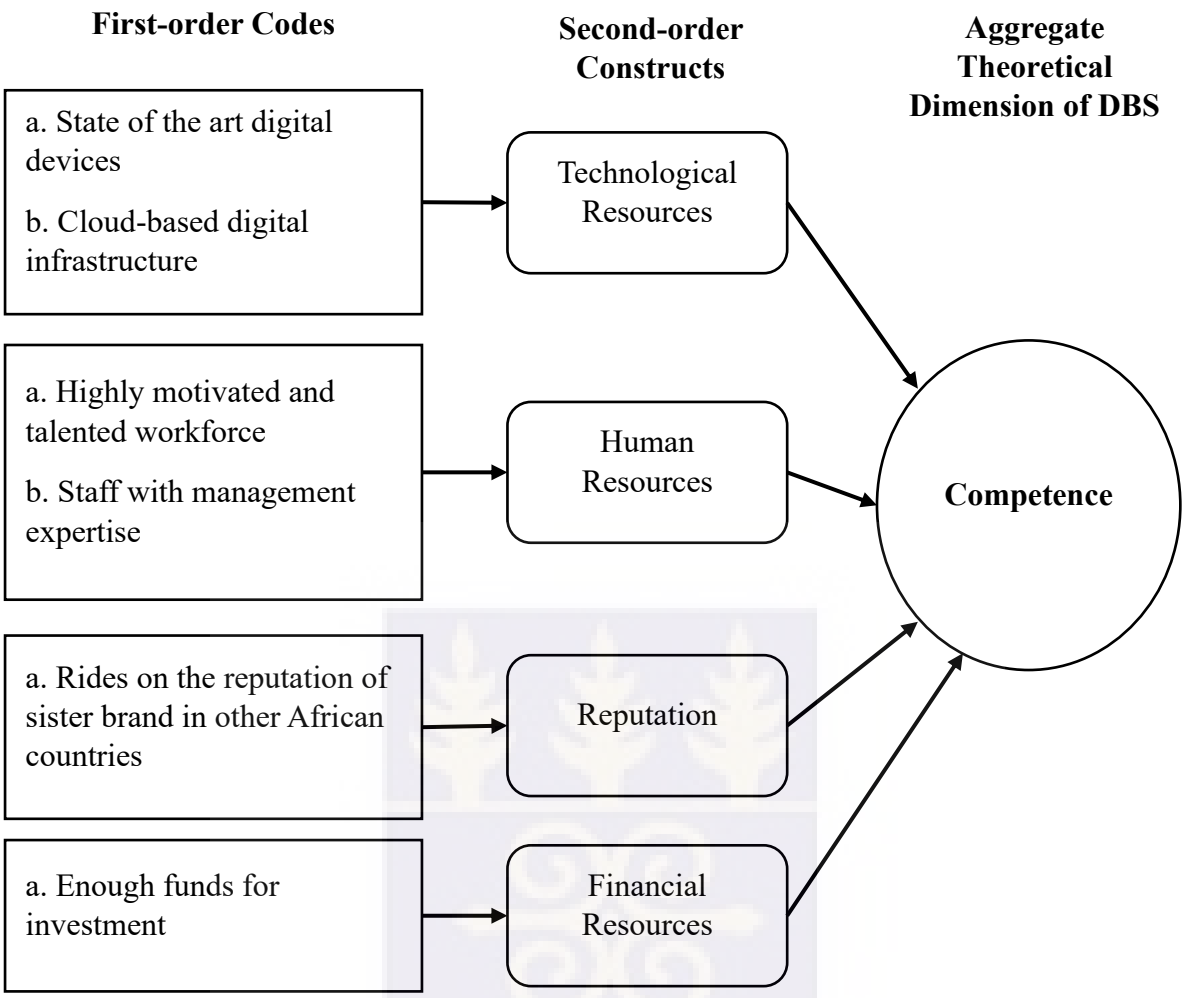


Figure 8.5: Analysis of the Competence Dimension of Amigo's digital business strategy

Amigo's assets are digital. A high number of electronic devices such as laptops, tablets, phones, among others are used to manage its online shop. The fax machines and printers are only randomly used as most of the communication is done online. Just as the devices are essential themselves, so also are the various software and information tools running on them. Most of these systems are cloud-based to facilitate usage from different physical locations. Amigo also has some physical assets such as warehouse, office space, delivery fleet, among others. Out of these, the probably most heterogeneous and valuable asset is the delivery fleet which enables Amigo to avoid the often unreliable and expensive logistical services offered on the market of the developing country. This finding is corroborated by Zhou et al. (2017), who assert that

incumbent digital enterprises must be willing to integrate their digital resources with more advanced information technologies to achieve profitability.

These technological and physical assets would indeed have been worthless without the workforce of Amigo. Amigo strives to recruit only the most motivated and talented workforce in the country. Something that gives Amigo an edge over its competitors, for instance, is the financial and organisational assets available to them. Amigo's counterpart in Nigeria was launched in 2012. Experiences from the Nigerian environment serve as lessons for the Ghanaian counterparts. This goes in line with Amigo's reputational asset, which is its brand. Reputation serves as an essential market signal for every firm (Wiles et al., 2010). Many Ghanaian customers might have already heard of the Nigerian brand. A suggestive finding from this discussion is thus made;

Finding six: *Even though there is an increasingly vital role of digital technologies in contemporary business operations, the strong connection between the actions taken concerning the resources of the firm and competitive advantage cannot be overemphasized.*

8.4.4 Flexibility Dimension of Amigo's Digital Business Strategy

In terms of flexibility, the output of the digital business strategy is the digital enterprise being agile and adapting to changing conditions in the industry. Dynamic Capabilities theory conceptualises the features of the enterprise, which aids to identify its needs or opportunities for change in agile situations (Helfat et al., 2007). These Dynamic Capabilities may be referred to as a process (Ambrosini & Bowman, 2009), or as consisting of a set of processes (Helfat et al., 2007). Again, these capabilities are, by implication very dynamic – operate within time and

space. Figure 8.6 presents the analysis of the data related to the flexibility dimension of digital business strategy.

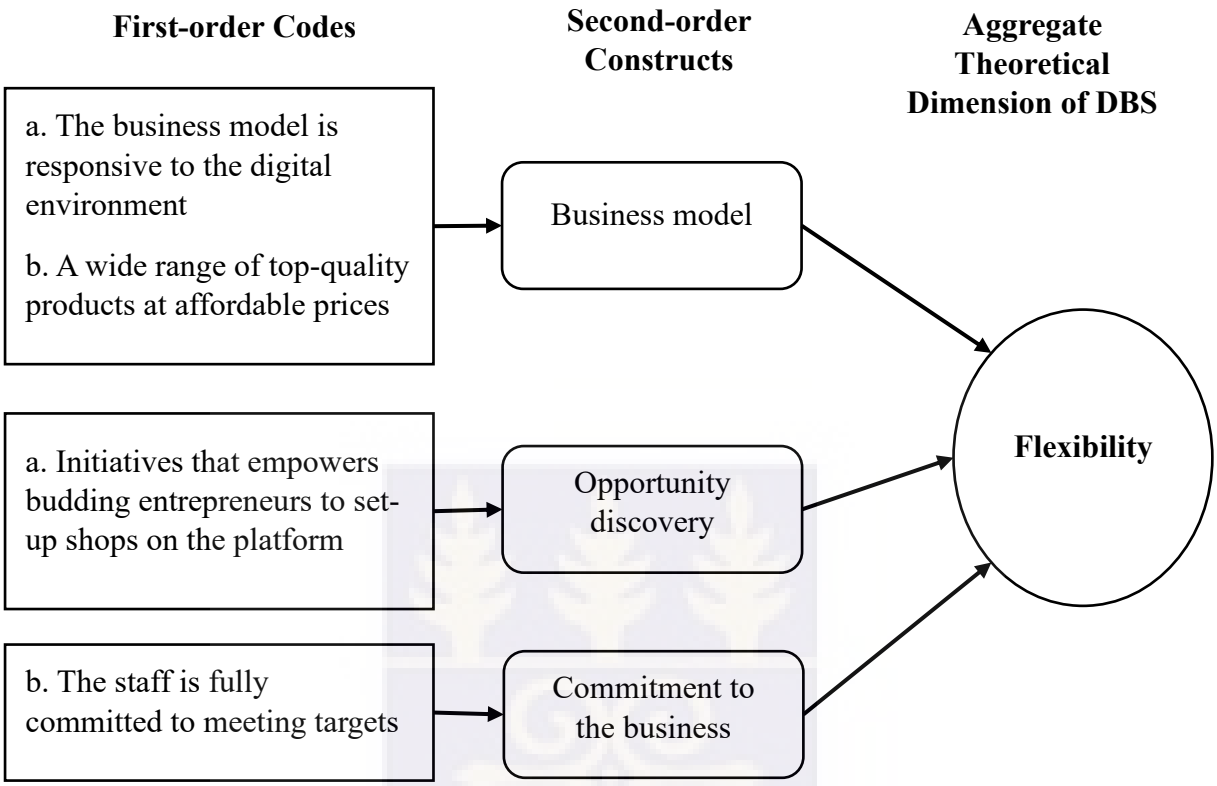


Figure 8.6: Analysis of the Flexibility dimension of Amigo's digital business strategy

Over the years, Amigo has been able to overcome competition by being flexible and dynamic in the digital economy of Ghana. Extant research (Chen et al., 2014; Queiroz et al., 2018; Roberts & Grover, 2012) have argued that firm which continuously monitors and sense market opportunities and threats are able to respond to market threats and opportunities quickly. In the case of Amigo, continuous monitoring of the operating environment is carried out. Amigo dedicates a significant part of its human resources to finding brands and distributors in Ghana. It has even launched the JForce initiative that empowers and enriches budding entrepreneurs with the full support of an established brand. Customers become sales consultants for Amigo where they earn money through commissions by selling items supplied by Amigo. Also, these sales consultants earn money by recruiting new sales consultants for Amigo.

8.5 Summary

This chapter sought to analyse the digital business strategy of a Ghanaian digital enterprise in response to the second research objective of this thesis, with the research question;

What is the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy?

The case story presented in this chapter provides the success story of how a digital enterprise is surviving in a very competitive and unstructured digital economy of a developing country. This is meant to draw to the attention of current and hopeful entrepreneurs that there is fierce competition in the digital economy as well as opportunities.

CHAPTER NINE

DIGITAL BUSINESS STRATEGY FOR EVOLUTION

9.1 Chapter Overview

The previous chapter responded to the second research objective by describing the nature of the strategic actions of digital enterprises in a developing economy. The comprehensive digital business strategy framework was applied to review the dimensions of the strategic actions of a multinational digital enterprise which was the case for the study.

This chapter responds to the third research objective of this thesis, which is;

> *To explain how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value*.

From a critical realist paradigm, this chapter presents an investigation into the mechanisms involved in the strategic actions of digital enterprises without formalized structures, in their quest to remain agile and grow which is in response to the third research objective (see section 1.4). This study explores the digital business strategy evolution of a digital enterprise which has no formalized structures. Justification for the selection of this digital enterprise is presented in Section 6.7. This is significant in the context of a developing economy where this study is conducted. This makes the study novel and opens the discussion on the digital strategic actions of digital enterprises in their quest to survive and grow.

9.2 Analysis of Case Findings

The following subsections present findings from Digix Enterprise, which was purposively selected as the case for the study. Its profile and digital business strategic actions are presented

in this section. These strategic actions are later discussed in relation to the dimensions of the digital business strategy framework.

9.2.1 Profile of Case Organisation

Digix is a Ghanaian digital enterprise that began in operations in 2011 as an e-book publisher. Initially, the start-up published e-Journals for higher educational institutions through an online e-book platform. The company registered as a sole proprietorship in 2011 with the Registrar General's Department of Ghana when the owner was doing his National Service (a period of compulsory service to the country; mostly after tertiary education) and then became a limited liability company in 2017. Figure 9.1 summarizes Digix Enterprise's business activities, including the year the various activities were introduced.

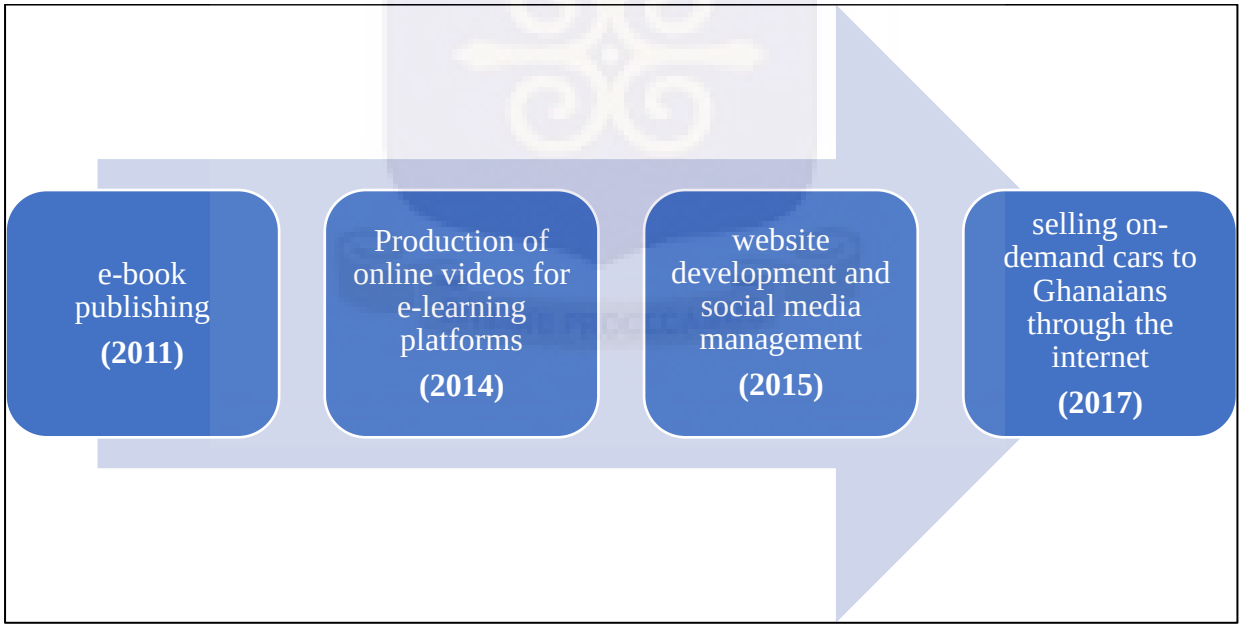


Figure 9.1: The evolution of Digix Enterprise's business model

Digix currently has seven employees which include; the owner, who is also the manager; a content validator who doubles as a marketer; an administrator who also serves as an assistant

to the manager; and four part-time employees. The Managing Director has a master's degree in Information Systems and is currently pursuing a PhD degree. The content validator holds a first degree in Marketing, and the administrator has a masters' degree in Communication and Public relations. The part-time employees are pursuing masters' degrees in Management Information Systems, and they have varied undergraduate backgrounds in computer science, business management, and e-commerce. The part-time employees assist in developing and managing websites, including Digix's website and the production of online videos. In addition to the part-time employees, Digix has strategic partnerships with two tertiary institutions, a business advisor, and MTN Ghana Foundation (2014). The business advisor provides business insights and directions to the manager for considerations. The team is committed to influencing optimal revenue growth while exceeding the clients' expectations.

Digix communicates with its employees, clients, customers, and suppliers through email, social media, and mobile phone calls. It uses online technologies such as e-book pro, email, YouTube, Moodle LMS (e-learning platform), IAAI and Copart (online automobile auction systems) to provide products and services to clients. Other IT infrastructure includes five i7 laptops, Vodafone internet modem, Surfline internet modem, and Adobe CC 2015 Suite. The manager uses his phone as a business phone.

Digix started operations with a capital of US$610.54. As of March 2018, the net profit of Digix was US$32,765.53 with clients from academic institutions, hospitability, and the banking sector. Table 9.1 displays the financial profile of Digix from 2011 to February 2018.

Table 9.1: Financial Profile of Digix Enterprise

	Phase One 2011-2014	**Phase Two 2015**	**Phase Three 2016-2018 (February)**
Net Profit (e-Content)	US$3,257.90	US$5,248.84	US$452.49
Net Profit (Website Design)	Not Available	US$723.98	US$2,171.93
Net Profit (Social Media Management and Advertising)	Not Available	US$470.59	US$1,176.46
Net Profit (Car Sales)	Not Available	Not Available	US$25,339.23
Total Net Profit	**US$3,257.90**	**US$6,443.40**	**US$29,140.11**

***Source**: Digix Enterprise Financial Statistics (2018)*

9.2.2 The Growth of Digix Enterprise

This subsection presents how the digital enterprise has grown since its establishment. The four main dimensions of digital business strategy framework (governance, flexibility, coordination and competence) are used to identify the factors which enabled Digix to survive under the phases of growth. From the analysis, it was realised that Digix has grown through three major phases. Figure 9.2 shows the growth process of Digix, which is further explained in the subsequent subsections using the dimensions of digital business strategy.

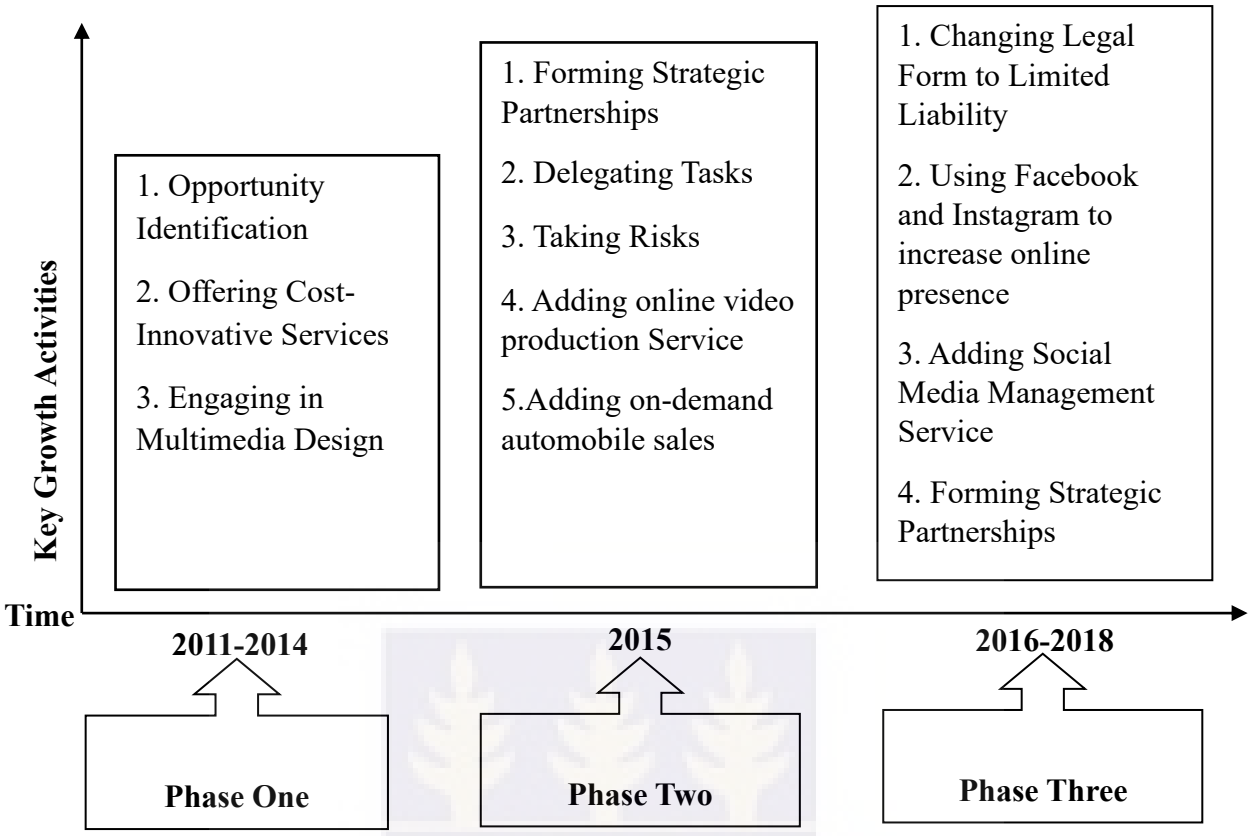


Figure 9.2: The Growth of Digix Enterprise

9.2.2.1 Phase One: Founding stage

The first phase of growth of Digix through creativity started in 2011. The entrepreneur identified a customer need which led to setting up the company. This need was the offering of a cost-effective and innovative solution to offline printing of academic journals for some departments of a tertiary institution in Ghana.

Digix offered the solution of e-Journals with just a few hard copies, which drastically reduced the cost of printing over five hundred copies for distribution each year. To formalise the relationship between the manager and the various customers, the entrepreneur had to register a company. Digix was set up to bid for the contract to publish the journals officially. Digix offered not just to produce hard copies but use online technologies to deliver e-book services for clients. A screenshot of an online journal produced by Digix is found in Figure 9.3. Digix

business model was formulated on the idea of reducing costs of production and passing these savings on to customers by offering them relatively lower prices. This is evident in a statement made by the manager:

> *I provided a solution which was to provide an electronic book and a few printed copies. This means that the high printing cost is no more a problem for them.*

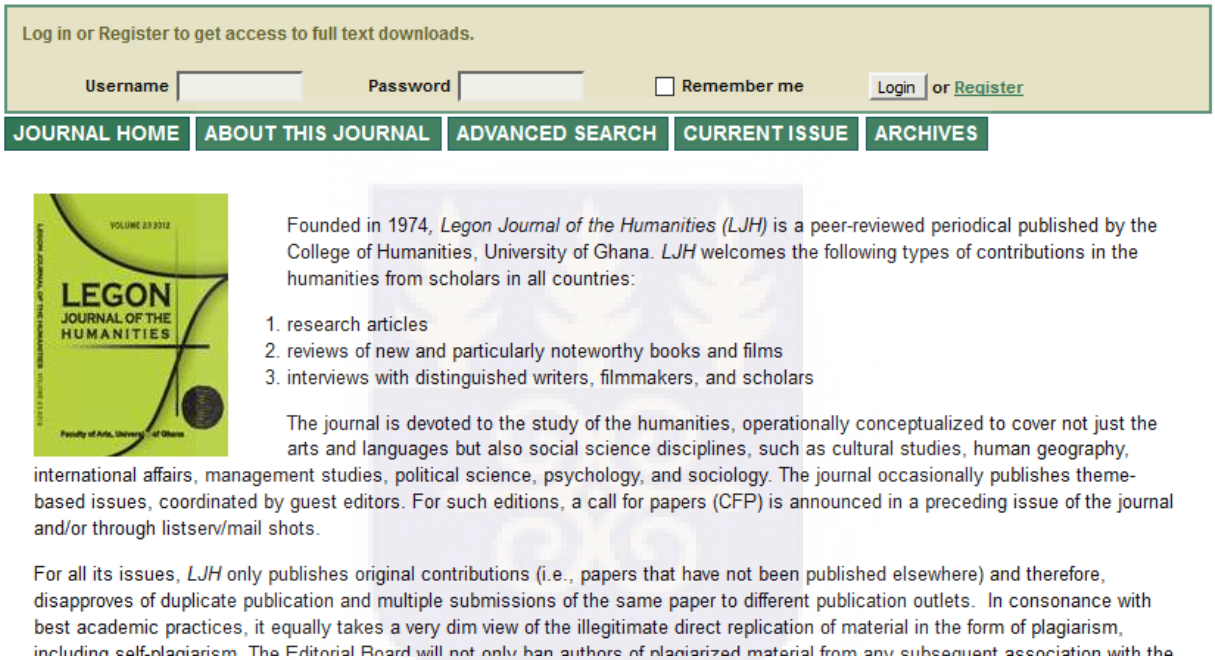


Figure 9.3: A Screenshot of an e-Book designed by Digix (Source: African Journals Online)

This first phase was also a period of immense creativity with the start-up looking to challenge the traditional way of providing journals to conference participants. Other Departments of the university who had also wanted to reduce costs engaged the services of Digix to produce e-journals for their academic conferences. The manager stated:

> *I then realized that since one Department needed this service, then other departments will also need it, so I started talking to other departments, and I had a few contracts from them.*

The use of online tools such as e-Book Pro made Digix unique and allowed it to offer cost-effective charges to clients. As a result, it got more jobs from the university community.

Besides, Digix operated a staff of two employees with a capital of US$542.98. The need for an employee at phase one just after two months of setting up the business was as a result of increasing demands which the manager could not meet because he was doing his national service. An administrator was employed to help in meeting clients' needs. The manager accounts that:

> *I started alone, just within two months, I felt the need for a business partner, who would help me execute the business, so I hired an Administrator who also doubles as my assistant. Sometimes, the administrator meets with clients on my behalf, signs contracts and others.*

Digix had no reward system for the administrator. The administrator was working without taking salaries. The administrator confirms:

> *I was paid as and when jobs come.*

Again, there was no formal organizational and communication structure.

According to the administrator, the manager communicated with clients and the administrator, mostly through face-to-face, Gmail, and phone calls. The manager explained:

> *We were leveraging on the Gmail account that I created for the business. We use it for receiving orders. If there is something for my administrator to do, I email it to her. We also used telephones to communicate; however, this was not frequently done because most of the interactions were face-to-face because of the proximity between my administrator* and me.

9.2.2.2 Phase Two: Developing Stage

This phase began in 2015 after the founder completed his graduate degree program. As Digix grew, several skillsets were added to the firm, and a number of new opportunities were exploited. Digix formed strategic partnerships with four national service personnel who had rich backgrounds in web development, business development, and analysis, as well as marketing and e-commerce. The national service personnel were part-time employees. This increased the firm size from two to seven. As a result, additional business units were added. The manager further explains:

> *In the latter part of 2015, there was an e-learning project which we were contracted to develop online video content. This led to a new business unit of online video content production. We built the required skill set to manage this project.*

In addition to the online video production and social media services, Digix added on-demand automobile sales business unit. While the diverse skillset led to greater efficiency and more business units, it had its attendant difficulties of controlling the business operations of Digix. Most of the challenges were from the manager himself. He faced the challenge of prioritising and using almost all the company's financial resources to purchase a vehicle for himself and to pursue higher education. The manager indicated:

> *I did not know which of the business units to prioritize. Initially, using about 80percent of the start-up's money to buy a car was a huge issue as all its liquid asset was almost gone. Also pursuing a master's program at this phase of my business presented a number of challenges of not being able to meet the client's deadline initially.*

However, the manager turned the car from being a liability to another business unit of Digix. He indicated that;

> *After buying the car and getting home, I regretted taking such a decision, so I turned the liability into a trading asset. I first used the vehicle for Uber (ridesharing) to generate some money and then entered on-demand car selling.*

Concerning delegating tasks and duties, the manager asserted:

> *During this phase, I delegated a lot and acted as a supervisor. The web developer was very resourceful, instrumental and flexible in learning; and was very supportive in doing most of the things that I was supposed to be doing. There was no untoward attitude from my subordinates.*

Digix applied to join a Government of Ghana incubator program at this phase. Fortunately, it was selected for the programme. Digix, therefore, leverage on this strategic partnership offered by the incubator programme for business growth. The manager indicated:

> *I redesigned my letterhead after joining the incubator programme to reflect the partnership with the Ghana Multimedia Incubator Center (GMIC) and MTN Foundation, and this led to a lot of recognition and winning of contracts. So, we leveraged on the brand names of these institutions to our advantage.*

The net profit of Digix increased from US$3,257.90 in Phase One to US$6,443.40 at the end of Phase three in 2015.

9.2.2.3 Phase Three: Maturity Stage

Digix entered its growth phase through coordination in 2016, and as at the time of the interview, Digix was still in Phase three. In 2017, Digix transformed from being a sole proprietorship to a limited liability company. As a result, the start-up started presenting its annual budgets and

operational reports to the Registrar General's Department – the regulator for company registrations in Ghana. The manager explains:

> *Though Digix is now a limited liability, I own 100percent shares in it. There is still no promise of part ownership of the Enterprise to others.*

Digix added social media management business unit to the existing business units. The manager stated:

> *The social media management business unit was as a result of providing multimedia content for the website of a five-star hotel in Accra. The hotel needed a social media presence, and we offered to help without charging any fee.*

Apart from Digix using social media to increase the online presence of its clients, Digix itself also uses social media for advertising its services and products. This can be attributed to the nature of products and services Digix offers on the market, which is digital and requires community engagement for trust to be built before purchase. This finding is not different from that of Lam et al. (2019), who discovered that social commerce usage significantly increases returns for firms who sell products with a high level of reputation and uncertainty. The administrator noted:

> *We used social media as a marketing tool to market and advertise the auto business unit. This brought in a number of requests that led to sales: interestingly, social media marketing and advertising have brought about six car purchases so far.*

The digital enterprise at this stage still had no incentives for the employees; however, it had a partnership with three sales personnel who earned a commission of US$100.00 for every auto sale.

Firms with different departments coordinate complementary activities in the presence of specialization. However, Digix found itself in difficulty as to coordinating the various business units it had in phase three. The firm was faced with the challenge of how the social media management, website development and management, the e-book services, online video production and the auto business activities complement each other. The firm's ability to strategize and re-organize its organizational structure – communication structure and decision-making process to allow for trade-offs – is very critical in determining how it can realize synergies among the different business units. This situation leads to its transitioning to the next phase of growth. At the time of the interview, it hadn't achieved this goal.

9.3 Discussion of Case Findings

Easton (2010) assert that the critical realist's perspective of causation is made up of four major components. These include; (1) The event (the outcome of the phenomenon of interest to the researcher); (2) the mechanisms (the way the events/things occur or act); (3) structures (the sets of internally related activities or practices); and (4) the conditions within which an event takes place.

Three major growth events are identified in the case. The initial digital business strategic actions characterize the first event, which is the Founding stage. The second event is the development stage, which is also characterized by digital business strategic actions aimed at delegating some business activities as it expands. The third event is also characterized by the digital business strategic actions geared towards coordinating the business activities as it matures.

The case firm is a digital enterprise consisting of a set of interacting entities (resources, people, processes, and others). Critical Realism researchers seek causal explanations – aimed at identifying the mechanisms connecting the entities to produce the events within some specific conditions. There could be the possibility of more than a single causal explanation to a single event. The objective of the Critical Realism researcher is to identify and select the causal explanation suitable in the case under study. In this regard, condensation of data and display of data was carried out. This enabled for the identification of the key combination of entities and conditions within the mechanisms which generated the particular events as postulated by Miles et al. (2013).

Four major dimensions of digital business strategy based on the review of digital business strategy literature are postulated. These dimensions are used to review the three major stages of growth of the digital firm. Table 9.2 summarizes the key constructs (entities) and strategic actions (conditions) which underpin these stages of growth and the corresponding Digital business strategic actions.

Table 9.2. Key digital business strategic actions which underpin the survival of Digix enterprise

Dimension of DBS	Phase One: Founding stage	Phase Two: Developing stage	Phase Three: Maturity Stage
Flexibility	*The business model:* Digix adopted a simple business model which was agile enough to survive in the economy. Thus, the production of online versions of journals. *Commitment to Business:* The owner showed commitment to the survival of the business.	*Experience accumulation:* Digix acquired experience in the market. These experiences led to the expansion of the firm's portfolio to include on-demand car marketing. *Knowledge codification:* Digix began practising effective documentation of its activities at this stage. *Knowledge articulation:* The owner of the firm acquired a broad spectrum of knowledge through pursuing a degree in Management Information Systems. This helped him to take some strategic decisions which contributed to the survival of the firm *Opportunity Discovery:* The manager identified a need on the market to offer trust-enforced on-demand cars to prospective clients. This market gap and the business opportunity was identified and filled by Digix enterprise	*Decentralization:* Initially, all decisions and activities were performed by the owner of the firm. At the maturity stage of the business, others were assigned roles and responsibilities. *Opportunity Discovery:* Digix was able to identify new business opportunities in Ghana's digital economy. The firm started offering discounts to clients and providing free after-sales support to clients. This strategy has positioned Digix very well on the market.

Dimension of DBS	Phase One: Founding stage	Phase Two: Developing stage	Phase Three: Maturity Stage
Governance	*Entrepreneurs' ownership:* The owner of the business was actively involved in the operations of the company. *Innovation level:* There was a high level of innovation in terms of providing an alternative means of publishing the journals	*Age of the firm:* Over the years, Digix was able to augment its human resources with four National Service personnel. Again, some years of service provided some credibility for potential clients. *Environment Variability:* Digix utilized the variabilities in the digital economy to its advantage. Digix benefited from the Government of Ghana's incubator programme.	*Venture capitalist's knowledge:* The experience and expertise of the business advisor contributed to providing the needed strategic guidance to the firm. *Environment Variability:* Changes in the environment which included the Government's implementation of Tax Identification Number (TIN) as a requirement for business operations such as clearing cars
Competence	*Intellectual Resources:* the principal capital of the business at this stage was the intellectual skill of the owner. *Technological Resources:* Technological resources available to Digix were the laptop, internet, and e-Book Pro software	*Reputation:* The firm's association with the two educational institutions made them credible and trustworthy. *Financial Resources:* Enough financial resources became available to the firm. The net profit of the firm increased from US$3,257.90 in Phase One to US$6,443.40 by the end of 2015. *Human Resources:* Digix had three employees at this stage who included the	*Reputation:* The compliance with Government regulations, coupled with effective customer relationship management through social media, has created an excellent reputation for growth. Again, Digix leveraged on its affiliation with the MTN Foundation and other reputable educational institutions. *Financial Resources:* At this stage, the increased profit margin of Digix was

Dimension of DBS	Phase One: Founding stage	Phase Two: Developing stage	Phase Three: Maturity Stage
		owner, a content validator, and the administrator. This workforce provided the requisite expertise to enable the firm to survive.	reinvested into the company, which supported its growth. *Human Resources:* The workforce of Digix grew to seven employees; the owner, who is also the manager; a content validator who doubles as a marketer; an administrator who also serves as an assistant to the manager; and four part-time employees. Physical Resources: Through the support of the Government of Ghana, Digix had free office space, internet access from MTN and office computer.

Dimension of DBS	Phase One: Founding stage	Phase Two: Developing stage	Phase Three: Maturity Stage
Coordination	*Degree of product differentiation:* Digix was able to provide a different product which was the online/ softcopy journals.	*Number and size of customers:* The customer-base of Digix grew exponentially at this stage. Some of the clients included educational institutions and other individual customers.	*Vertical integration:* Digix was able to provide an integrated digital solution to clients, which included the production of lecture videos and the management of the e-learning platform. Again, Digix developed websites for clients in addition to the management of the client's social media platforms. *Government support:* The incubator programme led to the provision of free office space, internet access from MTN, office computer, and business training for Digix enterprise. The Government's pro-business interventions such as the paperless port system for shipping cars to Ghana supported the on-demand car import business of the firm.

9.3.1 Digital Business Strategy in Phase One

The creativity and commitment of the founder characterised the first stage in the growth of the digital enterprise. The most dominant dimension in the founding phase of the digital business is Governance. The focus of the governance dimension is the ability of the digital enterprise to allocate resources to create and capture value efficiently. The analysis of data revealed that, in the first phase of growth of the digital enterprise, the entrepreneur was actively involved in the operations. Again, the entrepreneur's high level of innovation contributed to the survival of the firm. This finding is corroborated by Liu et al. (2015), who postulated that the level of innovation of the founder influences the way resources are managed for the firm to remain competitive. Similarly, Glassman et al. (2015) identified business owner's strategic decisions such as internet filtering and monitoring systems to be effective ways of promoting better compliance which leads to employee empowerment and resource replenishment.

Another crucial digital business strategy dimension in the first phase of growth is Competence. The significant capital of digital businesses in the first stage of growth is the intellectual skill of the owner(s) and some technological resources. Alden (2011) asserts that most digital enterprises rely heavily on the innovative skills and expertise of the owner(s) in the first stage of growth. Besides, Biberhofer et al. (2019), in their study, argued that the sustainability of firms is dependent upon the competencies and the more in-depth knowledge levels of the entrepreneur.

In terms of flexibility, the output of the strategic action is the ability of the digital enterprise to be agile; adapt to the changing conditions in the industry. In the first phase of growth, the digital enterprise adopted a simple business model which was agile enough to survive in the economy. Besides, the commitment of the business owner also contributed to the survival of the business.

This finding is not different from the globally influential digital enterprises such as Amazon, Facebook, Uber, and Airbnb – who started with highly committed entrepreneur(s) with a simple business model which involved a single product or service (Zaheer et al., 2018).

A suggestive finding from this discussion is made;

Finding seven: *The survival of the digital enterprise, in the first stage of growth, depends largely on the entrepreneur's innovativeness, and the competence to govern the available resources to achieve competitive advantage.*

9.3.2 Digital Business Strategy in Phase Two

The digital enterprise developed in the second phase of its growth. The delegation of tasks characterises this phase as the business expands and engages more workers and customers. The most dominant digital business strategy dimension in the second phase of growth is Flexibility. In the second phase of growth, the digital enterprise acquired some experience, which helped it to become agile and survive. This experience is mostly gained with the knowledge capital of the firm through knowledge codification and articulation (Sardo, Serrasqueiro, & Alves, 2018). Through this experience, the enterprise identifies opportunities within the market. For instance, Sia et al. (2013) discovered that managers acquired some experience, which helped them to cultivate leadership for digital transformation, after operating in the industry for some years. Again, in Smith's (2018) study on two young Scottish entrepreneurs, he discovered that through their ingenuity and creativity, these entrepreneurs were able to set up a hugely successful brewery in 2007 even in the face of the global recession.

Another dominant dimension of digital business strategy in the developing phase of growth is Competence. In the second phase of growth, the firm relied on its reputation, financial, and human resources to stay competitive and survive. Enough financial and human resources

became available to the digital enterprise in the second phase of growth. In explaining this phenomenon, Chuang and Lin (2017) argue that the ability of the digital enterprise to combine human, business and technological resources effectively helps it to achieve profitability and continue its growth. This assertion is also corroborated by Trkman (2010), who identified the success factors for businesses to be the effective management of all resources. A suggestive finding from this discussion is made;

Finding eight: *A successful digital enterprise is the one whose growth is a joint effort between a Business Manager and change agents who are both the middle management and the employees performing their assigned tasks in the process.*

9.3.3 Digital Business Strategy in Phase Three

The third phase of growth is the maturity stage. This stage is characterised by expansion, delegation and coordination. The most significant dimension of digital business strategy in this phase is Coordination. In the third phase of growth, the digital enterprise vertically integrated its products and services. The digital enterprise offered a package of services and products which are complementary to each other. In the case of the digital enterprise in this study, it offered lecture video production and the management of the e-learning platform as a package. In addition, the digital enterprise was able to manage its relationship with external entities such as the regulatory bodies and suppliers. Zhao and Xia (2014) argue that the ability of the organization to work with trading partners determines its market readiness.

Another significant digital business strategy dimension in the third phase is Flexibility. The third phase of growth is characterized by decentralization and delegation. Initially, all decisions and activities were performed by the owner of the digital enterprise. At the maturity stage of

the business, employees are assigned roles and responsibilities. This assertion is not different from the finding of Zaheer et al. (2018) who discovered that one of the strategies for the survival of digital enterprises was a "lean start-up" (one or two initial employees). Functions are centralized initially, but as the firm grows, other personnel are employed, and tasks are decentralized. Also, the firm continues to discover new opportunities as it grows in the third phase.

Competence is another significant digital business strategy dimension in the third phase. The third phase of growth is also characterised by the ability of the firm to manage the available resources, which include financial, human, physical, and IT resources. In terms of human resources, the digital enterprise grows and employs personnel to take up roles in the business. Again, the firm reinvests its profits, which allows an increased financial resource to be available. Nevo and Wade (2010), for instance, conducted a study on identifying a firm IT asserts which played strategic roles for competitive advantage. It was discovered that these IT assets could only be used to achieve strategic advantages when other organizational resources are available and combined with them, leading to the creation of IT-enabled resources. Dawson et al. (2016) assert that it is very crucial for the whole team to approach innovation as a unit to succeed in the digital economy. A finding from this discussion is thus made.

Finding nine: *The growth of the digital enterprise at the maturity stage is mostly initiated with the knowledge capital which consists of the knowledge-based and human-oriented activities which contribute to innovations leading to value creation and enhancement of competitiveness.*

Figure 9.4 elaborates the significant digital business strategy dimensions at the various stages of growth.

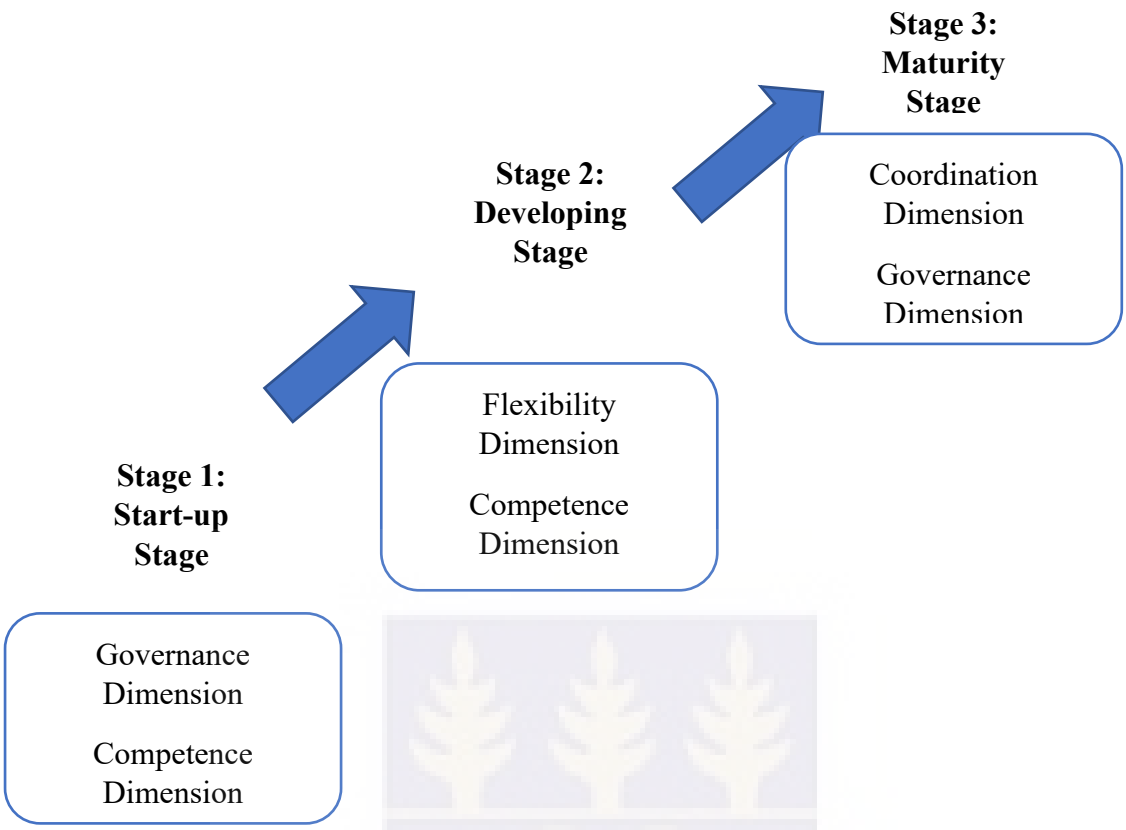


Figure 9.4: Significant digital business strategy dimensions at the various stages of growth of the digital enterprise

9.4 Summary

This chapter presented the analysis and discussion of findings in response to answering the third research objective which is;

> How are the strategic actions of business models of digital enterprises in a developing economy developed/oriented to create value?

Three major growth events were identified in the case. The initial digital business strategic actions characterised the first event, which is the founding stage. The second event was the development stage, which was also marked by digital business strategic actions aimed at delegating some business activities as it develops. The third event was also characterised by

the digital business strategic actions geared towards coordinating the business activities as it matured.

Comparatively, the most dominant digital business strategy dimension in the first phase of growth was Governance, whiles; Flexibility was the most significant dimension in the second phase of growth. Coordination was, however, the most dominant digital business strategy dimension in the third phase of growth.

The digital business strategic actions of the enterprise were reviewed for each of the phases of growth. In terms of governance, the level of innovation of the entrepreneur was a major determining feature in the first phase. The digital enterprise was able to utilize government interventions, which included incubator programmes in the second phase. For the final phase, the support of an advisor or an expert helped to guide the enterprise to survive.

In terms of flexibility, the commitment of the business owner was a determining factor for survival in the first phase. In the second phase, the enterprise acquired experiences which it utilized effectively. In the third phase, the business owner was able to delegate some of the tasks to others, which ensured efficiency.

The competence dimension of digital business strategy was initially characterized by the intellectual abilities of the business owner. In the second phase of growth, the firm depended on financial, human, and IT resources. These enhanced resources were efficiently utilized in the third phase for the survival of the digital enterprise.

In terms of coordination, high product differentiation was the main feature in the first phase of the growth of the enterprise. In the second phase, the production of high standard goods and services and a committed customer-base aided the survival of the enterprise. Finally, the vertical integration of products and services in the third phase also supported the survival of the firm.

CHAPTER TEN

CONCLUSIONS, SUMMARIES AND RECOMMENDATIONS

10.1 Chapter Overview

The focus of the previous chapter was to analyse and present a discussion on the evolution of digital business strategy in digital enterprises. This was in response to the third objective of the study - aimed at developing a digital business strategy for the evolution of the digital enterprise. This chapter, however, concludes this thesis on developing a digital business strategy framework which explains the value-creation strategic actions that underpin business models of digital enterprises in a developing economy. The chapter presents a summary of the research and the major findings related to the various research objectives.

In addition, there are reflections on; the digital economy of Ghana; theories, digital business strategy framework and the research methodology. Again, the chapter presents the contributions and implications of this research to academia and practice as well as management. Finally, the limitations and future research directions are also presented in this chapter.

10.2 Summary of the Research and Major Findings

The primary purpose of the research was to develop a digital business strategy framework which explains the value-creation strategic actions that underpin business models of digital enterprises in a developing economy. To put the study in context, there was a need to review digital economy literature to understand its composition. Due to the issue of extensivity, this study adopted the definition of the digital economy by Bukht and Heeks (2017); "that part of economic output derived solely or primarily from digital technologies with a business model

based on digital goods or services." This definition provided the flexibility to incorporate all digital business models and digital innovations. This definition also depended on the flexible boundaries between the digitalised economy, digital economy and the digital (IT/ICT) sector. Concerning digital enterprises, Rouse (2011) defined it as “an organization that uses technology as a competitive advantage in its internal and external operations.” In other words, a digital enterprise or firm must have a business model that primarily utilizes digital technologies. The existence of the digital enterprise is dependent upon the availability of digital technologies. Example of a digital enterprise is Amazon.com which utilizes the internet for the buying and selling of goods and Uber, which also uses internet technology for ride-sharing activities. This study adopted the definition provided by Rouse (2011).

The crust of the study was on developing a digital business strategy framework. An extensive review of literature on digital business strategy was carried out. It was discovered that research on digital business strategy had been conducted from varied perspectives, which included the scale of digital business strategy (Arasti et al., 2017; Davison & Ou, 2017; Mathrani et al., 2013), and the scope of the strategy (Folmer et al., 2016; Pu et al., 2016; Uotila et al., 2017). Another thematic issue which was discovered included the new innovative sources for the capture and creation of value by businesses (Bharadwaj et al., 2013). The dramatic increase in papers which focussed on the digital strategic actions of digital enterprises underscored the need for a review to unearth the dominant thematic issues arising and this led to the development of a conceptual framework for digital business strategy.

The literature review revealed varied scopes in the application of digital business strategy. The corporate scope had been a significant issue in strategic management research (Wade & Hulland, 2004). The scope of a business is defined as “the portfolio of products and businesses

as well as activities that are carried out within a company's direct control and ownership" (Bharadwaj et al., 2013). The scope of the business has been seen to contribute to its profitability (Wade & Hulland, 2004). Similarly, the business output is influenced by the scope of the digital business strategy. According to Bharadwaj et al. (2013), the issue of drawing the boundaries of digital business strategy has been at the forefront of strategic management research. It is worthwhile to note that the digital business strategy transcends one functional area of the business setup. Digital business strategy is viewed beyond merely being an IT Strategy, and its scope spans the whole organization (Rai et al., 2012). Bharadwaj et al. (2013), for instance, assert that all the strategic processes and functions related to digital resources are the focus of the digital business strategy. The knowledge of the scope of the digital business strategy allows for understanding the relationships between the enterprise's business strategy, IT infrastructure and the external environment of the business.

The review of digital business strategy literature highlighted four major dimensions which fall under the scope. These are Coordination, Flexibility, Governance and Competence. The focus of studies on the governance dimension is the ability of the digital enterprise to allocate resources to create and capture value efficiently. In terms of flexibility, the output of the digital business strategy is the digital enterprise being agile and adapting to changing conditions in the industry. Studies on the competence dimension of digital business strategy focus on the ability of the enterprise to exploit resources to create and capture value. These studies explore how the enterprise manages its resources to remain profitable and competitive. In terms of coordination, profitability is achieved when the firm restrains competition and restricts the entry of new firms into the industry. Finally, studies on Coordination looked beyond the boundaries of the enterprise into the industry and how the firm collaborates with competitors and other stakeholders to achieve profitability.

Following the identification of the four major dimensions of the scope of digital business strategy, there was the need to probe further to review IS literature on digital business strategy. The focus was to draw lessons and identify research gaps which the dimensions of the digital business strategy can be used to enhance itself.

The first research gap identified from the review of digital business strategy literature revealed that research into the business models of surviving digital enterprises is just at the nascent stages (e.g. Brownlow et al., 2015; Remane et al., 2017). This is because; these firms are new and are not restricted to using the legacy systems of established firms built over a period. They instead adopt new concepts such as social media, smartphones or sensors, among other new technologies designed to exploit their markets. Prior to this, it was discovered from the review that most new enterprises do not survive beyond 42 months after their establishments (Allen et al., 2007). This phenomenon is prevalent in most developing economies.

Further analysis indicated that only 38 percent of enterprises survive beyond the 42-month survival threshold in Ghana, whereas only 31 percent survive in Uganda. In general, only 13 percent of enterprises survive beyond 42 months after inception in Africa. It was concluded that Africa has a higher business discontinuation rate of 16 percent when compared with that of the European Union and the United States who have 4 percent each. Politicians, academics and others have made calls for authorities in Africa to avert the trend of higher business discontinuation rates and underperformance. In this regard, there was the need to research into the business models of the surviving digital enterprises to understand their strategic digital business actions for survival. This was also in an attempt to determine the business models of digital enterprises in the digital economy of a developing country.

The second research gap indicated that studies on digital business strategy arguably tend to focus on firms with formalised structures and procedures for the implementation of their strategies at the expense of digital enterprises without formalised structures. Mithas et al. (2013), for instance, researched on examining how a firm's competitive industry environment and digital strategic posture influence its digital business strategy. This study focused on 400 American based firms with formalised structures. It was discovered that a firm's digital business strategy is a product of its awareness and ability to respond to the competitive environment within the digital economy instead of merely optimizing operations or responding to some competitors.

The third gap also identified that most economic actors had great difficulties in clearly understanding the digital economy and were mostly not aware of the problems digital firms had to face (Jansson, 2011). This difficulty had been attributed to the dynamic nature of digital technologies and the specific characteristics of the digital economy as asserted by Georgiadis, Stiakakis and Ravindran (2013). Academics and researchers are encouraged to prepare for a future in which the digital economy will be a major part of the whole economic and social activity of countries. On the other hand, research on modelling the digital economies of countries had arguably been limited to Spain (del Aguila et al., 2003) and Indonesia (Aryanto & Chrismastuti, 2011).

The fourth research gap also revealed that strategic management theories and frameworks for studying digital business strategy mostly focused on one of the major dimensions of digital business strategy. There arguably no framework capturing issues from all the four major dimensions. For instance, the role of the Agency theory is to review the governance dimension

of digital business strategy which deals with the ability of the digital enterprise to allocate resources to create and capture value efficiently. The focus of the Agency theory is on understanding the relationship between parties where one party (the principal(s)) engages another person (the agent) to undertake some task on their behalf (Jensen & Meckling, 1976). In addition, Dynamic Capabilities theory focuses on the flexibility dimension of digital business strategy, which is the ability of the digital enterprise to be agile and adapt to changing conditions in the industry. Again, the Resource-Based View theory focusses on the competence dimension of digital business strategy where the argument is that the enterprise possesses a collection of resources which may lead to enhancing its advantage competitively (Barney, 2001). It is worth noting that the attainment of the competitive advantage is primarily dependent on characteristics of the resources in question - unique and difficult for others to imitate; appropriate; durable; non-substitutable; rare; imperfectly mobile or immobile; and have value in the environment of the firm (Birkinshaw & Goddard, 2009).

The fifth research gap related to deficiencies in the two dominant paradigms in Information Systems (Interpretivism and Positivism) in providing answers to the mechanisms behind the strategic evolution of digital enterprises (Henfridsson & Bygstad, 2013). Little, if any, research had been conducted on the development of a comprehensive understanding of the various activities and contingencies of causal structures in the strategic evolution of digital enterprises. Critical realism has been proposed as an alternative intellectual structure to allow for theorizing the digital strategy infrastructure (Fletcher, 2017; Mingers et al., 2013; Tsang, 2014) and for its emphasis on the generative mechanisms that allow for studying the phenomenon over a period (Henfridsson & Bygstad, 2013).

Based on these gaps highlighted above and to fulfil the research purpose, three major research objectives were set. These included;

1. To determine the business models of digital enterprises in a developing economy.
2. To determine the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy.
3. To explain how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value.

Outcomes of major findings to meet the objectives of this research which are based on the empirical evidence are summarized in Table 10.1 and in the following subsections.

Table 10.1: Summary of research findings

Research Objective	Findings
1. To determine the business models of digital enterprises in a developing economy.	1. In developing economies, indigenous digital enterprises tend to create jobs and provide business solutions locally that would hitherto be sought from developed economies. 2. Among human, physical and intangible assets, financial assets are the least used assets in the operations of the digital enterprises. 3. In developing economies, digital enterprises tend to leverage accessible and low-cost social networking services as part of their operations and use them as an avenue to engage with their target customers.
2. To determine the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy.	4. There is a high intensity of rivalry between the digital enterprises in the Ghanaian digital economy. 5. Finding Five: multinational digital enterprises tend to depend on a governance strategy which is more encompassing and effective. 6. Finding Six: Even though there is an increasingly vital role of digital technologies in contemporary business operations, the strong connection between the actions taken in relation to the resources of the firm and competitive advantage cannot be overemphasized.
3. To explain how the strategic actions of business models of digital	7. The survival of the digital enterprise in the first stage of growth depends largely on the entrepreneur's

enterprises in a developing economy are developed/oriented to create value.	innovativeness, and the competence to govern the available resources to achieve competitive advantage. 8. A successful digital enterprise is the one whose growth is a joint effort between a Business Manager and change agents who are both the middle management and the employees performing their assigned tasks in the process. 9. Growth of the digital enterprise at the maturity stage is mostly initiated with knowledge capital consisting of an accumulation of experiences and human resources.

Source: author's construct

10.2.1 Objective 1: Business Models of Digital Enterprises

The first objective was to determine the business models of digital enterprises in a developing economy. This was in response to the first and the third research gaps which warranted the need to map out digital enterprises in Ghana based on their business models and to explore some economic and technological enablers that facilitate their survival and growth.

The review of literature on digital enterprise models let to the adaption of a 16-Business-model archetype (Weill et al., 2005) for analysing the digital enterprises in Ghana. From a critical realist perspective, survey data from sampled digital enterprises were used for the study. Operations Managers or the Chief Executive Officers representing the selected digital enterprises responded to the questionnaire.

It was discovered that financial assets were the least in the operations of digital enterprises which stems from the fact that the online financial business sector is still nascent in most developing economies. Regarding the economic and financial enablers, personal savings, friends and family support were the dominant source of funding for most of the digital enterprises. Findings also suggested that all digital enterprises leveraged on accessible and low-

cost social networking services in their operations and as an avenue to engage with their target customers.

10.2.2 Objective 2: Nature of Strategic Actions of Business Models

The second research objective was to determine the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy. This was also in response to the third, fourth and fifth research gaps. The focus was specifically on exploring the nature of competition and the survival strategies of digital enterprises by expounding their digital strategic actions in dealing with the market forces in the digital economy of a developing country.

The case for the study was a digital enterprise which has been operating in a developing economy for over six years. An analysis of the environment of the digital enterprise was carried out using Porter's competitive forces model. It was discovered that there was a high intensity of the rivalry between the digital enterprises in the Ghanaian digital economy. Similarly, the bargaining power of customers and the threat from market entrants were also high. On the other hand, bargaining power of suppliers was low, while the threat of substitute products and services was medium.

Knowledge of the enterprise' competitive forces led to exploring the strategic actions undertaken to remain competitive and survive. As indicated earlier, the digital business strategy has four major dimensions. These are Governance, competence, flexibility and Coordination. Based on these four dimensions, the survival strategies of the digital enterprise were reviewed. The nature of the strategic actions of the digital enterprise concerning the dimensions of the digital business strategy framework is presented in Figure 10.1.

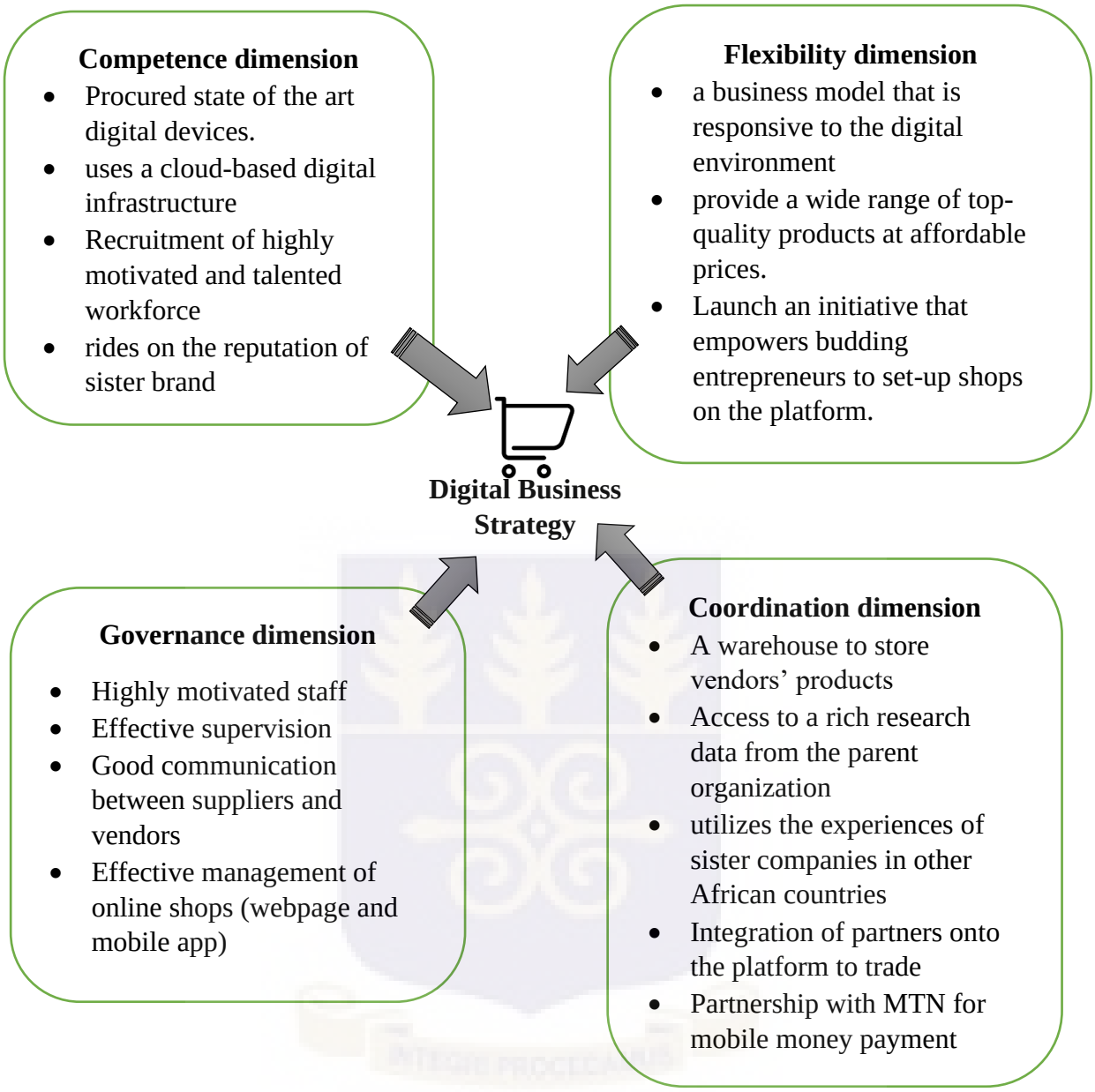


Figure 10.1: Nature of strategic business actions of a digital enterprise

10.2.3 Objective 3: Development of Strategic Actions of Business Models

The third research objective was to explain how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value. This was also in response to the research gaps two, four and five. There is a seeming upsurge of literature on digital business strategy which focuses primarily on digital enterprises with formalized structures. Besides, these studies consider digital business strategy from a single dimension

which is mostly either governance, competence, flexibility or coordination as the firm strives to survive in the digital economy. Against this background, using a digital business strategy framework, this study explored the digital business strategy evolution of digital enterprises in developing economies in their quest to survive and grow.

Three major growth events were identified in the case. The first event - the founding stage - was characterised by the initial digital business strategic actions. The second event - the development stage - was also marked by digital business strategic actions aimed at delegating some business activities as it develops. The third event - the maturity stage - was also characterised by the digital business strategic actions geared towards coordinating the business activities as it matured.

It was discovered that the levels of the relevance of the four digital business strategy dimensions vary as the digital enterprise moves from one growth phase to the other. Comparatively, the most important digital business strategy dimension in the first phase of growth was Governance, and Flexibility was the most relevant dimension in the second phase of growth. Coordination was, however, the most important digital business strategy dimension in the third phase of growth. Figure 10.2 elaborates on the relevant digital business strategy dimensions at the various stages of growth.

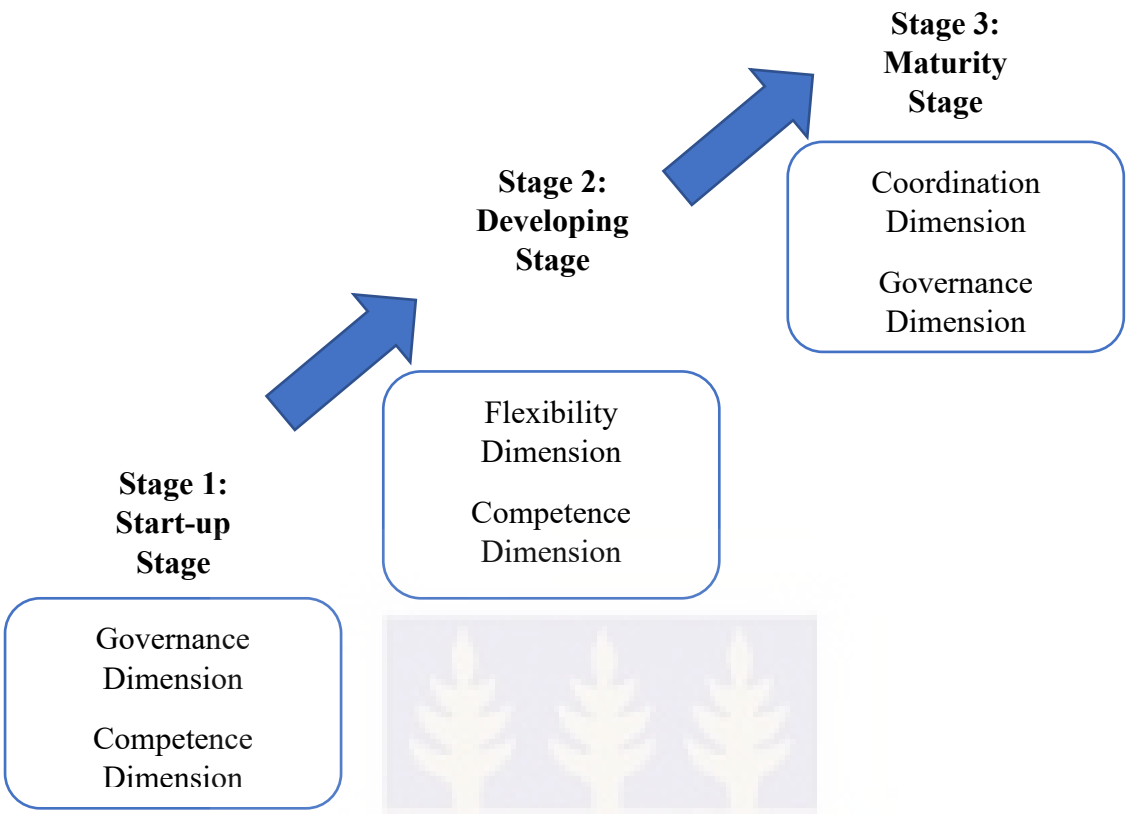


Figure 10.2: Dominant digital business strategy dimensions at the various stages of growth of the digital enterprise (Source: author's construct)

10.3 Reflections

It is necessary to reflect on some of the key pillars on which this research is hinged. These pillars serve as a means of making a strong case for some of the decisions made in this thesis. These include; the digital economy of Ghana; the choice of theories used for the study; the digital business strategy framework; and the research methodology.

10.3.1 Reflections on the Digital Economy of Ghana

Discussion on the digital economy of Ghana is presented in Chapter 7 of this thesis. The digital economy involves the digitalization of ICT. This new economy has opened a vast horizon of possibilities that were not known or unthinkable before. The developments in areas such as

Machine-to-Machine communication (M2M), Internet of things (IoT), sensor technology and Cloud platform solutions, have led to the digitization of firms regarding their services.

Most developed economies are increasingly leveraging on ICT in small business enterprises for socio-economic development. For instance, in France alone, as early as 2001, over 80,000 new firms had been created in the field of Information Communication Technology, leading to the creation of about 160, 000 jobs. Politicians, experts and statesmen have asserted that the digital economy presents a new paradigm shift for countries – providing employment opportunities. This phenomenon is not different from the developing countries. In Ghana, for instance, it has been projected that the digital economy will contribute to 10.2 percent of Ghana's GDP in the next five years (Blay, 2019). Most stakeholders in the digital economy have great difficulties in clearly understanding its nature and potential. Also, they are not always aware of the enablers of the new digital enterprises. These difficulties have been attributed to the particularities of digital technologies and the specific characteristics of the digital economy.

In probing the nature of the online presence of the digital enterprises in Ghana, e-commerce was dominated by a few firms operating service-oriented websites (see chapter 7). Again, almost all the digital enterprises have their origins in Ghana except for a few originating from USA, UK, Nigeria and South Africa.

The 16-factor business model by Weill et al. (2005) was used to classify the business models of the firms. The findings indicated that most digital enterprises in Ghana are Creators, followed by Distributors, Landlords and lastly Brokers. Creators are those who own or significantly modify an asset; distributors trade in the ownership of an asset with a limited

transformation to it; landlords grant temporary use of the assets; and brokers match buyers and sellers of assets. With regards to the assets employed or utilized, intangible assets recorded highest with Creators, Landlords and Brokers. It was also noted that the dominance of intangible assets such as web 2.0 tools (wiki's, social media and cloud computing), brand image and intellectual properties possess some logical consistency with the mode of operation of digital enterprises. The only outlier was those with Distributor rights, who were utilizing more of physical assets in addition to the intangible assets. This category belongs mainly to firms in the retail, e-commerce and advertising industry. It was also discovered that Brokers recorded highest with human assets and that these firms are found mostly in the job and recruitment service industry. There were no human creators as well as human distributors because it is deemed illegal to create or distribute human beings in Ghana and most countries. In addition, almost all categories gave an indication of the low utilization of financial assets which stems from the fact that the online financial business sector is still nascent in Ghana.

Regarding the economic and financial enablers of the digital enterprises in Ghana, personal savings, friends and family support were the dominant source of funding for almost all the digital enterprises. Due to the uncertainties surrounding the business model and value creation potentials of these firms, gaining credit from other sources tend to be difficult. There was also the issue of limited debt capacity, absence of guarantee and trust that compel these firms to depend on self, family and friends funding. However, some firms had received funding from angel investors and venture capitalist for some stake or equity in the business. These investors tend to ignore the creditworthiness and limited history associated with these young firms but rather provide not only financial but also managerial support and access to a business network. It was also discovered that the digital enterprises shy away from bank loans due to stringent terms and conditions and the higher propensity to default.

Finally, it was discovered that all digital enterprises leveraged on social networking services in their business operations and as an avenue to engage their target customers. Due to the online nature of these new businesses, social networking sites such as Facebook, Twitter, Instagram, LinkedIn and others present an immense opportunity for them to promote their brand, understand customer preference and offer personalized services. However, Facebook was the dominant channel for business promotion in Ghana. The other technologies employed were cloud computing and Big Data analytics technologies. The cloud with its cost-effective, flexible and scalable structures give these firms access to infrastructure and software that shape their growth and development. Big Data, on the other hand, is significantly under-explored, perhaps due to the limited computational capacity of the digital firms.

It is essential to realize that there is an increasing rise in digital enterprises in the Ghanaian digital economy, and these firms are creating jobs and providing business solutions locally that would hitherto be sought from developed economies. There is a need for some legal foundations that will cushion these firms from the fierce competitions that stagnate their growth. Also, infrastructure and financial support should be given to these firms to enable them to develop. Finally, more accelerator and incubator programs should be run to provide exposure to the innovative ideas of these firms for them to attract funding from alternative sources.

10.3.2 Reflections on Theories

In addressing the research questions posed by this research, a review of the existing literature indicated a number of studies had covered digital business strategy. The starting point was the special edition of the MIS Quarterly journal on Digital Business Strategy. All articles from this

edition were initially reviewed including articles from other top Information Systems journals found in leading academic databases as recommended by Yunus and Salim (2008).

The 16 business model archetypes framework developed by Weill et al. (2005) was reviewed (see Section 2. 5). This framework was used to evaluate the business models of digital enterprises operating in Ghana's digital economy. It was however revealed that the typology developed by Weill et al. (2005) had already proven to be useful and was applied to analyse the performance of the top 1,000 enterprises in the United States of America. Also, Remane et al. (2016) applied the same typology to investigate the changes in the digital business model types of digital enterprises in the mobility sector. The typology classifies the enterprises based on the rights being sold and the types of assets involved in the business. The 16 basic business model archetypes evolved by combining the two dimensions. This 16 Business model archetypes (discussed in Section 2.5) was adopted to analyse the business models of digital enterprises in Ghana.

In another breadth, Porter's Five competitive forces model was selected and applied in scanning the competitive business environment of the digital enterprise to determine the digital business strategy to overcome these forces (see Section 2.6). Information Systems scholars and practitioners highly value and use Porter's Five competitive forces model (Indiatsy et al., 2014). This is because the model provides a better understanding of the industry environment; a comparison of rivals for business obstructions, advantages and disadvantages in technology, production and quality (Rachapila & Jansirisak, 2013). This evaluation helps to determine the continuation, termination or development of the business. Porter's Five forces model deals with a continuous process of scanning and monitoring the environment of firms. It also involves obtaining competitive intelligence on the present and potential rivals of enterprises (Porter,

2008). The survival of the enterprise is influenced by some competitive forces which are either within (internal) or outside (external) of the firm (Liang et al., 2007). The firm must strategize to survive this competition. Porter's (2008) model has become a handy tool for analysing the various competitive forces that exist within the industry. The Five Forces Model includes; analyses of the bargaining power of suppliers; the threat of entrants or potential competitors; the threat of substitute products or services; the bargaining power of buyers or prospective customers; and the intensity of rivalry among existing competitors.

In terms of the digital business strategy framework, it was discovered that a digital business strategy comprises of four major dimensions – governance, flexibility, coordination and competence. Strategic management theories and frameworks were reviewed in order to conceptualise these dimensions. It was discovered that the theories and frameworks for studying strategy had been deficient in looking at strategy from multiple dimensions. Resource-Based view, for instance, is limited by its focus on only the internal resources of the firm without the external environment (Barney, 2001). These deficiencies led to the integration of the theories based on their focus in order to develop a comprehensive digital business strategy framework. Agency theory, for instance, was selected and used to review the governance dimension of digital business strategy which deals with the ability of the digital enterprise to allocate resources to create and capture value efficiently. Dynamic Capabilities theory was also chosen with a focus on the flexibility dimension of digital business strategy, which is the ability of the digital enterprise to be agile and adapt to changing conditions in the industry. The Resource-Based View theory was also used to review the competence dimension of digital business strategy argues that enterprises possess a collection of resources which lead to enhancing their advantage competitively (Barney, 2001). Finally, the Structure-Conduct-Performance framework focused on the coordination dimension of digital business strategy

where profitability is achieved when the firm can restrain competition and restrict the entry of new firms into the industry.

10.3.3 Reflections on Digital Business Strategy Framework

Business strategy in a broader sense denotes a set of decisions taken by the management of a firm which consists of the choice of an industry within which to operate, investments in resources, tactics for pricing and the configuration of the firm (Williamson, 1991). Other decisions may consist of managing the business' trade-offs between efficiency – cost reduction – and also effectiveness – value creation and capture (Drnevich & Croson, 2013). Even though these high-level decisions might seem easy, they require thorough analysis. Several factors must be taken into consideration before effective decisions can be taken. This makes strategy in businesses very crucial which is not different from other endeavours. Failure of the strategy may even result in the closure of the business.

Digital business strategy is defined by Mithas et al. (2013) as moving beyond the business strategy to a stage where a business engages in a category of Information Technology related activities. In the Special Issue on Digital Business Strategy in the MIS Quarterly Journal, Bharadwaj et al. (2013) defined Digital Business Strategy as "organizational strategy formulated and executed by leveraging on digital resources to create differential value." This shows the encompassing nature of digital business strategy, hence requiring a multidimensional outlook.

Four major dimensions were highlighted in the review of digital business strategy literature - governance, flexibility, coordination and competence. These four dimensions form the pillars for a digital business strategy framework. The governance dimension of digital business

strategy deals with the ability of the digital enterprise to allocate resources to create and capture value efficiently. The flexibility dimension, however, highlights the ability of the digital enterprise to respond quickly to changes that occur in both the internal and external environments leading to an improvement in efficiency and effectiveness. Competence dimension emphasises on the capabilities and the resources which the firm uses to capture and create value. Coordination dimension focuses on the ability of the digital enterprise to cooperate, collude or coordinate with other external agencies such as rival firms and regulators to prevent or limit new competitors from entry and exert authority over both its customers and suppliers. These four dimensions arguably focus on the various facets of digital business strategy.

In another breadth, it was realised that the levels of importance of the dimensions of the digital business strategy differ at the various stages of growth of the digital enterprise. Consequently, digital enterprises tend to give different focus or attention to the dimensions as the firm grows or matures. It is worth noting that three major growth events were identified in the case of the study, as presented in Section 9.2. The first event - the founding stage - was characterised by the initial digital business strategic actions. The second event was the development stage, which was also marked by digital business strategic actions aimed at delegating some business activities as it develops. The third event was also characterised by the digital business strategic actions geared towards coordinating the business activities as it matured. Table 10.2 outlines the various issues related to the various dimensions of the digital business strategy framework.

Table 10.2: Significant dimensions of digital business strategy

Phases of Growth	Significant Dimensions of Digital Business Strategy	Evidence in Literature
Phase One: Founding stage	**Governance dimension** *Entrepreneurs' ownership:* The direct involvement of the owner/entrepreneur in the operations of the business enhanced the survival of the business. *Level of innovation:* This refers to the new service/product being introduced onto the market. A higher level of innovation creates opportunities in the market for the business.	Liu et al. (2015); Chen and Kamal (2016); Landstrom (1993); Nwankpa (2015); Reyns and Henson (2016)
	Competence dimension *Intellectual resources:* The start-up capital for the business in the first phase is the intellect/skills of the owner/founder. This influences the ability to combine the other resources to maximise output. *Technological resources:* As a digital enterprise, technological devices such as Laptops, internet among others are the primary resources	Alden (2011); Biberhofer et al. (2019); Nevo and Wade (2010): Chuang and Lin (2017)
Phase two: Developing stage	**Flexibility dimension** *Experience accumulation:* The digital enterprise accumulates a vast amount of experience from the first phase, which is applied to adjusting the business model. *Opportunity discovery:* based on the accumulation of experience, the digital enterprise can identify business opportunities in the industry.	Zaheer et al. (2018); Sia et al. (2013); Smith's (2018)
	Competence dimension *Reputation:* A major resource available in the second phase of growth is the reputation or brand the digital enterprise builds for itself in the first phase of growth. High quality and trustworthy brand attract customers. *Financial and human resources*: Start-up capital is expected to have accrued some profits which are expected to be reinvested into the digital enterprise in the second phase. In addition, more human resources become available to the enterprise as it grows in the second phase.	Alden (2011); Chuang and Lin (2017); Nevo and Wade (2010); Birkinshaw and Goddard (2009)
Phase three: Maturity stage	**Coordination dimension** *Integrated services:* The digital enterprise in the maturity stage integrates its services with customers by providing related products or	Zhao and Xia (2014); Hulse (2018).

	services in packages. These integrated services are aimed at helping to reduce the bargaining power of the customers and increasing the switching cost. *Government and regulatory support:* The digital enterprise, in the maturity stage of growth, benefits from favourable policies and interventions from industry supervisors and government agencies.	

Source: author's construct

Table 10.2 shows that, comparatively, the most important digital business strategy dimensions in the first phase of growth, are Governance and competence. This can be attributed to the focus of the digital enterprise in the first phase of growth which is the founding stage where the entrepreneur's vision comes to life (see Section 9.3). The entrepreneur directly supervises all activities in the start-up firm. The most significant activity in the first phase is the ingenuity of the founder(s). This finding is corroborated by Liu et al. (2015), who postulated that the level of innovation influences the way resources are managed for the firm to remain competitive. On the other hand, Flexibility was the most crucial dimension in the second phase of growth. Coordination was, however, the most dominant digital business strategy dimension in the third phase of growth.

Figure 10.3 revisits the conceptual digital business strategy framework with various dimensions. These issues were guided by the constructs of the theories and frameworks for reviewing them. From Figure 10.3, the survival of the digital enterprise is generally dependent on the four main digital business strategy dimensions.

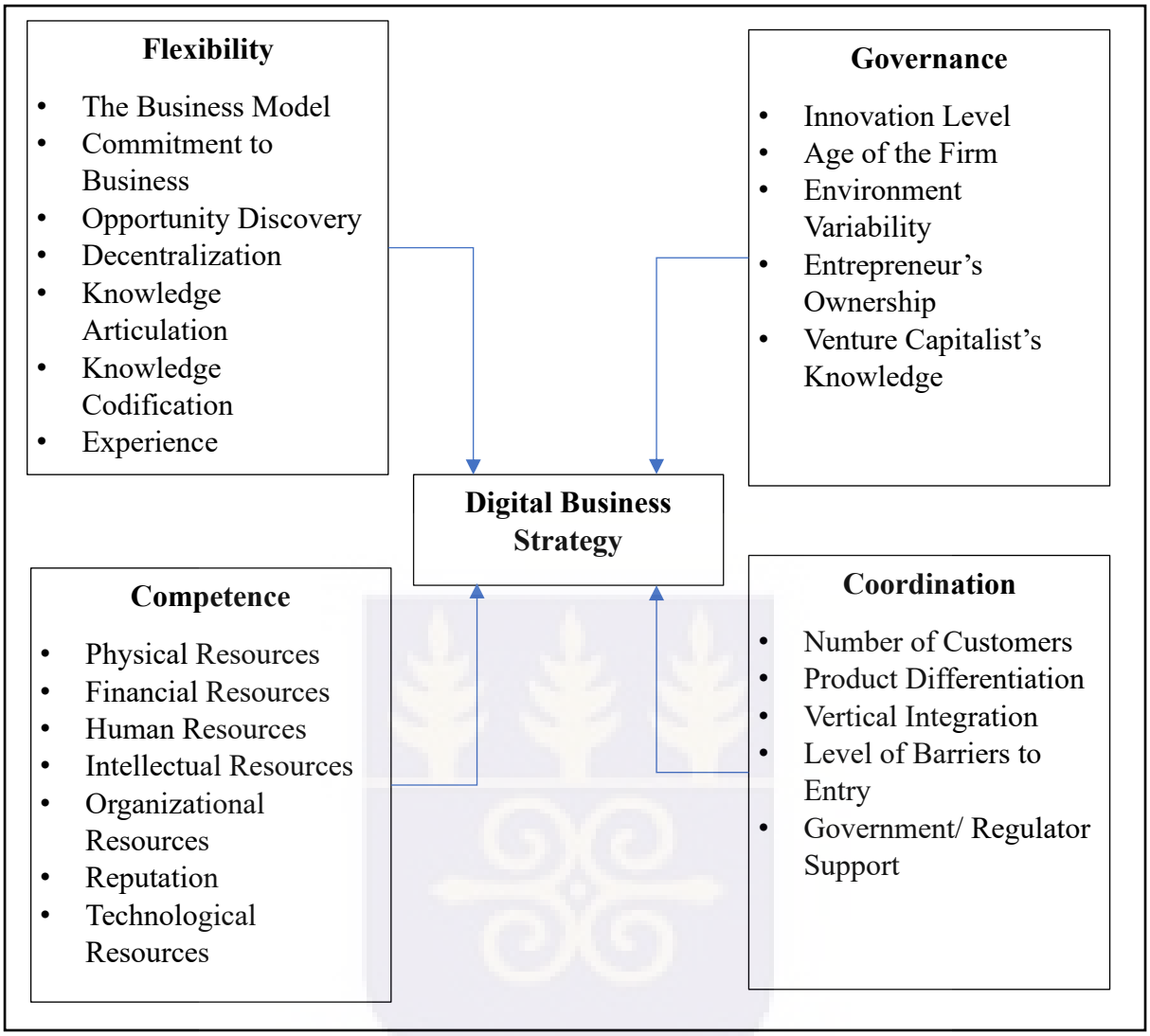


Figure 10.3: Highlight of the proposed digital business strategy framework
Source: author's construct

Two digital business strategy frameworks are developed after this study. The first is the comprehensive framework that presents the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy (Figure 10.4). The second framework shows how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value (Figure 10.5). These models' application is limited to digital enterprises who wish to survive in the digital economy beyond the 42-month survival threshold as postulated by Allen et al. (2007).

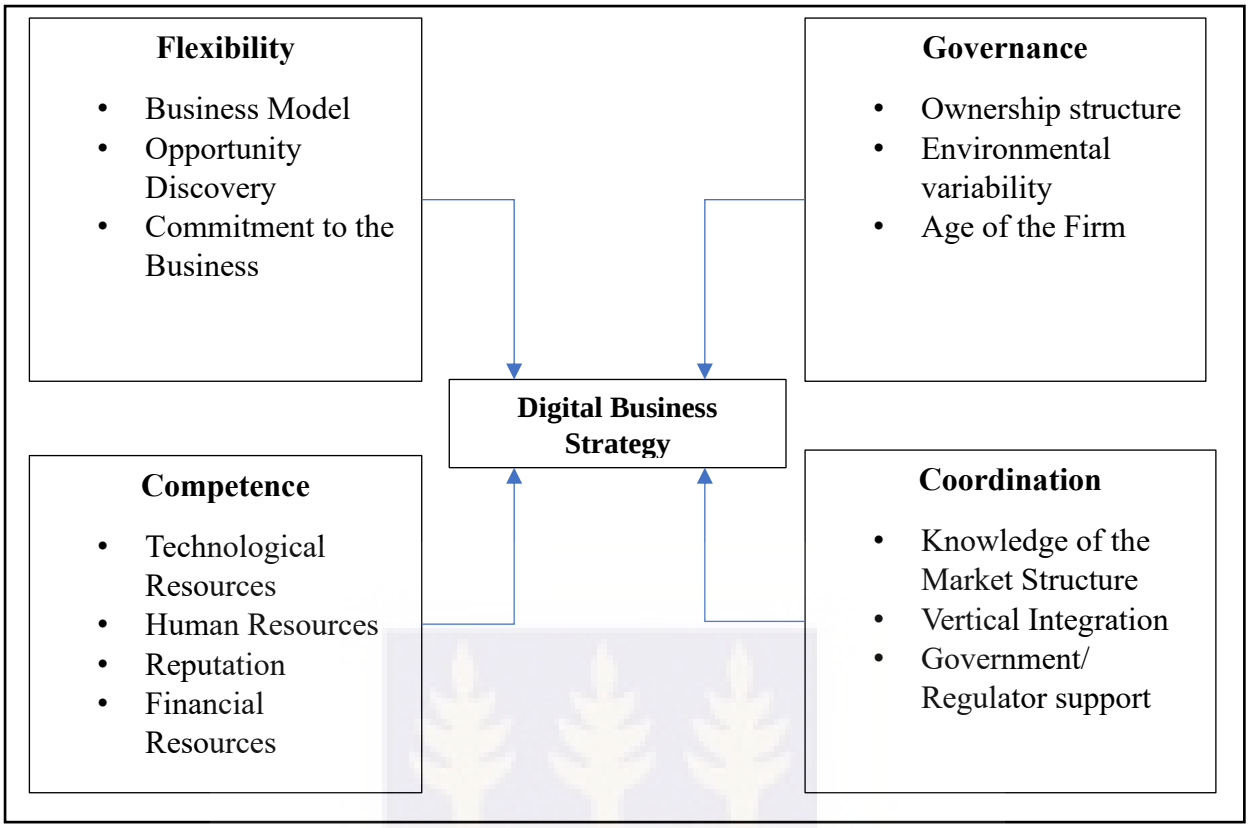


Figure 10.4: Finalised Digital Business Strategy Framework

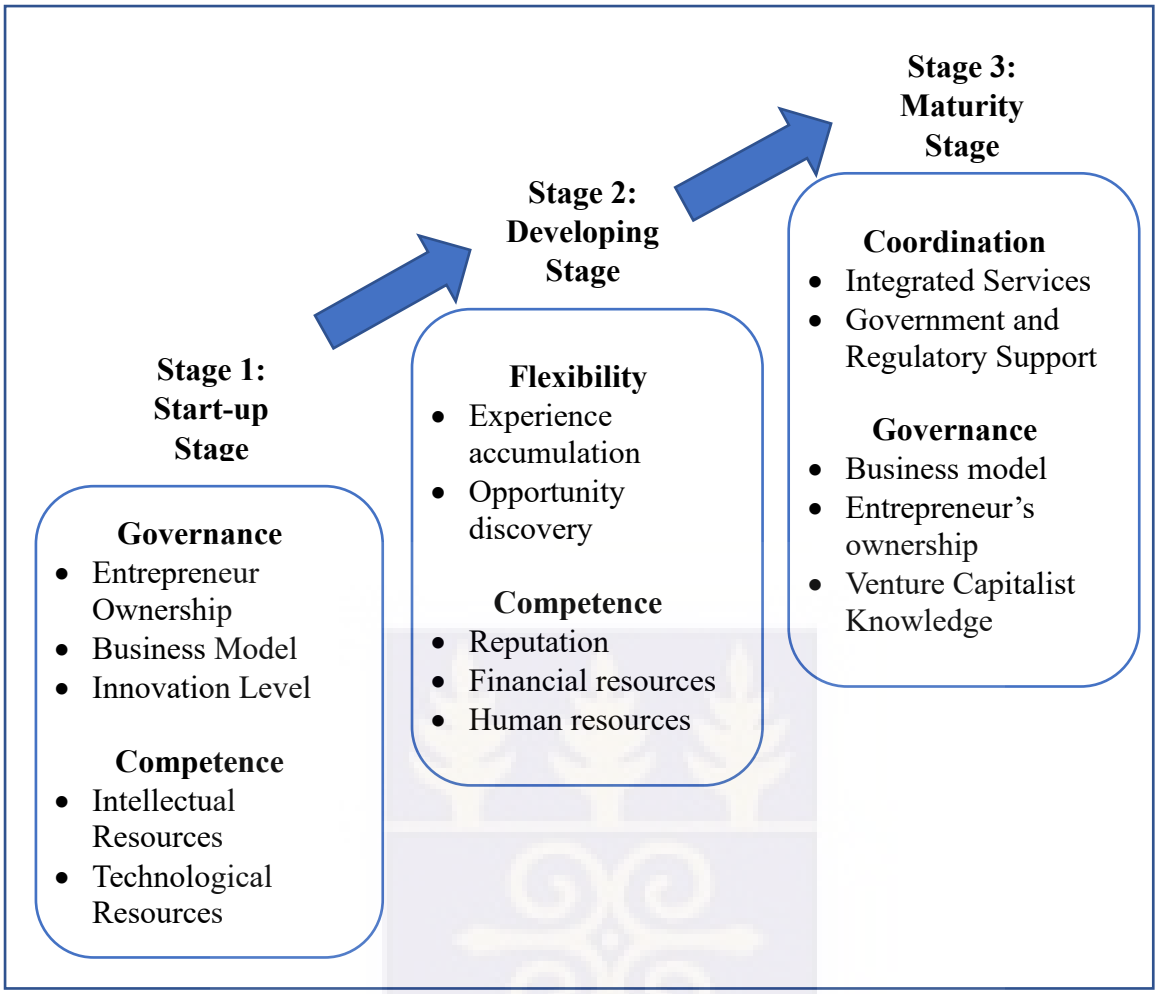


Figure 10.5: Digital business strategy for the growth of the digital enterprise

10.3.4 Reflections on Methodology

A researcher's choice of methodology influences the research framework which guides the investigation of a study through a specific research paradigm. This thesis was carried out guided by the critical realism research paradigm. The critical realism paradigm has arguably been seen to provide researchers with the opportunity to view real-world problems from their underlying causal mechanisms (Mingers et al., 2013) instead of a situational analysis. The in-situ analyses which are a feature of both the interpretive and Positivist paradigms have been argued to be deficient in providing answers to the mechanisms behind the strategic evolution of digital enterprises (Henfridsson & Bygstad, 2013). Little, if any, research has been conducted on the development of a comprehensive understanding of the various activities and

contingencies of causal structures in the strategic evolution of digital enterprises. Therefore, adopting the critical realist paradigm appropriately responded to the objectives of the research.

In addition, critical realism supports a plurality of methodologies (i.e. quantitative, qualitative and mixed method). It offers a robust framework for the use of a variety of methods in order to gain a better understanding of the meaning and significance of information systems in the contemporary world. The study initially adopted the exploratory survey design. Survey research mainly provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample (Neuman, 2011). The researcher can make claims and generalize about a phenomenon from the results of a selected sample. The justification for selecting a quantitative approach as against a qualitative or mixed approach is that aside from being best situated, it also provides for the unearthing of definite evidence rather than just providing information (Zikmund, 2003). This was applied in mapping out the digital enterprises in Ghana based on the business models that have evolved from the application of innovative digital technologies.

In the second place, a qualitative methodology was chosen to explore the strategic digital business actions of digital enterprises in Ghana. The choice of qualitative methodology was also premised on the fact that qualitative methodology in critical realism has a capable profound role of describing a phenomenon, constructing propositions, and identifying structured interactions between complex mechanisms in a phenomenon such as digital business strategy. The choice of critical realism and qualitative methodology allowed for this research to analyse from a critical realist perspective, the causal mechanisms that led to the growth and survival of the digital enterprises in the digital economy of Ghana. Two digital enterprises were selected

as cases for the study. These two enterprises were selected based on their unique backgrounds and nature.

10.4 Contributions and Implications of the Research

In line with academic exercises, it is expected that the study contributes to research, practice and policy. Table 10.2 presents a demonstration of this study's contributions which are mapped against the research questions and findings.

10.4.1 Contribution to Research

This study examined the digital economy of Ghana to develop a framework for digital business strategy. Knowledge about the nature of the digital economy of Ghana and the survival strategies of digital enterprises was limited in Literature as highlighted in Table 10.3. The handful of studies that attempted to map the digital economy of countries were conducted in either Spain (del Aguila et al., 2003) or Indonesia (Aryanto & Chrismastuti, 2011). Other identified mapping studies were industry reports from practitioners such as the digital economy report of 2019 by the United Nations Conference on Trade and Development (UNCTAD) and the KPMG (2019) report on Taxation in the digital economy. This highlights the paucity of research on modelling the digital economy of countries in academia. Research on mapping the digital economy of Ghana contributes to knowledge by providing a mapping review of the digital business models of Ghanaian digital enterprises. This knowledge is arguably novel in the context of a developing country. It provides a steppingstone for future studies to explore other areas in the digital economy of countries, especially from developing countries.

In addition, this thesis is arguably one of the initial studies to view digital business strategy from a multi-dimensional perspective – considering strategy from a multidimensional

perspective such as governance, flexibility, coordination and competence. Again, four strategic management theories and frameworks were integrated to develop a digital business strategy framework. This is also arguably one of the preliminary studies in Information Systems to integrate four strategic management theories and frameworks (agency theory, resource-based view theory, dynamic capabilities theory and the structure-conduct-performance framework). The study developed a comprehensive digital business strategy framework which was applied in Two contexts - (1) the strategic actions of a multinational digital enterprise and (2) the strategic actions of a locally owned digital enterprise as it grows from a start-up stage to maturity.

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Table 10.3. Summary of Study contribution

Research Problem	Research Questions	Research Findings	Extant Literature	Contribution
Difficulties in clearly understanding the digital economy and lack of awareness of the problems digital firms face in their quest to survive and growth **(pp 4-10)**	What are the business models of digital enterprises in a developing economy?	Among human, physical, and intangible assets, financial assets were the least utilized assets in the operations of digital enterprises. This stems from the fact that the online financial business sector is still in its nascent stages in most developing economies. In addition, all digital enterprises leverage accessible and low-cost social networking services as part of their operations and use them as an avenue to engage with their target customers. **(pp 124-127)**	1. Most economic actors have great difficulties in clearly understanding the digital economy and are not always aware of the problems digital firms must face (Jansson, 2011; Georgiadis, Stiakakis and Ravindran, 2013) 2. Research on modelling the digital economies of countries have arguably been limited to Spain (del Aguila, Padilla, Serarols, & Veciana, 2003) and Indonesia (Aryanto & Chrismastuti, 2011). **(pp 1-10; 25-28)**	1. This study contributes to knowledge by providing a mapping review of the digital business models of Ghanaian digital enterprises. 2. The study draws to the attention of current and hopeful entrepreneurs that there is fierce competition in the digital economy as well as opportunities. 3. It provides effective awareness to entrepreneurs who wish to venture into the digital ecosystem of Ghana some issues of the economic, financial and technological factors that enable digital enterprises to survive in the digital economy. **(pp 133-134)**
Research into the survival strategies of digital enterprises have been in the nascent stages especially in the context of developing economies with little to no formalised structures in the digital landscape **(pp 4-10)**	What is the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy?	In terms of the nature of competition in the digital economy, it was discovered that; 1. there was a high intensity of the rivalry between the digital enterprises in the Ghanaian digital economy. 2. the bargaining power of customers was also high. On the other hand, the threat from market entrants and the bargaining power of suppliers were both low. Concerning the strategic actions, it was discovered that; 1. the digital enterprise has a business model that is responsive to the digital environment 2. the firm has procured state of the art digital devices and uses cloud-based digital infrastructure **(pp 138-149)**	1. Most new enterprises are unable to survive beyond 42 months after they are established (Allen et al., 2007). This phenomenon has been observed to be prevalent in most developing economies (Ansong & Boateng, 2019). 2. While digital enterprises such as Uber, Amazon and Facebook are thriving well in the digital economy, others such as Nokia and Dell are struggling to identify the appropriate digital business strategy to implement (Keen & Williams, 2013; Weill & Woerner, 2015). 3. Strategic management theories and frameworks for studying digital business strategy focus on one of the major dimensions without comprehensively capturing all the major strategic issues. **(pp 128-130, 66-75)**	1. The study contributes to knowledge by providing a review of the competitive digital environment of a Ghanaian digital enterprise and the strategic actions for overcoming these forces and surviving. This knowledge is arguably the first in the context of a developing economy. This provides a steppingstone for future studies to explore the levels of relevance of the various dimensions of the digital business strategy at the various stages of growth of the enterprise. 2. The study presents a case of how a digital enterprise is surviving in a very competitive and unstructured digital economy of a developing country. **(pp- 199-204)**
Lack of a framework that comprehensively	How are the strategic actions of	1. Three major growth events were identified.	1. Strategic management theories and frameworks for studying digital business strategy	1. The thesis integrated four strategic management theories to develop a comprehensive digital business strategy framework

addresses the major dimensions of digital business strategy **(pp 4-10)**	business models of digital enterprises in a developing economy developed/oriented to create value?	2. it was discovered that digital business strategy consists of four major dimensions (governance, coordination, flexibility and competence) 2. The most important dimensions in the first phase of growth are governance and competence. 3. The most important dimension in the second phase of growth is Flexibility and competence. 4. Most relevant dimension in the third phase of growth is Coordination **(pp 161-171)**	focus on one of the major dimensions (Drnevich & Croson, 2013) 2. The Agency theory reviews the governance dimension of strategy which deals with the ability of the digital enterprise to efficiently allocate resources to create and capture value (Jensen & Meckling, 1976; Liu et al., 2015) 3. Dynamic Capabilities theory focuses on the flexibility dimension of digital business strategy which is the ability of the digital enterprise to be agile and adapt to changing conditions in the industry (Sia et al., 2013). 4. Structure-Conduct-Performance framework focuses on the coordination dimension of digital business strategy where profitability is achieved when the firm can collude, cooperate and or coexist with other firms and industry players (Choi et al., 2017). 5. The focus of the resource-based view theory is on the competence dimension which deals with the ability of the enterprise to exploit its resources to create and capture value (Chuang & Lin, 2017; Barney, 2001) 6. Previous studies on digital business strategy focused primarily on digital enterprises with formalized structures (Mithas et al., 2013). **(pp 49-51; 71-82; 151-153)**	2. this study is of practical importance to managers and executives of digital enterprises who are struggling to develop digital business strategic actions to survive. A Global Entrepreneurship Monitor report indicates that Africa has a higher business discontinuation rate. Most new businesses in Africa do not survive beyond 42 months after their establishment as postulated by Allen et al. (2007). 3. The framework developed is useful to entrepreneurs who wish to develop a digital business strategy to survive and grow. **(pp 199-209)**

Source: author's construct

10.4.2 Contribution to Practice

This research has implications for managers of digital enterprises, policymakers, and regulators of the digital economy. In the first place, the mapping of the digital economy of Ghana presents guidelines to entrepreneurs who wish to venture into the digital ecosystem of Ghana. The findings further suggest that all digital enterprises leverage accessible and low-cost social networking services as part of their operations and use them as an avenue to engage with their target customers.

Specifically, this study is of practical importance to managers and executives of digital enterprises who are struggling to develop digital business strategic actions to survive. A Global Entrepreneurship Monitor report indicates that Africa has a higher business discontinuation rate – most new businesses in Africa do not survive beyond 42 months after their establishment as postulated by Allen et al. (2007). This study is useful to entrepreneurs who wish to develop digital business strategy to survive and grow beyond this 42-month threshold.

In addition, the cases presented in this thesis provide the success story of how digital enterprises are thriving in a very competitive and unstructured digital economy of a developing country. This is meant to bring the fierce competition as well as the opportunities to the attention of current and hopeful digital entrepreneurs. It provides awareness to entrepreneurs who wish to venture into the digital ecosystem of Ghana, on the economic, financial and technological factors that enable the survival of digital enterprises in the digital economy. Also, it provides potential investors in the digital economy with information on the dominance of online matchmakers and application developers, as well as the paucity of online financial service providers in this developing economy.

10.4.3 Contribution to Policy

In terms of policy, it is important for governments to realize that there is an increasing rise in digital enterprises in developing economies. These enterprises are creating jobs and providing business solutions locally that would hitherto be sought from more developed economies. There is a need for some legal frameworks to be established to cushion these enterprises from the fierce competition that stagnates their growth. Furthermore, infrastructure and financial support should be given to these enterprises to enable them to develop and employ more people. Finally, more accelerator and incubator programs should be set up to provide exposure for the innovative ideas of these enterprises and enable them to attract funding from alternative sources.

10.5 Outputs from this Thesis

This thesis moved beyond contributing to academia, practice and policy into carrying out patentable products which have also already been making strides in the digital economy of Ghana and globally. The following discussions present the patentable works from this thesis.

In the first place, an online database has been developed based on the mapping of digital enterprises in Ghana. As indicated in Section 6.4.2 concerning the lack of a single database for digital enterprises in Ghana, an online database named "http://dbizbase.com/" has been developed which serves as a one-stop-shop for information concerning digital enterprises in Ghana. This database was developed using the typology developed by Weill et al. (2005) which was applied in this study. Appendix F shows screenshots of the interface of the database. Since its launch in October 2019, it has seen considerable traffic serving as a platform for identifying digital enterprises from various industries in Ghana. It is envisaged to be used as a hub for research data on digital enterprises in Ghana.

Again, a complete research paper has been developed, submitted, reviewed and published in the 2019, Volume 21, edition 2 of the Journal of Digital Policy, Regulation and Governance. This is an Emerald publishing journal. The journal is ranked by the Association of Business Schools (ABS) and Scopus. This article was developed from the first research objective, which sought to model the digital economy of Ghana. The article was titled "Surviving in the digital era–business models of digital enterprises in a developing economy" which according to google scholar citation metrics has so far been cited 11 times one month after publication. The DOI number is 10.1108/DPRG-08-2018-0046.

In addition, a book chapter has been developed and ready for publication in the textbook titled "Handbook of Research on Developing Economies." This textbook is set to be published by IGI Global. The title of the chapter is "Survival strategies in the digital economy of Ghana. The case of a Digital Enterprise." This chapter was developed from the second research objective of the thesis dealing with explaining how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value.

Furthermore, two conference publications have been developed from this thesis. The first is the participation in the 9th International Science, Technology, Education, Arts, Management (iSTEAMS) conference held on Thursday, 26th October 2017. The conference is coordinated by the Research Nexus in collaboration with the International Centre for IT Research and Development (ICITD), Southern University – Louisiana, USA and the Africa Institute for Development Informatics & Policy (AIDIP), Accra Ghana. This paper was on the literature review to develop the conceptual digital business strategy framework. It was titled "Digital Business Strategy of firms: Toward an Integrated Framework in the Digital Economy." The paper was presented and has since been published in the conference proceedings. In another

breadth, a paper has also been submitted to be presented at the 2020 International Conference on Information Resources Management (Conf-IRM) on the theme "Evolving Human and Organizational Practices in the Intelligent Age." This conference is scheduled for May 20-22, 2020 in Miami, USA. This is an AIS affiliated conference. The paper submitted was developed from the third research objective of this thesis which is to explain how the strategic actions of business models of digital enterprises in a developing economy are developed/oriented to create value. The title of the paper is "The digital enterprise in a developing economy: Digital business strategy for growth."

10.6 Research Limitations and Future Research Directions

Though the research offers significant contributions to academic and practitioner literature, as every research, there are a number of limitations. First, the timeframe for the completion of this research is a significant constraining element which influenced the conduct of the study. Strategic decisions in itself is a concept whose impact is properly observed after a period, mostly in years (Williamson, 1991). On the other hand, this study was limited to studying the strategic actions of the selected digital enterprises over a short period of it. It is recommended for future studies to revisit the digital enterprises used for this study to analyse the impact of their strategic decisions presented in this study. In addition, a longitudinal study of the digital business strategy of digital enterprises will also be opportune.

Again, the case studies were limited to two digital enterprises in Ghana because of the ease of access to respondents and data that the researcher needs to gather. Future studies may be carried out in other digital enterprises in other digital economies to compare the findings from this thesis.

Another issue worth noting is the silence of discussion on the challenges the digital enterprises presented in this thesis face in the digital economy. This silence was due to the focus of this thesis which was specifically on the digital business strategy of the digital enterprises. Future studies may focus on the challenges digital enterprises face as they strive to grow in the digital economy.

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APPENDICES

Appendix A: Literature Classification Table

Author	Purpose	Theory/ Framework	Finding	Methodology/Context	Key Gaps
Mithas, Tafti and Mitchell (2013)	Research into ways competitive industry environment shapes how digital strategic posture influences firms realized digital business strategy.	determinants of IT activity and competitive dynamics theory	Digital business strategy is not solely a matter of optimizing firm operations internally or of responding to one or two focal competitors, but also arises strikingly from awareness and responsiveness to the digital business competitive environment.	Quantitative United States of America	further studies can investigate other strategic actions related to IT such as engagement in social media and social networks.
Setia, Venkatesh and Joglekar (2013)	To study how information quality leads to localized capabilities and customer service performance	Conceptual framework Customer orientation capability Customer response Capability	Findings suggest that the impacts of information quality in capability-building are contingent on the local process characteristics.	Quantitative Structural equation modelling United States of America	Further research can be focused on the alignment between global and digital business strategies.
Grover and Kohli (2013)	Investigate whether all digitization is desirable in the long term or not.	visibility-value framework	Findings suggest that the impacts of information quality in capability-building	Quantitative approach United States of America	Future research can test conditions of high or low system visibility and how

Author	Purpose	Theory/ Framework	Finding	Methodology/Context	Key Gaps
			are contingent on the local process characteristics.		firms can maximize value
Arasti, Khaleghi and Noori (2017)	to present a framework which steers the linkage of corporate-level technology strategy and corporate strategy (CS) at multi-business companies.	Conceptual Framework	technology integration through value chain should be considered as an important element of corporate-level technology strategy.	Qualitative approach. Iran	other researches may focus on how corporate-level technology strategy affects CS
Woodard, Ramasubbu, Tschang and Sambamurthy (2013)	The logic of the digital business strategy in terms of design capital and design moves	Conceptual framework	The study discovers two salient dimensions of design capital, namely option value and technical debt.	Embedded multiple case study. Singapore	Study should be replicated to firms in a more diverse set of industry domains which will help to generalize the propositions and develop a more comprehensive contingency framework.
(Pagani, 2013)	To provide a framework for the dynamic network of control points in value creation and digital business strategies.	Conceptual framework		Qualitative approach European and U.S. broadcasting industry.	Study can be replicated in different contexts.

Author	Purpose	Theory/ Framework	Finding	Methodology/Context	Key Gaps
Yeow et al. (2018)	A longitudinal analysis of a B2B company's journey to enact its B2C digital strategy.	Dynamic capabilities theory	Development of a model for aligning business processes made up of three phases	Longitudinal Case study Germany	Model should be tested in different contexts.
Davison and Ou (2017)	To investigate how digitally literate employees cope with the tensions that arise when they work in an organization characterized by a conservative IT governance structure	sociotechnical theory (STT) and adaptive structuration theory (AST)	The employees adaptively structure whatever technical resources are accessible and thus balance social and technical systems as they work.	Qualitative approach China	The IS discipline desperately needs more research where organizational cultures and policies collide with the normative expectations of their employees, where the current theory is not helpful, and where the constructs are unfamiliar.
Dellermann, Fliaster and Kolloch (2017)	Determine how manager should deal with risks related to digital innovation.	Conceptual framework	It was discovered that digital business model innovations do not only give birth to new business opportunities, but they also give rise to serious new risks.	Qualitative case study Germany	Further studies on risk management in the digital economy.

Author	Purpose	Theory/ Framework	Finding	Methodology/Context	Key Gaps
Choi, Raghu, Vinzé and Dooley (2017)	To examine the relationships between task characteristics of e-business standards and group effectiveness of standards consortia in terms of group centralization, group cohesiveness, and group diversity.	Structure-Conduct-Performance	The findings of the study indicate that the expanding nature of e-business standards and a broader participation of IT vendor and users must be considered in order to improve group effectiveness of standards consortia.	Qualitative case study USA	Study should be replicated in different sectors of the economy
Chuang and Lin (2017)	To examine the performance implications of information-value offering in eservice Systems	Resource-based View	e-service capability and service innovation orientation leads to information-value offering and the value positively influence organizational performance by customer relationship performance.	Quantitative Taiwan	Researchers may also explore the role of the complementarity between these factors and RBV in successful e-service systems implementation.

Appendix B: Publication Outlet for Digital Business Strategy Literature

Journals	2010	2011	2012	2013	2014	2015	2016	2017	Totals	Percentage
Technological Forecasting and Social Change								4	4	3.5
Management Decision								4	4	3.5
Information Technology and Management			4					1	5	4.3
Journal of Management	1								1	0.9
Journal of the Association of Information Systems				4					4	3.5
MIS Quarterly	1	1	1	10	3			2	18	15.7
Business Strategy Review	2								2	1.7
Computers in Human Behavior						3			3	2.6
Journal of International Business Studies							4		4	3.5
Information Systems Frontiers								2	2	1.7
Journal of Strategic Information Systems								4	4	3.5
Journal of Information Technology					3	2			5	4.3
Information and Management					4	2		1	7	6.1
Journal of Business Strategy								4	4	3.5

Journals	2010	2011	2012	2013	2014	2015	2016	2017	Totals	Percentage
Information Systems Management								4	4	3.5
Strategic Management Journal		4							4	3.5
Scandinavian Journal of Management					2				2	1.7
Transforming Government: People, Process and Policy							1		1	0.9
Long Range Planning								1	1	0.9
Journal of International Development	1							2	3	2.6
Technological Forecasting and Social Change								2	2	1.7
Information and Organization				3					3	2.6
Electronic Commerce Research and Applications						3			3	2.6
International Journal of Information Management							4		4	3.5
Information Systems Journal								3	3	2.6
Journal of Enterprise Information Management				3					3	2.6
Communications of the Association of Information Systems		3							3	2.6
Procedia-Social and Behavioral Sciences			1						1	0.9

Journals	2010	2011	2012	2013	2014	2015	2016	2017	Totals	Percentage
International Journal of Offender Therapy and Comparative Criminology							1		1	0.9
Journal of Information, Communication & Ethics in Society					2				2	1.7
Technology Analysis & Strategic Management						3			3	2.6
MIT Sloan Management Review						1			1	0.9
Journal of Management Information Systems					4				4	3.5
Totals	5	8	6	20	18	14	10	34	115	100

Appendix C - Interview guide (survival strategies)

Survival Strategies in the Digital Economy of Ghana. The case of a Digital Enterprise

Introduction:
My name is Eric Ansong, a PhD candidate at University of Ghana, Legon, pursuing Information Systems. I am conducting a study on exploring firms' digital strategic actions for dealing with the competitive forces in the digital economy of a developing country.

Overview of Research: Firms are in constant competition for dominance and survival. Knowledge of how firms use information systems to improve operational efficiency is limited especially in developing economies. This research specifically seeks to;
1. To determine the nature of the strategic actions which underpin the business models of digital enterprises in a developing economy.

Thank you in advance for your valuable contribution to the ongoing research. Your participation is vital to the success of this research However, you are under no obligation to answer questions to which you feel uncomfortable with. All information to be gathered from your firm is purely intended for academic purposes and no other use.

Background of Respondent

1) Please enlighten me about your role/position within your organization?
2) How long have you been working with the organization?
3) What experience or formal qualifications do you have?
4) Please give me a brief background of your firm (business model, types of products and services etc)

The Competitive forces within the digital economy

5) What is required to set up a digital enterprise such as your own in Ghana.
6) How do you rate the level of competition in the e-commerce space where you operate?
7) By your estimation how many digital enterprises do you see as direct competitors to your firm?
8) What is the purchasing behaviour of your customers?
9) How do your customers influence your prices?
10) How do your suppliers influence your prices?
11) What is the nature of your relationship with your suppliers?
12) How do you relate with your customers?

Digital business strategy for survival

13. Describe the management structure within your firm?
14. How do you recruit new staff into your workforce?
15. What are the requirements to join your workforce?
16. What is your staff size and dynamics?
17. Please outline your relationship with third party service providers to your firm.
18. How do you receive information from the industry within which you operate?
19. In order of preference, kindly list three of your major asserts with justification
20. How do you manage your asserts?
21. How do you manage the changes that occur in the digital landscape?
22. What has been your most significant product or services introduced into the Ghanaian market space?

Closure:

a. This marks the end of my questions; is there anything you might have want to say or anything you would like to add?
b. Are there any available documentations that can provide me with more information related to the study?

Thank you for your time and contribution.

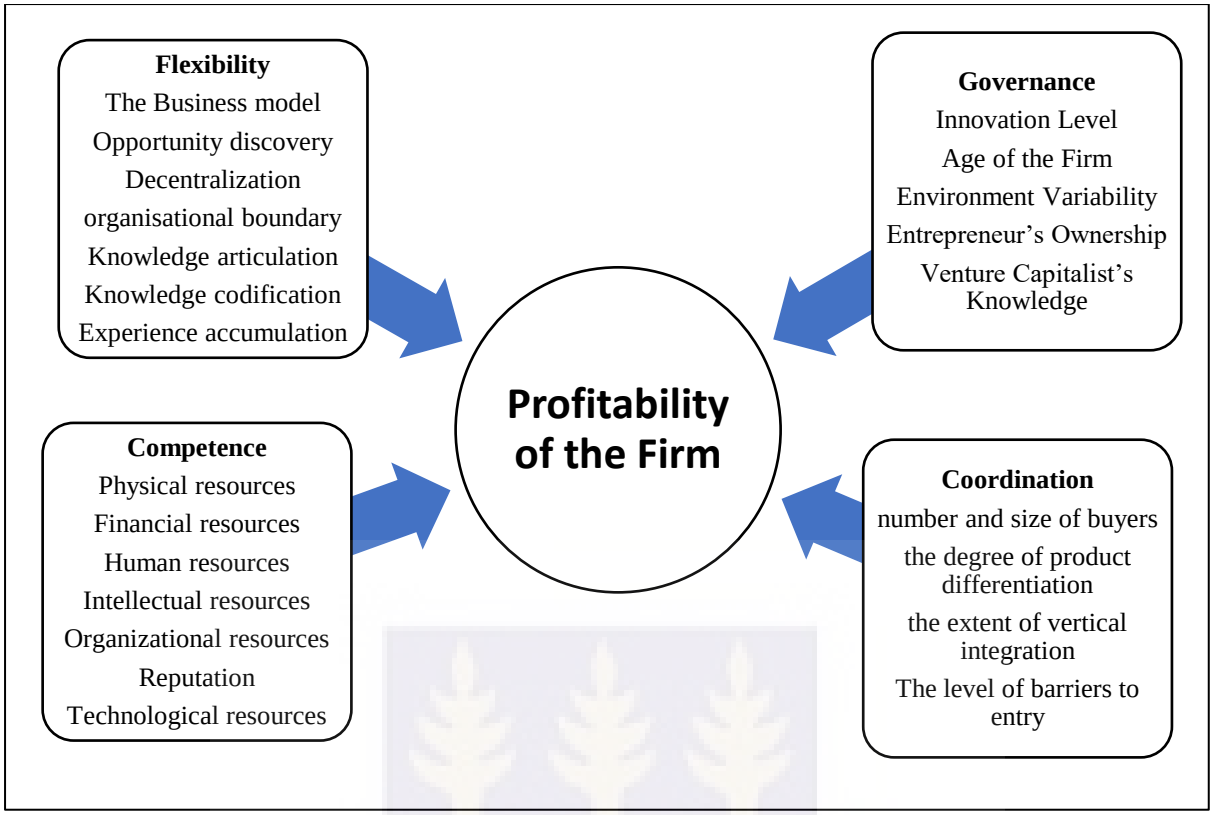


Figure 1: Digital Business Strategy model

Appendix D: Questionnaire for Mapping digital enterprises in Ghana

Mapping Digital enterprises in Ghana

A mapping study to analyze the business models of digital enterprises in Ghana. Kindly spend some few minutes of your time to fill this questionnaire. Your responses will be treated with utmost confidentiality

Section 1: Basic Company Profiling

1. Kindly state the name of your firm……
2. Kindly state the country of origin of your firm……..
3. Your Firm is:
   a. Purely Online Business (virtual presence only)
   b. Click and Mortar Business (both virtual and a physical structure)
4. If you selected "click & Mortar" for Q3. Kindly state the town and region of location of the business. …….
5. In which year was your firm established?.....
6. Which of the following best describes the industry or primary business?
   a. Agriculture/ Forestry/Fishing /Hunting
   b. Manufacturing
   c. Wholesale Trade
   d. Retail Trade
   e. Transportation / Warehousing
   f. Information
   g. Finance and Insurance
   h. Real Estate / Rental / Leasing
   i. Professional, Scientific, or Technical Services
   j. Management of Companies and Enterprises
   k. Educational Services
   l. Health Care and Social Assistance
   m. Arts, Entertainment, and Recreation
   n. Accommodation and Food Services
   o. Public Administration
   p. Other……
7. What stage is your business currently at?
   [ ]Pre-start up [ ]1 - 18 months
   [ ]18 months - 3 years [ ]3 years +
8. What is the firm's ownership type?
   [ ]Sole Proprietorship
   [ ]Private Limited Liability
   [ ]Public Limited Liability
   [ ]Partnership
   [ ]NGO
9. How many founding partners were there in the start-up?
   [ ]1-4 [ ]5 -10 [ ]10+
10. How many people does your business employ?
    [ ]Under 10 [ ]10-20 [ ]20-50 [ ]50-100 [ ]Over 100

Section B – Business Model

11. Online presence of your firm: (select as required)
    a. E-commerce site or Transactional site: The site created for the selling and purchasing products and services in return for financial payment which is conducted via the site itself.
    b. Service oriented sites: Provide information to stimulate purchase and build relationships. Products are not typically available for online purchase.
    c. Portal or media sites: Main purpose is to provide maximum content and information to visitors. Eg. Yahoo, google etc
    d. Brand build website: These sites do not sell any product or service online but help in building an online value and reputation to support the brand.
    e. Social networking sites: A platform that enables interactions between different consumers and the firm.
12. Select the right that is being sold by the firm. (select as required)
    a. Creator: Designs, produces and sells a product by transforming raw materials and components delivered from suppliers.
    b. Distributor: Buys a product and resells it without significantly transforming it.
    c. Landlord: Sells not the product but rather the right to use a product for a specific time period.
    d. Broker: Facilitates a transaction between a buyer and a seller, often in exchange for a commission.
    e. Other…
13. What specific right does your firm sell? (Please state)……
14. Select the type of asset involved in your operations. (select as required)
    a. Financial: Includes cash, stock, bonds, and insurance policies as well as other assets that give their owners rights to potential future cash flows.
    b. Physical: Includes durable items (such as houses, computers, and machine tools) as well as nondurable items (such as food, clothing, and paper).
    c. Intangible: Includes legally protected intellectual property (such as patents, copyrights, and trademarks) as well as other intangible assets
    d. Human: Includes people's time and effort.
15. What specific type of asset(s) is/are involved in your firm's operations?.....
16. Has your firm received an award or recognition in the past? Yes/No
17. If Yes, kindly state the name of the award/Recognition your firm……
18. Has your firm embarked on any Corporate Social Responsibility activities? Yes/No
19. If Yes, kindly outline this CSR activity……

Section C – Funding and Enablers

20. Is it easy to find help/resources on starting your own business? Yes/No
21. What are your major source of funding?

a. Venture Capital
b. Crowdfunding
c. Business Loans
d. Angel investment
e. Own/ Friends/ family

22. Kindly state the name of your firm's funding agency, if any?.....
23. Have you been a part of any Accelerator/Incubator program? Yes/No
24. Which of these technologies do you utilize as a digital enterprise?

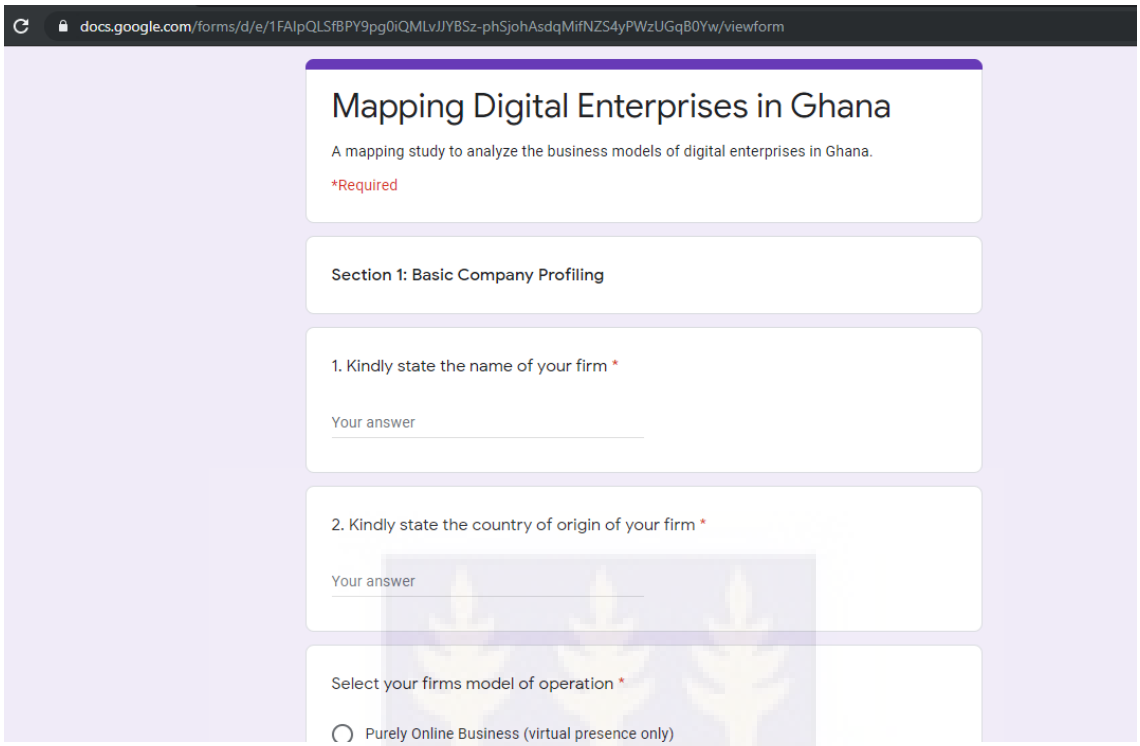
[ ]Social Media [ ]Cloud Computing

25. Which of the following social media channels do you use most as a business?

[ ]Facebook [ ]Twitter [ ]WhatsApp [ ]Linked-in [ ]Instagram
[ ]Other……

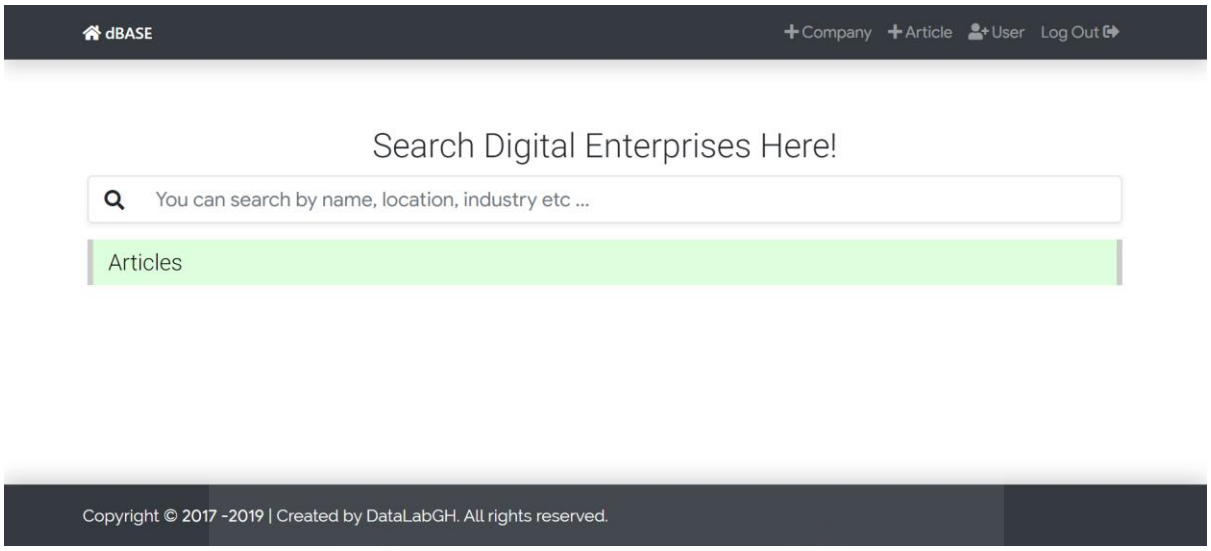
Thank you very much

Appendix E: Snapshot of Google form for questionnaire administration

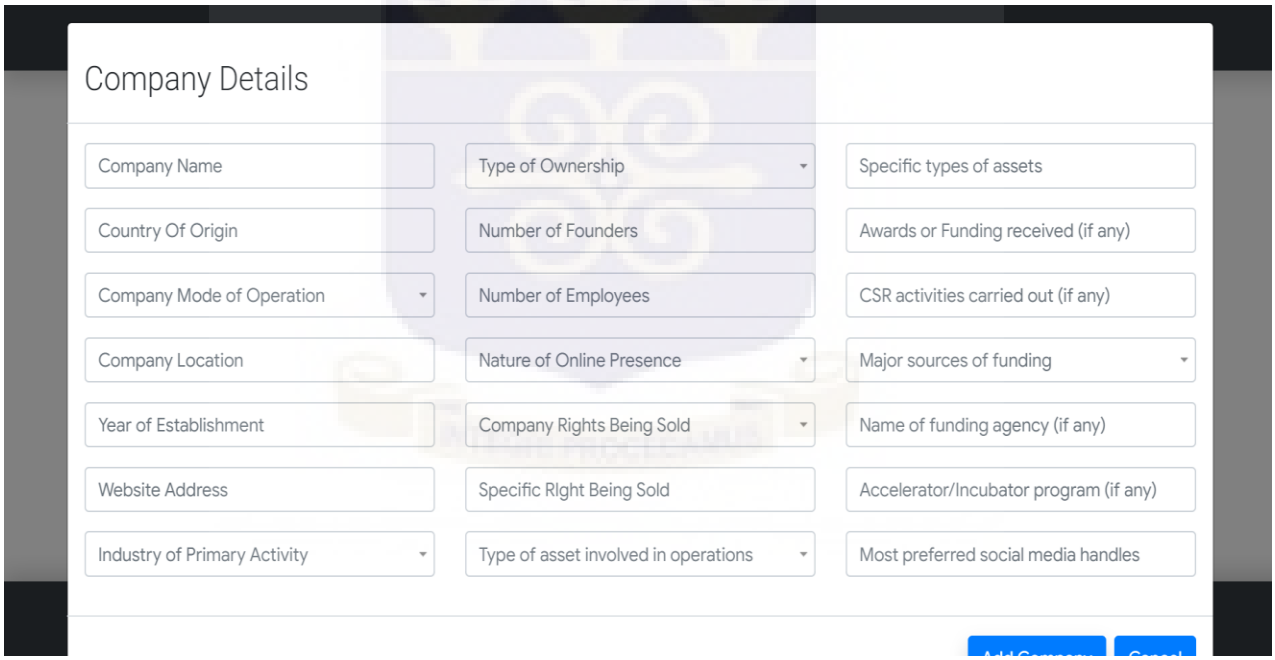


Source: https://forms.gle/gi8CvMZveQMDhCRZ7

Appendix F: Snapshots of the Online database of digital enterprises in Ghana



Source: https://dbizbase.com/index.php



Source: https://dbizbase.com

Appendix G: PUBLICATIONS

BOOK CHAPTER

Ansong, E. (2020). Survival Strategies in the Digital Economy of Ghana. The case of a Digital Enterprise. In R. Boateng (ed). *Handbook of Research on Managing Information Systems in Developing Economies.* PA, USA: IGI-Global.

JOURNAL ARTICLE

Ansong, E., & Boateng, R. (2019). Surviving in the digital era–business models of digital enterprises in a developing economy. *Digital Policy, Regulation and Governance*, 21(2), 164-178. DOI: 10.1108/DPRG-08-2018-0046 Publisher: Emerald Publishing.

CONFERENCE PRESENTATIONS

Ansong, E. (2017). Digital Business Strategy of Firms: Toward an Integrated Framework in the Digital Economy. In the *Proceedings of the 19th iSTEAMS Multidisciplinary Conference*, University of Ghana, Legon, Accra-Ghana.

Ansong, E., Boateng R., & Banuro, F. (forthcoming). Growing in the Digital Economy: The case of a Digital Enterprise in a Developing Country. 2020 *International Conference on Information Resource Management* (CONF-IRM). (scheduled for May, 2020).