



# **The Role of Business and Information Technology Alignment in Shaping Organizational Agility**

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## Statement of Declaration

I the undersigned, hereby declare that work contained in this research project entitled “**The Role of Business and Information Technology in Shaping Organizational Agility**” is my own original work and that I have not previously, in its entirety or in part, submitted at any university for a degree. I have undertaken the study independently with the guidance and support of my research advisor and that all the sources of materials used for the thesis have been duly acknowledged by citations giving explicit references.

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**ADDIS ABABA UNIVERSITY**

**School of Commerce**

**The Role of Business and Information Technology Alignment in Shaping  
Organizational Agility: ABIG Investment Group**

**By: Melka Girma**

**Approved by Board Examiners**

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## Abstract

*This research project aims to identify the role Business and Information Technology (IT) Alignment plays in shaping Organizational Agility using a Strategic Alignment concept. The research made use of a descriptive survey methodology to collect, present, analyse and interpret data relevant to the research objective and questions. To discover the relationship of business and IT alignment on organizational agility, intuitive graphical analysis, Pearson's Correlation, and a simple regression model were also used. ABIG Investment Group was selected to conduct the study and a census of all management staffs were used for the study. In this era one of the major questions that occupies the minds of managers and leaders is how organizational agility can be achieved especially during dynamic environmental changes and disruptions. During this time of unprecedented uncertainties, there are companies which are thriving, and which are not. Companies may have their own business processes, but that is no longer a sufficient condition to be agile in 21st century, as it has become increasingly impossible to ignore the role of IT in business. The research project is basically about the convergence of these two concepts: business and IT alignment and organizational agility. In general, the results indicated the presence of a significant positive relationship between business and IT alignment and organizational agility; such that higher business and IT alignment amongst all the strategic alignment domains leads to higher organizational agility. This finding suggests that organization is doing well at aligning its business and IT which in turn positively affects and predicts organizational agility of the company. The study helps ABIG and other similar organizations to benchmark where they stand in their business and IT alignment as well as organizational agility and, most importantly, indicates how they can improve their strategic alignment and agility, thereby create a sustainable competitive advantage in the marketplace.*

**Keywords:** Business and IT Alignment, Strategic Alignment, Organizational Agility, Information Technology

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## List of Acronyms

ABIG	Asku and Berhane Investment Group
AO	Organizational Agility
BITA	Business and IT Alignment
BPR	Business Process Reengineering
CIO	Chief Information Officer
IT	Information Technology
MBO	Multi - Business Organization
SAM	Strategic Alignment Model
SAP	Systems Applications and Products
SBU	Strategic Business Units

# CHAPTER ONE

## Introduction

### 1.1 Background of the Study

Top management has been concerned with business and information technology strategic alignment (BITA) for the past 30 years. Consequently, various researchers have developed models to help understand and explain how alignment generates value for firms (Gerow, Thatcher and Grover, 2015). Among the top ten management concerns identified, four top management concerns always remain in the list, and these include: business and information technology alignment, business process reengineering, information technology (IT) strategic planning and organizational agility (Luftman & Ben-Zvi, 2010). On the other hand, contemporary business organizations face different marketplace and environment changes since uncertainties resulting from natural or man-made scenarios are very common and thus make having an agile organization a necessity. Agile organization is quick in responding to changes in the marketplace, and thus requires agile leaders/leadership.

Companies fail to meet their business goals partly because owners & managers are unable to create effective business processes, built on a set of well-defined and clearly stated business objectives. IT on the other hand, is challenging the way companies organize their business processes, communicate with customers, and deliver their products and services. Various literatures suggest that the alignment between business and IT is vital. According to Signavio (SAP) – an international company that helps businesses navigate change, organizations where their IT and business strategies are in lock-step are in a better position to improve their agility and operational efficiencies (Tecwyn, 2020).

Organizational agility helps organizations to respond to strategic shifts in internal and external environments and deploy the necessary resources quickly to capitalize on new opportunities. It is the ability to survive and grow in an unexpected competitive environment of constant change through rapid response to changing markets and through meeting the desires and needs of customers, (Gunasekaran, 1999). According to Park (2011), there are three main dimensions of Organizational Agility (AO): sensing agility, decision-making agility and acting agility, while the second dimension is central to the leadership.

During this time of unprecedented uncertainties, there are companies which are thriving, and which are not. A personal curiosity to identify the alignment properties that helped companies thrive despite the unprecedented challenges is the primary reason that motivated to conduct this study in the case of Asku and Berhane Investment Group (ABIG) which is a multi-business organization.

The reason for choosing a multi business organization is because multi-business organizations (MBOs), present a particular alignment challenge, where business strategies are developed at both corporate level and within individual strategic business units (SBUs) across the corporate investment cycle. In addition, MBOs have multiple business units or companies, operate in a wider scale and thus are highly exposed to the external environment. The other reason is multi-business organizations are among the companies that are thriving during challenging times and there could be lessons to be learned on how they were able to thrive despite the challenges. The fact that multi-business organizations have high impact on the country in terms of employment, tax revenue, export revenue etc. makes it ideal decision to purposely choose them for such research.

We had the chance to talk to managers at some companies and sensed the fact that, proven business processes and the use of IT are among the factors that helped them remain agile. However, identifying the specific properties, characteristics, nature, and extent of the business and IT alignment, how agile they are, as well as identifying the lessons that can be taken for other local companies requires an in-depth study. To this end, this study aims at discovering the role BITA plays in shaping organisational agility in the case of ABIG. ABIG is an umbrella management company that has formed a unique team of experts managing a diverse investment portfolio across different industries. It participates in different sectors such as Food & Beverage, Petrochemicals, Manufacturing, Import & Export, Engineering and Construction & Property Management.

The primary focus of this study is to assess the role that Business and IT Alignment (BITA) plays in shaping organizational agility – an attribute that is very essential in 21st century organizations. A logical question that will be asked is what is in business and IT alignment for organizations, and what could go wrong if the two are not aligned?

## **1.2 Statement of the Problem**

In this era, one of the major question or problem that occupies the minds of managers & leaders is how organizational agility can be achieved. Answering this question basically requires them to know and use tools and systems within the organization that can bring about these abilities (Dahmardeh, Shahgholian and Benihashemi, 2010). On the other hand, although business executives remain sceptical about the extent of payoffs from investment in IT, for the past 30 years, strategic alignment continues to be ranked as one of the most important issues facing corporations (Luftman & Ben-Zvi, 2010).

Companies may have their own business processes, whether the processes are efficient and effective or not. From our experience with a couple of private business owners, leaders, and managers, one of the major problems they face is that they are excessively locked-in the day-to-day activities and hence unable to focus on strategic matters. So, they often look for solutions that can liberate them from back-

office activities and has led us to ask question - how can we allow leaders focus on strategic matters than dwell into daily routines? Is having a proven business process, by itself, a sufficient condition to liberate business leaders and managers from pandering into unnecessary day to day activities? Probably not, and that is where IT comes in, for rescue - and thus the concept of BITA. It has become hardly possible to ignore the role of IT in business. On other hand, OA which an important attribute to have, especially during dynamic internal and external environmental changes and disruptions, is something companies always look for. The study is basically about the convergence of these two concepts: strategic alignment or BITA and organisational agility.

To this end, an initial review of some literatures has given us an indication that, in the past, so many studies have been conducted on business process and related concepts such as Business Process Reengineering (BPR). It is also noted that the concept of BITA has been analysed and published by researchers over the last 25 years. Organizational agility has also been studied focusing on how it helps to bring about consistent organizational performance in general.

Despite the richness in literature, there are reasons why this topic deserves attention in Ethiopia's context: Firstly, even with the apparent importance of Business and IT Alignment, most of the business studies in Ethiopia remain focused on either business processes or information technology separately, and the alignment of both concepts are not adequately explored specially during this time where environmental changes has become sweeping and drastic. Similarly, there are a lot of studies conducted on business process reengineering and other business improvement initiatives, but the alignment and cross alignment of business strategies/processes with IT strategies and infrastructure seldom exists particularly in the Business Leadership related research in Ethiopia.

Secondly, while there are few studies that explored strategic alignment levels of different organizations in Ethiopia, however, these studies did not consider the role strategic alignment plays in shaping organizational agility and did not adequately identify the specific characteristics of effective BITA practices. Finally, despite the critical role of Chief Information Officers (CIOs) in the 21st century, little attention is given in the existing leadership literatures with respect to their role in responding quickly to trends, changes, and the needs of the organization, its people, and those it serves - which is an integral part of organizational agility.

Since the previous studies have already confirmed that alignment between business process and IT greatly helps to achieve agility, the efforts of this study focused on identifying the role, properties and characteristics of alignments that result in organizational agility in the case of ABIG. This project work may contribute to the field of business leadership by proposing an alternative framework which can be used by organizations in aligning business routines with IT both at process and strategic level and remain agile amid internal and external environmental changes. Understanding how companies develop

BITA and shape their organizational agility and identify lessons that can be used as a benchmark for other companies to create alignment is also one of the benefits of the study.

Finally, the concept of BITA has been internationally studied over the last three decades in relation to organizational performance, but the principal focus of this research project is to explore the role of Business IT Alignment in shaping Organizational Agility in the context of selected multi-business organization. This is because, in the 21<sup>st</sup> century, where technological disruptions are common, and technology is becoming the driving force behind leadership, and thus leaders need to understand at least how much information technology can aid them in managing people and business processes.

### **1.3 Research Questions**

To answer the stated problem, this study asked the following three basic questions:

- How strong is the extent of business and information technology alignment in ABIG Investment Group?
- What is the level of organizational agility in ABIG Investment Group in terms of sensing, decision-making, and acting agilities?
- How significant is the role of Business and IT Alignment in shaping Organizational Agility in terms of responding quickly and effectively to unexpected opportunities and threats?

### **1.4 Objectives of the Study**

#### **1.4.1 General Objective**

The general purpose of the study was to develop an understanding of how companies achieve organizational agility by continuously aligning their internal proven business strategies with their IT strategies. Operational silos, organizational resistance, and speed of decision making, unaligned processes, and poor knowledge management are perhaps among the major obstacles to organizational agility. This study tried to identify the role Business and IT Alignment domains play in overcoming these obstacles while shaping organizational agility dimensions at ABIG Investment Group.

#### **1.4.2 Specific objectives**

The specific objectives of this study were:

- To assess the level of Business and Information Technology alignment in ABIG;
- To assess the level of Organizational Agility in ABIG in terms of sensing, decision-making and acting agilities and;
- To identify role of Business and Information Technology Alignment in shaping Organizational Agility of the selected organization.

## **1.5 Significance of the Study**

We have reached in an era where the role IT in business cannot longer be ignored. In today's dynamic and competitive environment, having aligned business and IT strategy and practice is a must for multi business organizations to sustain their business. To this end, results from this study helps both executives and managers to understand the role BITA plays in shaping their organizations agility – an attribute they are desperately looking for given the dynamism of our time. Specifically, the study gives an idea of where the selected organization stands in terms of strategic alignment and organizational agility. Results of the study also provide with measurement and instruments that other organizations can periodically use to assess their level of strategic alignment and organizational agility. The study findings also indicate decision makers on the role of IT investments and expected payoffs when properly aligned with business.

Finally, findings of the research and the topic itself gives an idea for future studies in business leadership such that more and more areas of BITA and OA could be explored, while also helping as a starting point to researchers and practitioners who want to apply the approach to organizations in different sectors.

## **1.6 Scope of the Study**

Objective of this study is to understand the role BITA plays in shaping organizational agility of a multi business organization in Ethiopia's context. In doing so we drew on the seminal Strategic Alignment Model (SAM) of Henderson & Venkatraman (1993), to look into the alignment levels of the selected multi business organizations. Even though there are various perspectives to look at the role of business and IT alignment such as: organizational performance, innovation, cost reduction, efficiency etc., the current study tries to look at the role of BITA from organizational agility perspective only. The reason why we needed to look at the role of BITA from organizational agility only perspective is because, OA is becoming an important success factor in the 21<sup>st</sup> century. The current study is also did not cover measurement of the strategic alignment maturity level of the selected organization as this basically requires a different model-based approach.

## **1.7 Limitation of the Study**

Research on business and IT alignment and organizational agility is relatively new in Ethiopia, but its development has increased over the past decade in the western world. Even though this research area is now topical, there is lack of similar published studies specifically in Ethiopia's context which made our discussion less comprehensive. One of the limitations of this study is it did not consider qualitative research approach. Had it been mixed research method, the quantitative and the qualitative data would have complemented each other, and we would have got rich and quality data. The other limitation is that the selected organization have fewer managements staff and thus has limited the number of

participants in the survey. It would have been better if organizations with several number of management staff were considered. Our research is based on perception-based model, but a more comprehensive result would have been obtained had we used different evaluation method or framework such as model – based frameworks in addition to perception – based model.

## 1.8 Definition of Terms

Table 1 below defines the list of some important operational terms.

*Table 1 - Definition of Key Terms*

<b>Terms</b>	<b>Definition</b>
<b>Organizational Agility</b>	Organizational agility is the ability of organizations to thrive, survive and grow in an unexpected competitive marketplace of constant change, exceptionally through a rapid response and to meet the needs of their customers (Gunasekaran, 1999).
<b>Sensing Agility</b>	The ability of organizations to timely detect and capture important business events Park, 2011).
<b>Decision Making Agility</b>	The ability of organizations to interpret captured events, define opportunity and threat, and make action plans in a timely manner (Park, 2011).
<b>Acting Agility</b>	The ability of organizations to timely dynamically reconfigures organizational resources , modify business processes, and introduce new innovations to the market (Park, 2011).
<b>Strategic Alignment</b>	Strategic Alignment Model is defined in terms of four domains of strategic choice: business strategy; IT strategy; organization infrastructure and processes; and IT infrastructure and processes. The model is conceptualized in terms the interrelationships between external and internal domains and integration between business and functional domains (Henderson & Venkatraman, 1993).

## 1.9 Organization of the Study

This study mainly focused on assessing the role BITA plays in shaping organizational agility in the selected multi-business organizations in Ethiopia. The study is organized into five chapters. Chapter one presents introductions of the study. The literature review part of the study is presented in chapter two. The review of the literature which includes review of concepts including business and IT strategy, business and IT alignment, organizational agility, measurements, importance, and related works are also presented respectively in this chapter. Chapter three presents the research design and methodology. The analysis of the result is presented in chapter four after which the discussion of the result follows. Finally, chapter five presents the conclusions, recommendations, and future research direction.

# CHAPTER TWO

## Literature Review

The literature review section includes review of organizational agility and alignment concept as well as the Strategic Alignment Model (SAM) and all its perspectives. Moreover, literatures written on the concept of business process and the role of Business and IT Alignment and practice, and its role in shaping organizational agility are thoroughly reviewed. Literatures written on organizational agility are also reviewed. The Literature review is organized in three separate parts including theoretical, empirical, and conceptual framework.

### 2.1 Theoretical Literature

This theoretical review section discusses the extant literature, theories and concepts underlying organizational agility and business IT alignment, as well as their relationships.

#### 2.1.1 Definition and Concept of Organizational Agility

The term organizational agility was first used in a manufacturing setting to indicate required capabilities in a modern manufacturing (Dove and Nagel, 1991). After agile manufacturing, the concept of agility is extended to many other contexts such as organizational strategic agility, business agility, information systems agility, supply chain agility etc. (Koçu, 2018). The creators of “agility” concept at the Iacocca Institute, of Lehigh University (USA) defined it as “a manufacturing system with hard and soft capabilities to meet the rapidly changing needs of the marketplace such as speed, flexibility, customers, competitors, suppliers, infrastructure, and responsiveness” (Nafei, 2016).

According to Imgharene, Doumi and Baina (2018) agility is the ability of organizations to detect environmental changes and rapidly react or respond to the changes. Gunasekaran (1999) on the other hand defined organizational agility as the ability of organizations to thrive, survive and grow in an unexpected competitive marketplace of constant change, exceptionally through a rapid response and to meet the needs of their customers. Others simply define agility as the ability of an organization to reinvent and revise its strategies in adapting erratic changes in the operating environment, reacting easily and quickly. Organizational agility (OA) is a high-order or dynamic capability which lets organizations to integrate and assemble resources thereby effectively responding to changing customers’ demands through enhanced performance overtime (Sambamurthy, Bharadwaj and Grover, 2003). OA makes organizations more responsive to market trends. Organizational agility can also be viewed as organizational performance in terms of adaptability and flexibility, and so the agility concept encompasses both these concepts (Nafei, 2016).

As indicated in all of these and many other agility definitions, “change” and “change management” is the main characteristics and focal point of agility. Contemporary business organizations face different marketplace and environment changes since uncertainties resulting from natural or man-made scenarios are very common. The changes require provision of products and services within a short period of time to maintain their competitive advantage, and this can only be achieved when agility is considered as an organizational value and strategy championed by the leadership team (Crocitto & Youssef, 2003). The above assertions signify the vitality of agility for companies that wish to scan and listen to their environment and instability, while crisis and technological disruptions (changes) make the quality of having agile organization a necessity.

Changes can be internal and external, or predictable and unpredictable including new laws and regulations which may have impacts on the industry or market volatility caused by disruptive product and technological innovations (Imgharene et al., 2018). Changes can affect the entire industry, the whole company or just a single process within the company. Therefore, the ability to identify which level of the abstraction the change can affect and reacting quickly to seize into the opportunity to react to the potential threats or exploit changes caused by internal changes requires agility supported by IT business alignment (ibid).

In 21st century organizations face rapid changes, turbulences and environmental uncertainties as well as stiff completion. Imgharene et al. (2018) mentioned different dimensions of changes identified by Dr. Kunt, both internally and externally; recognizing the need to change and quickly respond to these changes requires agility of an organization.

*Table 2 - Internal and external change which can impact the strategic alignment*

<b>Common Internal Changes</b>	<b>Common External Changes</b>
Business process optimization or reengineering	Customer request or preference for new products and services and new market opportunities
Change in IT infrastructure and flexibility of information systems and tools	A new business model of a company and development of a new technology
Company restructuring and reorganization	New rules and regulations or laws (e.g., commercial law)

In order to overcome these challenges and perform well companies need to have organizational agility. Imgharene et al., (2018), indicate companies are faced with rapid and radical changes thus making the agility of the company a crucial step to obtain a competitive advantage and a performance of the company. They must adapt and respond to different types of transformation on the agility. The argument here is that, having an IT business alignment in place helps companies to remain agile respond to changes more effectively and efficiently. An organization which is agile can better seize opportunities

and control threats while an organization which is not agile enough may lose the opportunities and threats may lead to danger (ibid).

### 2.1.2 Models of Organizational Agility

A couple of models have been proposed by scholars to demonstrate agility. Zhang & Sharifi (2000), for example proposed a conceptual model that helps organizations to make strategic decisions for agile production. The model lists out agility drivers such as change in the market, changes in customer requirements, competition, agility capabilities such as responsiveness, competency, flexibility, and quickness as well as agility providers such as organization, people, innovation, and organization. Only agile organizations are in a better position to tap new opportunities since agility in essence is the use of changes as inherent opportunities in turbulent marketplace or environment (ibid).

Crocitto & Youssef (2003), believe that organizational agility is dependent to the ability of its leaders to create agility vision and strategies in addition to agility in the marketplace knowledge. This is an extension of earlier holistic views of organizational agility that consider it as a product of synergy between strategy, technology, machinery, management, function, and people.

On the overhand, different agility levels are required for different companies depending on the intensity of marketplace changes they face, and the level of agility required is subject to different factors such as competitive environment, political unrest, customer expectations, social factors and technology among others (Zhang & Sharifi, 2000). To this end the authors proposed a conceptual model consisting of three core elements for implementing agility within organizations.

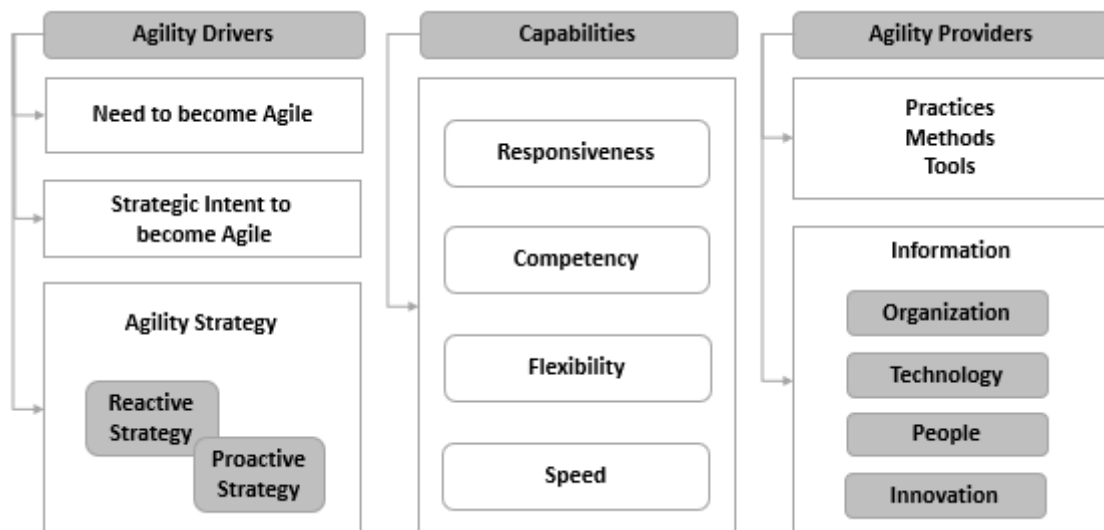


Figure 1 - Organizational Agility Conceptual Model (Zhang & Sharifi, 2000)

Flexible and adaptive organizations tend to move from economies of scale to economies of scope, which includes the organizations ability to withstand and adapt to constant opportunities and threats in the marketplace – which is basically called organizational agility (Zhang & Sharifi, 2000).

### 2.1.3 Measuring Organizational Agility

There seems no universally accepted measurement of organizational agility, but research frameworks suggests that organizational agility plays an important role in enhancing organizational performance (Nafei, 2016). According to Jaworski & Kohli (2012), sensing agility, decision-making agility and acting agility are used to measure organizational agility in the market place. These three dimensions of organizational agility were also discussed by Park (2011) as main types of organizational agility or organizational agility dimensions.

- **Sensing Agility** - Sensing agility is an organizations capability to monitor events and changes as well as inspect the surrounding environment for competitor movements, customer preferences, new technology etc. (Park, 2011).
- **Decision Making Agility** - Decision-making agility process is the ability to collect, accumulate, restructure, & evaluate relevant information & to explain the implications of the business without delay. It is also related to an organizations ability to identify opportunities & threats based on the interpretation of events, along with the development of action plans, which direct the reconfiguration of resources & development of new competitive procedures (Park, 2011).
- **Acting Agility/Practicing** - Acting or practicing agility is the ability of an organization to re-assemble organizational resources and modify business processes in order to address the change that occurs in the market place or environment (Eisenhardt & Martin, 2000).

*Table 3 - The dimensions of Organisational Agility (Park, 2011)*

<b>Dimensions of Organizational Agility</b>	<b>Clarifications of dimensions</b>
<b>Sensing Agility</b>	Detecting and attracting important business at one time
<b>Decision-Making Agility</b>	Interpreting events, identifying opportunities and threats, and taking the actual plans in time, reshaping etc.
<b>Acting Agility/Practicing</b>	Reshaping organizational resources drastically and modifying business processes and the provision of services or new products to market in time

There is a 15-item organizational agility scale based on Jaworski & Kohli (2012), three items measuring sensing agility, five items measuring decision-making agility, and seven items measuring acting agility. In this study we used similar framework to measure organizational agility of the selected organization. As indicated in the introduction part, this study aims at understanding the role business and IT alignment plays in shaping organizational agility of a multi business enterprise.

Having reviewed and discussed the organizational agility concept so far, in this section we review the concept of business and IT Alignment, its definition, importance, models, perspectives and measurements, among others.

#### **2.1.4 The Meaning and Concept of the Business and IT Alignment**

There is vast array of definitions provided to Business IT Alignment. For instance, Luftman, (2000) defined Business IT Alignment as a way of applying information technology (IT) in harmony with business strategies and objectives. Reich & Benbasat (2000) described it as a degree to which business missions are supported by IT missions. According to Chan & Reich (2007), strategic business and IT alignment refers to the degree to which company's business plans, strategies, mission and visions are shared and supported by information technology strategy. It is a basic principle of interaction between business and IT that involves active design, management and execution of the IT functions in accordance with the company's vision, mission, objectives and strategies needed to achieve them (Huang & Hu, 2007).

Though a number of authors have defined strategic alignment in different terms, all definitions share the elements that lead to the strategic alignment, i.e., organization, processes, strategy, and ICT resources. For the purpose of the current project, we used the definition given by Gerow (2014) which states strategic alignment as the degree to which organizational goals, objectives, structures as well as business needs are consistent with each other. We chose this definition because it better explains the "alignment" element. The study tried to understand the relationship between BITA and Firm Performance, while the current project tries to understand the role of BITA in shaping organizational agility which is critical for firm performance, but the definition still works.

#### **2.1.5 Business and IT Alignment – as a Leadership Concern**

Top management has been concerned with business IT strategic alignment for the past 30 years. Consequently, various researchers have developed models to help understand and explain how alignment generates value for firms (Gerow et al., 2015). Consequently, among the top ten management concerns identified, four top management concerns remain in the list, and these include: business and IT alignment, business process reengineering, IT strategic planning and Security and privacy (Luftman & Ben-Zvi, 2010).

*Table 4 – Top ten Management Concerns (Luftman & Ben-Zvi, 2010)*

<b>Management Concerns</b>	<b>2010 Rank</b>	<b>2009 Rank</b>	<b>2008 Rank</b>	<b>2007 Rank</b>
Business productivity and cost reduction	1	1	7	4
Business agility and speed to market	2	3	13	17
Business and IT alignment (BITA)	3	2	1	2
IT reliability and efficiency	4	6		
Business Process Reengineering (BPR)	5	4	18	15
IT Strategic Planning	6	7	3	8
Revenue – generating IT innovations	7	8		
IT Cost reduction	8	5	7	4
Security and privacy	9	9	8	6
Globalization	10	15		

As indicated on the table above Luftman & Ben-Zvi (2010), Business and IT Alignment remains to be among the top management concerns over years – in fact it is among the top three. Therefore, it is a subject that needs to be continuously studied and understood among researchers, academicians, and practitioners to implement the lessons to be learnt.

### **2.1.6 Strategic Alignment Models**

Cataldo, McQueen and Hardings (2012), classified BITA in to two major types based on the scope of the alignment namely: Strategic Alignment and Operational or Process Alignment. Strategic Alignment, is a concept influenced by development of a contingency theory, suggesting best fit between environmental demands and internal needs will achieve best adaptation focuses the harmony of organizational goals and information systems (Cataldo et al., 2012). Operational alignment on the other hand, focuses on the functional side of the information system in such a way that explains the fit between established business processes and the functionalities provided by the system including information technology (ibid). Several studies were conducted on both classifications of alignment since early 1990's and suggested models that help to understand the BITA. Table below summarizes the list of some of the major BITA models that have been forwarded by scholars so far. Several alignment researchers have developed business models related to strategic alignment and operational alignment models. Our literature review mainly focuses on Strategic Alignment.

*Table 5 - Business IT Alignment Model Classifications*

<b>Models of Business IT Alignment</b>	<b>Classifications</b>
<i>Leavitt's Diamond Model</i>	Strategic Alignment
MIT90, Scott Morton (1991)	Strategic Alignment
(Henderson, J. & Venkatraman, 1993)	Strategic Alignment
(Amarilli, 2014)	Strategic Alignment
(Gerow et al., 2015)	Strategic Alignment
(Maes, 1999)	Strategic Alignment
(Luftman, 2000)	Strategic Alignment
(Tallon & Kraemer, 2003)	Operational Alignment
(Levy & Powell, 2004)	Operational Alignment
(Cragg et al., 2007)	Operational Alignment

Literature on BITA is extremely wide, therefore the list of models analysed in the paper is not exhaustive, and articles were selected to show main research trends in alignment.

#### **2.1.6.1 Leavitt's Diamond Model**

Leavitt's Diamond Model is supposedly the first model in the subject of business and IT alignment established in 1965. This model recognizes four mutually interrelated components as a key to achieve alignment and harmony including structure, technology, people and tasks (Koçu, 2018).

#### **2.1.6.2 McKinsey 7-S Model**

This model was created by the consulting firm called McKinsey & Company in 1982. The model suggests that there are seven internally interacting domains including strategy, systems, structures, shared values, skills, style and staff (Koçu, 2018).

#### **2.1.6.3 MT90s Model**

After analysing the use of information technology in the most advanced firms in the 1980s, scholars developed the MIT90s framework that linked management process/organizational transformation to IT structures and strategies (Cataldo et al., 2012). The major finding of this framework was that IT was strategic resources by itself than being reactive to a business strategy, which means BITA by itself creates value for organizations. The MIT90 model of BITA describes the alignment with strategy, structure, technology, individual roles, and management process. The model explores the relationship between society, economy, and external environment (i.e., Science and Technology development) (ibid).

#### **2.1.6.4 Henderson and Venkatraman's Strategic Alignment Model (SAM)**

The model proposed by Henderson & Venkatraman (1993) is called the strategic alignment model (SAM) and is basically an extension of the MT90 model. The model identified four domains of the BITA including IT strategy, information system infrastructure and process, business strategy and organizational infrastructure and business process. According to Afandi & Arabia (2017), different studies conducted on the business IT and alignment suggested that there can exist different types of alignment, which in turn prompts investigation of BITA from a holistic perspective. The Strategic Alignment Model (SAM) developed by Henderson & Venkatraman (1993) is perhaps the most comprehensive and widely used BIAT framework developed. The model analyses several alignment combinations of the four domains. The model concluded that, while functional integration comes when there is a fit between business and IT, strategic alignment is achieved when there is an alignment between the strategic and the internal domains.

The Strategic Alignment Model (SAM) is a universal framework that includes both internal (business and IT infrastructure) and external components (IT and business strategy). There is also a third

component called “cross-domain link” that explains the relationship between business strategy and IT infrastructure and as well as IT strategy and business structures or process (Afandi & Arabia, 2017). The cross-domain alignment is mainly concerned with the level of fit and integration among the four strategic alignment model components (Chan & Reich, 2007). The most significant role of the SAM model on the subject of Business IT Alignment is its holistic view and explanation of alignment as continuous and dynamic process that allows for “multivariate relationships” among all the four components of Business IT Alignment including business strategy, IT strategy, business process/infrastructure and IT infrastructure (Gerow et al., 2015). This view is supported and acknowledged by many authors as it constitutes a modern view of organizational strategy.

The constructs included in the SAM model can predict the alignment levels and can also be empirically tested (Gerow et al., 2015). This in turn indicates that SAM can measure Business and IT Alignment and its effect on organizational agility as well as performance. We also used this model to frame the business and IT alignment concept and its role in shaping organizational agility.

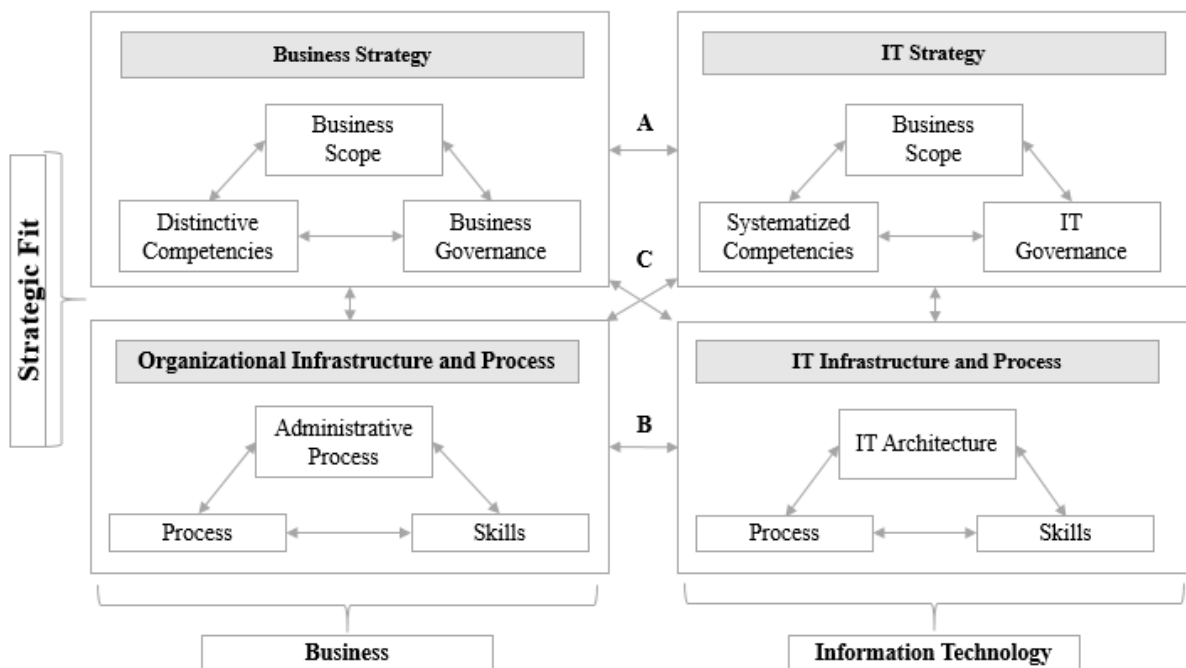


Figure 2 - Strategic Alignment Model (Henderson, J. & Venkatraman, 1993)

Henderson, J. & Venkatraman, (1993) suggested three types of business and IT alignment namely intellectual alignment, operational alignment, and cross-domain alignment. These dimensions of SAM are also used to construct questionnaires of the current study.

- i. **Intellectual alignment** – intellectual alignment is defined by Henderson, J. & Venkatraman, (1993) as “the link between business strategy and information technology

strategy reflecting the external components”. This is indicated with letter ‘A’ on the picture above.

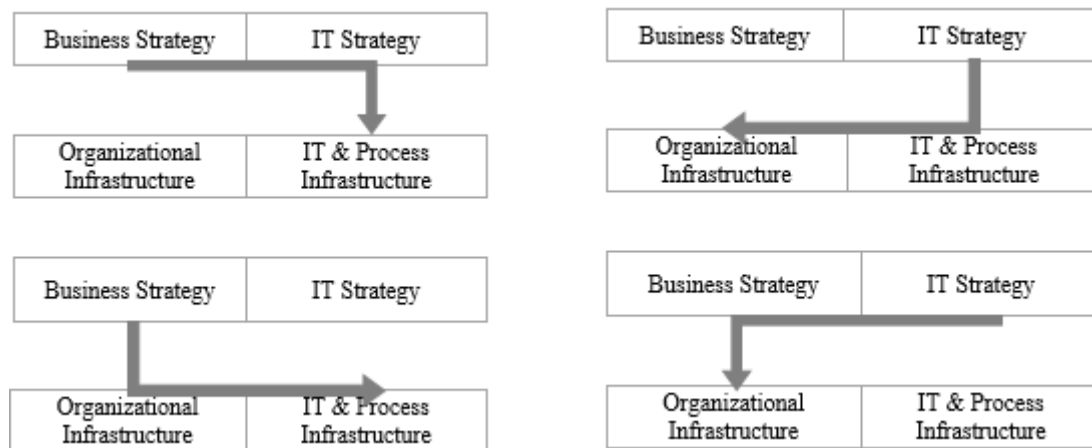
- ii. **Operational alignment** - Henderson & Venkatraman, (1993) have included in their model internal domains of alignment which is basically the alignment between business and IT infrastructures and processes - which is labelled as ‘B’ on figure above. Administrative structures/architectures, skills and processes include employee hiring, procedures such as customer service procedures and workflows, systems and data centre operations and activities such as product development or IT development (Henderson & Venkatraman, 1993). They defined operational alignment is defined by as “the link between organizational infrastructure and processes and I/S infrastructure and process”.
- iii. **Cross - domain alignment** – cross-domain alignments are linkages considering strategy and infrastructure components simultaneously instead of strategy – strategy or infrastructure –infrastructure definitions indicated on the former types of alignment (Henderson & Venkatraman, 1993). Accordingly, the authors identified four types of cross-domain alignments suggesting multi-variate relationships which are briefly discussed in section 2.3 below.

### **2.1.6.5 Luftman's Strategic Alignment Maturity Model (SAMM)**

The models presented above are the most influential models about strategic alignment and some are extension. In this section we review the most recent business and IT alignment model presented by Luftman (2000) called Strategic Alignment Maturity Model (SAMM). The author transformed the SAM model into a management tool by introducing the alignment enablers and inhibitors as well as governing alignment perspectives such as the communication between business and technology management levels. SAMM alignment model is a tool that measures the fit and maturity level between business and information technology within an organization (Luftman, 2000). It identifies six dimensions and for each a rating is attributed ranging for 1 (lowest) to 5 (highest) creating a two-dimensional matrix. The six SAMM criteria or dimensions are communication, competency/value measurements, governance, partnership, technology scope and skills.

### **2.1.7 Perspectives of Strategic Alignment Model**

Henderson & Venkatraman (1993) argued that for a strategic alignment to be achieved, a balance interplay needs to exist between the four domains of SAM, and they presented four perspectives – each consisting of three elements that help to understand how a balance can be achieved having both strategic fit and functional integrations.



*Figure 3 - Perspectives of Strategic Alignment Model (Wahyuni et al., 2012)*

Based on the above illustration, Henderson & Venkatraman (1993) described the four perspectives of strategic alignment as follows:

- a. **Technology Potential** –Implementing business strategy via IT strategy. IT infrastructure is affected by the business strategy but is constrained by the IT strategy (IT alignment). Here the anchor is business strategy that directs the business through the chosen alignment perspective. In another words, business leaders craft the vision and strategy while IT managers provide the technology and architecture required.
- b. **Strategy Execution** – senior business managers develop the strategy while IT management implements it. Business strategy impacts IT infrastructure but is constrained by the business infrastructure (business alignment).
- c. **Competitive Potential** – exploiting information technology to bring about strategic capabilities or adaptation of business strategies through information technology capabilities. Business managers craft the strategy while IT managers catalyse. Business infrastructure is affected by IT strategy but is constrained by the business strategy (business alignment), and
- d. **Service Level** – creating a world class information technology service organization. IT strategy impacts the business infrastructure but is constrained by the IT infrastructure (IT alignment).

### 2.1.8 The Existence of Alignment Trap

Most of the academic researches focus on the role of business IT alignment on organizational performance and increased competitive advantage in terms of sales increment, operational efficiency, cost reduction, and better customer values (Cumps, Martens and Backer, 2009). On the other hand, there are some researches that suggest that business IT alignment may not lead to improved

organizational performance, and even may lead to reduced performance – “an alignment paradox” (Tallon & Kraemer, 2003). In effect, there seems to be no consistent suggestion as to whether the alignment of business and IT payoffs negatively or positively (Tallon & Kraemer, 2003).

Alignment between business and information technology within an organization is essential for better organizational performance (Gerow et al., 2015). Tallon & Kraemer (2003), found that there is a significant and positive relationship between organizational performance and alignment of business and the level of IT within organizations. Different researchers have identified several positive effects of Business IT Alignment including but not limited to innovativeness, improved operational efficiency, additional competitive advantage and ultimately better organizational performance (Afandi & Arabia, 2017). Business IT alignment helps for increased profitability as well as to maintain continued competitive advantage of firms. Failure to align could also lead to adverse effects as a result of wasted resources (Gerow et al., 2015).

There are also setbacks when there are too formal, resource consuming, and expensive alignment processes that lead to core rigidities. Chen, Mocker and Preston (2010) expressed this scenario as “rigidity trap”. Very tight alignment between Business and IT will result in a lesser strategic flexibility which in turn leads to inability to effectively respond to environmental changes (Benbya & McKelvey, 2006). Shpilberg et al., (2007) described this scenario as “alignment trap” where high levels of BITA may not lead to organizational agility and thus enhanced performance.

### **2.1.9 Measuring Business/IT Alignment**

As indicated above, there is inconsistent evidence of the impact of business and IT alignment on firms’ performance – some suggest positive impact while others suggest a negative impact. To this end, researchers have failed to bring similar definition for alignment itself (Tallon & Kraemer, 2003). The inconsistency in the definition of alignment is not only conceptually, but it is also present in practitioners literature; and these inconsistencies has led to difficulties in assessing the adequacy of business and IT measurements and established scales, (Gerow et al., 2015). According to Muñoz & Avila (2019), there are two possible ways to measure Business/IT Alignment within organizations: a model-based measure and a perception based measure.

- i. Model – based** – is focused on assessing the quality of relationship between the modelled elements between business & IT domains using a documented model in an organizational any.
- ii. Perception based** - is focused on evaluating the perception of major actors (business and IT managers/directors, CIOs and users in different levels and domains of an organization using survey questionnaires and interviews.

Furthermore, there are two natures of the measurement methods to be possibly approached, i.e., qualitative, and quantitative natures. In the former one's results indicated using quality alignments perceptions than quantifiable scores, while the former nature uses a quantifiable scores that erasure the alignment level between elements in the business and IT alignment (Muñoz & Avila, 2019). The most common measurement criteria used to measure alignment levels are the six Strategic Alignment Method Metrics first proposed by Luftman (2000), and which are used to measure the level of maturity if the alignment (Muñoz & Avila, 2019). The six strategic alignment maturity measurement criteria as defined by Luftman (2000) in SAMM model are communication, competency/value measurements, governance, partnership, technology scope and architecture and skills.

Each of these measurement criteria are measured and assessed and scores given on a scale of 1 to 5 based on a list of benchmark standards put against each list. The strategic Alignment Model (SAM) developed by Henderson and Venkatraman (1999) is hailed by many authors as the basis for the Business IT Alignment concept and research. However, little is known about SAM's applicability in Ethiopia' context. These days more and more companies in Ethiopia and their businesses are gradually being leveraged by technology and there is a constant attempt to align the traditional business structure with information technology.

Over the past decade Business and IT Alignment has been a major issue of business and IT managers/directors since it is believed to help facilitate interactions and communications between business and IT components/elements of an organization (Muñoz & Avila, 2019). Bi-implication measuring organizations level of Business and IT alignment appears to be a critical step. In this study, the perception-based measurements are used to understand the level of alignment in the selected organizations. Having reviewed the two major variables in the study, i.e., BITA and OA in the following section we review the connection of both in understanding how literatures described the role business and IT alignment has in shaping agility of organizations.

### **2.1.10 Business and IT Alignment and Organizational Agility**

If organizations want to quickly respond to environmental changes and be competitive while remaining flexible the nature and nimbleness of business processes and the information system of the organizations really matter. The following section reviews about the concepts how and why IT Business Alignment is essential for agility. After many years of Business and IT relationships, the role of information technology (IT) is transformed to a strategic partnership or business enabler role from its traditional support function role (Koçu, 2018). These concepts of business and IT alignment and Organizational agility are therefore closely related.

On the alignment of the two concepts, Chung , Rainer and Lewis (2003) suggests that organizational strategies should align with information technology policies to be able to shape the organizations agility

in the market place. According to the findings of Tallon & Pinsonneault (2011), one of the benefits of business and IT alignment is, it enables seamless sharing of knowledge among different function of organizations which is critical to quickly react to changes and rally in the same direction. This is because critical changes in the business strategy can be easily and quickly addressed to business and IT managers, allowing for increasing adaptability and innovation.

Business leaders play an important role in promoting acceptance of change as well learning. In the contemporary world, as we move to an electronic economy, organizations may face information technology challenges (Crocitto & Youssef, 2003). Even if information technology helps companies to develop new and quicker supply chains that enables them to reach further than the existing supply chains, some organizations are locked-in tradition or an existing technology and may not chose to change or react to opportunities or threats quickly (Crocitto & Youssef, 2003).

Avison, Jonnes and Powell (2004), indicated that flexible level of business and IT alignment allows firms to take advantage of opportunities in an ever-changing marketplace and environment. Alignment between the four components of SAM, i.e., business strategy, IT strategy, business process and IT processes should be Co-evolutionary and simultaneous instead of rigid or sequential (Baker, Jones and Cao, 2011). ‘Alignment is not an event but a process of continuous process, adaptation and change’ (Henderson and Venkatraman, 1999). Organizations tend to have higher demand for information and flexible information systems and technology (Tallon & Pinsonneault, 2011). We believe information technology is the best way to make established business processes more flexible. Flexibility in essence is highly related to organizational agility which is the subject of this study, and this study tries to understand the role business IT alignment plays in shaping organizational agility.

## **2.2 Empirical Research**

Various empirical studied have been on the concepts of business and IT alignment or organizational agility separately as well as on the role of BITA on organizational agility as well performance. One of the such empirical studies was conducted by Heydari, Shakib and Hoseini (2020), who investigated the effect of IT-business strategic alignment on organizational agility by considering the effects of IT flexibility and IT capability on strategic alignment. The study found out that, IT capability and flexibility have a significant impact on IT-Business strategic alignment and IT-business strategic alignment in turn has a significant impact on organizational agility. The study did not confirm the moderating role of environmental uncertainty on the relationship between strategic alignment and organizational agility, was not confirmed (Heydari et al., 2020).

The other seminal empirical work on the effects of BITA on business agility was conducted by (Koçu, 2018). The study aimed at examining the effect of business-IT alignment effects on business agility

was conducted using a survey of 28 banks in Turkey and concluded that Business –IT Alignment as a significant positive effects on business agility across six different agility dimensions (agile values, technology workforce, change management, collaboration and coordination and flexible infrastructure) (Koçu, 2018).

Tallon & Kraemer (2003) on the other hand followed a different approach in identifying the role of business and IT alignment across 63 firms. The study uncovered the existence of “alignment paradox” such that, while strategic alignment can lead to increased payoffs from IT, this relationship is only valid up to a certain point beyond which, paradoxically, further increases in strategic alignment appear to lead to lower IT payoffs (Tallon & Kraemer, 2003). Imgharene et al. (2018) studied organizational agility and business –IT alignment to find a model of agility and BITA where strategic alignment remains active in the long term and dynamic with unforeseen changes. They proposed a process that will be a good balance for a harmonized system that is agile enough to be able to maintain a strategic alignment with frequent evolutions (Imgharene et al., 2018). On the hand, Nafei (2016), in their study to identify the role of organizational agility on organizational performance found that, there is significant relationship between organizational agility and performance. The finding reveals that OA affects OP.

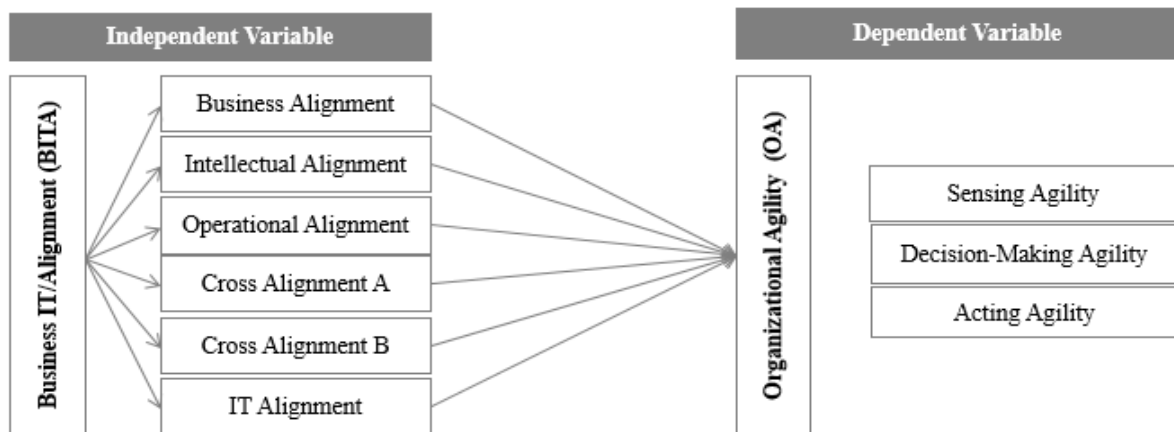
Accordingly, the study recommends the necessity to pay more attention to organizational agility as a key source for improving organizational performance (Nafei, 2016). Finally, (Reynolds & Yetton, 2013), studied business and IT alignment specifically in multi business organizations (MBO) and functional, structural and dynamic alignment, create value in organizations through three strategic drivers: governance, competence and flexibility.

## **2.3 Conceptual Framework**

The conceptual framework of the study is derived from the seminal model of Henderson & Venkatraman (1993), which is the Strategic Alignment Model (SAM) consisting of four core elements namely: business strategy, IT strategy, organizational infrastructure and IT infrastructure. In line with the existing literature, this study proposes that all the three alignment dimensions of SAM discussed in chapter two, i.e., internal alignment, external alignment and cross alignment existing in the SAM model will have a positive impact on organizational agility – an attribute that is vital in 21st century organizations. The model is somehow modified by other researchers recently by further breaking down the alignment dimensions.

Accordingly, the following conceptual model is developed after a thorough review of pertinent theoretical literatures and such as Gerow et al. (2015), Nafei (2016) and Afandi & Arabia (2017). The dependent variable is Organizational Agility while Business and IT Alignment is the independent

variable. According to Jaworski & Kohli (2012), sensing agility, decision-making agility and acting agility are used to measure organizational agility in the market place. These three dimensions of organizational agility were also discussed by Park (2011) as the main types of organizational agility or organizational agility dimensions. Based on the above theoretical framework, the following comprehensive conceptual model is proposed. The diagram below shows that there is one independent variable (BITA) and one dependent variable (OA), conceptually showing the link between the two types of variables to be observed. In general, there are six components of BITA and three components of OA.



*Figure 4 -Proposed conceptual framework*

As depicted above, the independent variable is delimited to six strategic alignment characteristics including business alignment, intellectual alignment, operational alignment, cross alignment, and IT alignment. The dependent variable, i.e., organizational agility, on the other hand is determined by three major types (factors) of agility namely: sensing agility, decision-making agility and acting or practicing agility. The questionnaires to be developed to collect the data is based up on the above conceptual model.

# CHAPTER THREE

## Methodology

### 3.1 Overview of Methodology

Research conducted on methodology suggest that research methodology should be based up on the research problem and associated research questions. This is because research methodology is a way to systematically solve the research problem (Kothari, 2004). Research methodology can be defined as a structured way of presenting “why a research study has been undertaken, how the research problem has been defined, what data have been collected and what particular method has been adopted, why particular technique of analysing data has been used and a host of similar other questions are usually answered when we talk of research methodology concerning a research problem or study” (Kothari, 2004). Hence in this chapter, we discussed the research methods used, the logic behind the methods we used in the context of our research study as well as explained why we are using a particular technique to solve the problem stated. The chapter is organized in 7 different sections starting form research design. Following sections of the chapter discuss the target population and sampling methods used, methods of data collection, and analysis in separate sub sections.

### 3.2 Research Design

A research design depends on research purpose and is meant to present the conceptual framework within which the research is going to be conducted, to facilitate the research to be as efficient as possible, and yield maximum information possible (Kothari, 2004). According to Saunders, Lewis and Thornhill (2007), there are three type of commonly known academic researches depending on the nature of problem and phenomenon as well as purpose of the research including: explanatory, descriptive and exploratory research types. As indicated on the conceptual framework, there are two major variables in this study, i.e., Business and IT Alignment and Organizational Agility, and the goal is to identify the role of Business and IT Alignment in shaping Organizational Agility and to understand the relationships both variables are measured.

The study used a descriptive research, as it seeks to identify characteristics and correlations of Business and IT Alignment and Organizational Agility. The object of descriptive research is ‘to portray an accurate profile of persons, events or situations’(Robson, 2005). This may be an extension of or a forerunner to, an exploratory research or explanatory research and is necessary to have a clear picture of the phenomena on which we wish to collect data prior to the collection of the data (Saunders et al., 2007). The reason a descriptive research is chosen is because it helped us better describe the current state of the case, i.e., the extent of business and IT alignment and organizational agility at the selected organization.

### **3.3 Research Approach**

There are three commonly used research approaches when conducting research: qualitative, quantitative, and mixed methods. During the literature review we noted that different researchers used those different approaches at different time. The difference between qualitative and quantitative researchers is based upon the debate in assumptions about what the reality is and whether or not it is measurable (Newman & Benz, 1998). Mixed methods is the general term used when both quantitative and qualitative data collection techniques and analysis procedures are used in a research design either at the same time (parallel) or one after the other (sequential) but does not combine them (Saunders et al., 2007). According to Saunders et al. (2007), there are two major advantages to choosing to use multiple methods in the same research project. First, different methods can be used for different purposes in a study and second it enables triangulation to take place. In this study, we used quantitative methods to answer the research questions poised.

### **3.4 Target Population and Sampling Method**

The geographical coverage of the research is limited to Addis Ababa where headquarter of the selected organization is located. The data is collected from business and IT managers/team leaders/supervisors at the head office of the organizations. To conduct this project work one privately owned multi business organization is selected as a subject of case study. The selection criteria used are MBOs with at least more than 5 business units or companies, companies that were in business at least for more than 10 years and companies employing at least more than 1,000 staff. Regarding the respondent's size, since only managerial or supervisory level employees are considered, all employees does not fit into the population or the study. Given that the number of managerial or supervisory level staffs in the selected organization are small, we have used a census method to include all members of the target population into the study. In terms of divisions, the survey is conducted in all core functions of the organization including finance, human resources, information technology, procurement, operations, and marketing departments, among others.

The questionnaire is sent via email to the respective departmental managers, team leaders, supervisors, and senior staff members. We have consulted the HR Department and used personal contacts to help us identify respondents for the study. The target company has more than five business units or sister companies, and consists of more than 1,000 employees, but the respondents are going to be senior and supervisory/managerial position employees. With the total number of 42 senior management staff at ABIG, including CXO's Vice Presidents, Directors, Managers, Supervisors and Team leaders in the organization, a total of 42 questionnaires were distributed and 36 of them replied rendering 86% response rate as indicated below.

*Table 6 - Sample Size*

<b>Departments</b>	<b>Total Staff</b>	<b>Managerial and Senior Level Staff</b>	<b>Actual Respondents</b>
Internal Audit	4	2	2
Finance and Accounting	20	13	13
Operations/Production	10	3	2
Information Technology	7	5	5
Quality Assurance	4	2	2
Sales and Marketing	27	10	6
Human Resource	8	5	5
Legal Counsel	2	2	1
<b>Total</b>	<b>82</b>	<b>42</b>	<b>36</b>

### **3.5 Method of Data Collection**

The research is a descriptive-survey study, and the questionnaire includes two major category of questions related Business and IT Alignment (BITA) and Organizational Agility (OA). The study is based on a questionnaire survey of individuals in the selected organization. The individual respondents are business managers and IT managers who are process owners and play key roles their respective business processes. Both primary & secondary data sources are used to collect the required data & information. The primary data is collected using online methods such as *Email* and *Google Form*. These tools are used to distribute email invitation link having the online questionnaire survey and elicit responses from business and IT managers because they are owners of key business and IT processes and can scan the external environment. Secondary information is also collected form the company’s website, portal, policies, procedures, organizational structures and annual reports which are used to support and complement the survey questionnaire results.

### **3.6 Data Collection Instrument Development**

The study used a combination of two standard questionnaires. The alignment standard questionnaire is the one developed by Gerow et al., (2015) and somehow customized it to the current context. The questionnaire measures alignment (perceived alignment) based on 5 levels Likert scale and is based on the seminal works of Henderson and Venkatraman (1999) who first developed the Strategic Alignment Model (SAM). The questionnaire has 6 major sections including business alignment, intellectual alignment, cross alignment A (business strategy and IT infrastructure), cross alignment B (business infrastructure and IT strategy), operational alignment and IT alignment. The rationale to use the questionnaire based on SAM model is because it is one of the mostly used standard questioners in the subject of business and IT alignment. Moreover, since our assessment is based on perception of alignment, other questionnaires like the one developed by Luftman (2000) will not apply as they are mostly used for model-based methods focused on assessing the quality of relationship between the modelled elements between business and IT domains using a documented model in an organizational.

The second part of the questionnaire is used to collect data on perceived level of organizational agility based on a 15-item scale questionnaire developed by Jaworski & Kohli (2012) and was somehow customized to our context. In this part, there are three items measuring sensing agility, five items measuring decision-making agility, and seven items measuring acting agility. The rationale to use the standard organizational agility questionnaire developed by Jaworski & Kohli (2012) is because, they were able to identify important insights and determinants of market orientation after a cross-sectional analysis of large number of organizations. The questionnaire is also still attracting interest among researchers.

### **3.7 Method of Analysis**

A data from surveys of senior business and IT executives in the selected organization are collected to analyse and understand the role of Business and IT Alignment in shaping Organizational Agility. To demonstrate the role of Business and IT alignment plays in shaping Organizations Agility, the results from data collection are summarized and analysed. The data collected via online questionnaire is organized and analysed using advanced Microsoft Excel functions and IBM Statistical Package for Social Sciences version 25 (IBM SPSS). Summary of statistics are presented using descriptive statistics in terms of means, standard deviations, minimum and maximum values etc. correlations, and cross tabulations and lastly frequency of distribution and graphs. We have also used a simple linear regression model to summarize and study the relationships between the predictor variable (business and IT alignment) and the outcome variable (organizational agility). Additionally, to answer the research questions, results are complemented with the data from key documents review.

### **3.8 Validity and Reliability**

Validity and reliability are the two critical elements in evaluating measurement instruments. Sound measurement must meet the tests of validity, reliability and practicality and the validity and reliability of the data should be checked carefully (Kothari, 2004). Validity refers to the extent to which a test measures what we actually wish to measure while reliability has to do with the accuracy and precision of a measurement procedure and practicality is concerned with a wide range of factors of economy, convenience, and interpretability (Kothari, 2004). There are different content validation approaches discussed by several authors. One approach is using pre-existing questions of similar studies as they will have been extensively tested at the time of first use. Therefore, the questionnaire in this study was adopted from Gerow et al. (2015) and (Jaworski & Kohli (2012) and the questions were rephrased so that respondents can understand them easily. The extent to which these measuring instruments were used in the past provides adequate coverage of the subject under study and we are also somehow able to predict some outcome or existence of some relationship between the variables. Therefore, the degree of validity and quality of data are likely to be high.

The reliability of our data is verified via a reliability test analysis with the help of Cronbach's Alpha. As a rule of thumb, Cronbach Alpha's test results of more than 0.8 are considered to be reliable (Gerow et al., 2015). To this end, the Cronbach's Alpha test results for the data used in this study shows the items are reliable and the entire test or questions are internally consistent. Finally, the questionnaire was distributed to 42 respondents including CXOs, Vice Presidents, Directors, Heads, Managers, Supervisors, Team Leaders and Senior Staffs at ABIG and obtained 36 responses. The census size is relatively small given that the respondents are entirely management member staffs and heads of different sections and sub sections. During the data encoding, all the 36 questionnaires returned were complete and found to be useful, showing a response rate of 86%. All questionnaires were collected from ABIG Investment Group management staff members.

# CHAPTER FOUR

## Discussions, Analysis and Interpretation

### 4.1 Overview

In this section we presented the data analysis and interpretation of results of the analysis on organizational agility (OA) and business and IT alignment (BITA) in the case of ABIG Investment Group. For assessment of the organizational agility we used the three core dimensions of organizational agility defined by Park (2011), which were later developed into a 15 item scale questionnaire by (Jaworski & Kohli, 2012). The three OA dimensions include sensing agility, decision-making agility and acting agility. In addition, to assess the level of business and IT alignment within the organization, we used the six alignment dimensions identified by Gerow et al., (2015) based on the seminal works of Henderson and Venkatraman (1999) and Luftman (2000). The six business and IT alignment dimensions include: business alignment, intellectual alignment, operational alignment, cross alignment “A”, cross alignment “B” and IT alignment. Finally, we have analysed and discussed the role business and IT alignment plays in shaping organizational agility of the company.

### 4.2 Data Presentation

Demographic questions were asked to collect information about to the respondents age, gender, educational level, work experience in the company and their function (departments) in the company. Additionally, organization agility of the company was checked using 15 questions to assess its level of business agility and speed in the market. Next, the extent of business and IT alignment with the organization is assessed using 38 questions that measure perception of respondents on the subject. Finally, the two results are analysed together to look for any association in between.

#### 4.2.1 Demographic Data Presentation

The demographic data presentation consists of background information about the respondents who participated in the survey questionnaire for this research project. To this end, we have presented here below summary of five demographic variables including Gender, Work Experience, Position (Title), and IT/Business related trainings. The descriptive statistics indicated on Table 7 below shows that, out of the total participants, males formed 69% while females formed 31% of the respondents, which indicates that there are more male participants in the survey than females.

*Table 7 - Gender distribution of respondents*

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	Male	25	69.4	69.4	69.4
	Female	11	30.6	30.6	100.0
	<b>Total</b>	<b>36</b>	<b>100.0</b>	<b>100.0</b>	

Looking at the work experience of the respondents on Table 8 below, majority of the respondents (i.e., 53%) have between 5 and 10 years of work experience followed by 33% of them falling between 3 and 5 years of work experience. This generally shows that majority of the respondents (i.e., 86%) have more than 3 years of experience which is relevant in this kind of study, that basically inquires perception of peoples.

*Table 8 - Total Years of Experience*

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	Less than 3 years	4	11.1	11.1	11.1
	Between 3 and 5 years	12	33.3	33.3	44.4
	Between 5 and 10 years	19	52.8	52.8	97.2
	More than 10 years	1	2.8	2.8	100.0
	<b>Total</b>	<b>36</b>	<b>100.0</b>	<b>100.0</b>	

Regarding the positions and titles of the respondents, Table 9 below depicts that almost 58% of them have positions (titles) above supervisors, including Managers, Directors, Vice Presidents and a CXO. The remaining 42% of the participants constitute senior staff members above 3 years of experience. This is relevant to the current study as the respondents are senior or managerial level staffs only.

*Table 9 - Positions (Titles) of the Respondents*

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	CXO	1	2.8	2.8	2.8
	Vice President	2	5.6	5.6	8.3
	Director	4	11.1	11.1	19.4
	Manager	10	27.8	27.8	47.2
	Supervisor	4	11.1	11.1	58.3
	Team Leaders/ Senior Staff	15	41.7	41.7	100.0
	<b>Total</b>	<b>36</b>	<b>100.0</b>	<b>100.0</b>	

Table 10 below shows that 14% of the respondents work at IT Department followed by business Departments (67%) and the rest 19% were support and advisory functions such as Internal Audit and Legal Counsel. The fact that majority of the responds are from business departments such as sales and marketing, finance, operations, and human resource is relevant to the current study. In addition, perception of the IT department professionals' augments to our intention to see their perception in business-IT alignment at the organization.

*Table 10 - Department of Respondents*

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	Sales and Marketing	5	13.9	13.9	13.9
	Operations	1	2.8	2.8	16.1
	Finance	13	36.1	36.1	52.8
	Audit and Quality Assurance	6	16.7	16.7	69.4
	Information Technology	5	13.9	13.9	83.3
	Legal Counsel	1	2.8	2.8	86.1
	Human Resource Management	5	13.9	13.9	100.0
	<b>Total</b>	<b>36</b>	<b>100.0</b>	<b>100.0</b>	

Finally, Table 11 shows that vast majority (44%) of the respondents did not take related trainings (IT and Business strategic Planning, Organizational Agility, IT Governance etc.), while 31% of them have just taken either of the two types of trainings. This is a setback as it decreases familiarity of the respondents to the area of study (organizational agility and business and IT alignment).

*Table 11 – Related Trainings Taken – Cross tabulation*

			Trainings			Total
			Neither	One of the two	Both	
Gender of the participants	<b>Male</b>	Count	11	8	6	25
		% Within Gender of the participants	44.0%	32.0%	24.0%	100.0%
	<b>Female</b>	Count	5	3	3	11
		% Within Gender of the participants	45.5%	27.3%	27.3%	100.0%
Total	<b>Count</b>	<b>16</b>	<b>11</b>	<b>9</b>	<b>36</b>	
	<b>% Within Gender of the participants</b>	<b>44.4%</b>	<b>30.6%</b>	<b>25.0%</b>	<b>100.0%</b>	

In general, we can say except for the training related statistics, majority of the demographic data and profile presented such as years of experience, positions and department distribution of respondents have significantly contributed for the relative accuracy of the survey results.

#### **4.2.2 Descriptive Statistics for Organizational Agility**

This section provides us with the summary, characteristics, and condition of our data on organizational agility. The findings of the descriptive statistics for organizational agility are presented in Table 12 below. The number of non-missing values (Valid N - listwise) and valid observations (N) is 36 which are also equal to the number of total observations in our case. The maximum score of all organizational agility dimensions is 5 (strongly agree) while the minimum score is 2 (disagree).

*Table 12 - Descriptive Statistics for Organizational Agility Dimensions Data*

	N	Range	Min	Max	Mean	Std. Deviation	Variance
Sensing Agility	36	3	2	5	3.50	0.811	0.657
Decision Making Agility	36	3	2	5	3.33	0.756	0.571
Acting Agility	36	3	2	5	3.39	0.766	0.587
<b>Organizational Agility</b>	<b>36</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>3.41</b>	<b>0.597</b>	<b>0.356</b>
Valid N (listwise)	36						

#### **4.2.2.1 Sensing Agility**

The mean value of the sensing organizational agility dimension is between 3.50 indicating that the organization has above average sensing agility. Comparison of the mean values of the OA dimensions indicates that, the organization has more sensing agility than the rest. The standard deviation for sensing agility is 0.811 which shows that, on average, the statistical data set on sensing agility, are relatively distributed (clustered) near the mean value. The variance value of this dimension (i.e., 0.657) is also relatively small indicating that the data points tend to be very close to the mean, and to each other.

#### **4.2.2.2 Decision Making Agility**

The mean value of the decision – making organizational agility dimension is 3.33. Comparison of the mean values of the OA dimensions indicates that, the organization has lower level of decision-making agility than the rest two. In addition to this, the standard deviation for the decision-making agility data set is 0.756 which shows that, on average, the statistical data set on decision making agility are relatively distributed near the mean value. The variance value of this dimension (i.e., 0.571) is also relatively small indicating that the data points tend to be very close to the mean, and to each other.

#### **4.2.2.3 Acting Agility**

The mean value of the acting organizational agility dimension is 3.39 indicating that the organization has above average acting agility. Comparison of the mean values of the OA dimensions indicates that, the organization has lower level of acting agility than sensing agility. The standard deviation for this dimension is 0.766 which shows that, on average, the statistical data set on acting agility are relatively distributed (clustered) near the mean value. The variance values of the acting dimension (0.587) are also very small indicating that the data points tend to be very close to the mean, and to each other.

The overall level of organizational agility in terms of the combined sensing, decision-making and acting agility dimensions shows slightly above average score as indicated by the mean value of 3.41. This indicates that the organization has achieved only some level of organizational agility. The aggregate standard deviation value is 0.597 which is relatively small and thus indicates are relatively distributed (clustered) near the mean value.

### **4.2.3 Descriptive Statistics for Business and IT Alignment**

This section provides us with the summary, condition, and characteristics of our data on BITA. The findings of the descriptive statistics for business – IT alignment are presented in

Table 13 below. Here also the number of non-missing values (Valid N - listwise) and valid observations (N) is 36 which are also equal to the number of total observations in our case. The maximum score of all business – IT alignment domains is 5 (Entirely fulfilled) while the minimum score for all domains is 1 (Entirely unfulfilled).

*Table 13 - Descriptive Statistics for Business and IT Alignment Domains Data*

	<b>N</b>	<b>Range</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Variance</b>
Business Alignment	36	4	1	5	3.40	0.806	0.650
Intellectual Alignment	36	4	1	5	3.53	0.979	0.958
Operational Alignment	36	4	1	5	3.74	0.944	0.891
Cross Alignment A	36	4	1	5	3.72	0.874	0.763
Cross Alignment B	36	4	1	5	3.67	0.876	0.767
IT Alignment	36	4	1	5	3.56	0.950	0.902
<b>BITA</b>	<b>36</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>3.58</b>	<b>0.745</b>	<b>0.556</b>
Valid N (listwise)	36						

*Source: IBM SPSS Descriptive Statistics results*

#### **4.2.3.1 Business Alignment**

The mean value of the business alignment domain is 3.40 (which is above average score) indicating the relative extent to which the business strategies and business processes within the organization are aligned. The Business Alignment domain has the lower mean value when compared with the remaining BITA domains indicating that the organization has relatively lower business alignment. The standard deviation for this domain is 0.806 which shows that the data is highly distributed (clustered) near the mean value. The variance values of the business alignment dimension (i.e., 0.650) is also very small indicating that the data points tend to be very close to the mean, and to each other.

#### **4.2.3.2 Intellectual Alignment**

The mean value of the intellectual alignment domain is 3.53 which is higher than business alignment indicating the relative extent to which business strategies & IT strategies within the organization are aligned. The standard deviation for this domain is 0.979 which shows that the data is highly clustered near the mean value. The variance values of the business alignment dimension (i.e., 0.958) is also relatively small indicating that the data points tend to be very close to the mean, and to each other.

#### **4.2.3.3 Operational Alignment**

The mean value of the operational alignment domain is 3.74 which is the highest score among all BITA domains indicating the relative extent to which the business processes and IT processes within the organization are aligned. The operational alignment domain has the highest mean value when compared with the remaining BITA domains indicating that the organization is doing much better in aligning its business process with IT infrastructure. The standard deviation for this domain is 0.944 which shows that the data is highly distributed (clustered) near the mean value. The variance values of the business alignment dimension (i.e., 0.891) is also very small indicating that the data points tend to be very close to the mean, and to each other.

#### **4.2.3.4 Cross Alignment “A”**

The mean value of the cross alignment “A” domain is 3.72 (which is above average score) indicating the relative extent to which the business strategies and IT processes within the organization are aligned.

The cross alignment “A” is also among the highest scores next to operational alignment, indicating that the organization’s better alignment between its business strategies and lower-level IT processes. The standard deviation for this domain is 0.874 which shows that the data is highly distributed (clustered) near the mean value. The variance values of the business alignment dimension (i.e., 0.763) is also very small indicating that the data points tend to be very close to the mean, and to each other.

#### **4.2.3.5 Cross Alignment “B”**

The mean value of the cross alignment “B” domain is 3.67 (which is above average score) indicating the relative extent to which the IT strategies and business processes within the organization are aligned. The cross alignment “B” domain also has lower mean value when compared with cross alignment “A”. The standard deviation for this domain is 0.876 which shows that the data is highly clustered near the mean value. The variance values of the business alignment dimension (i.e., 0.767) is also relatively small indicating that the data points tend to be very close to the mean, and to each other.

#### **4.2.3.6 IT Alignment**

The mean value of the IT alignment domain is 3.57 indicating the relative extent to which the IT strategies and IT processes within the organization are aligned. When compared with the remaining BITA domains, the IT Alignment domain is among the lowest in the organization next to business alignment, indicating that the organization has not done a lot in aligning its IT strategies with its IT processes and infrastructures. The standard deviation for this domain is 0.950 which shows that the data is relatively distributed near the mean value. The variance values of the business alignment dimension (i.e., 0.902) is small indicating that the data points tend to be very close to the mean, and to each other.

The overall level of BITA in terms of the combined business, intellectual, operational, IT and cross alignments, shows slightly above average score as indicated by the mean value of 3.58. This shows that majority the organization has somehow aligned its business and information technology (moderate alignment). The aggregate standard deviation value is 0.745 which is relatively small and thus indicates are relatively distributed (clustered) near the mean value.

### **4.2.4 Reliability Analysis**

The reliability of any given measurement refers to the extent to which it is a consistent measure of a concept, and Cronbach’s alpha is one way of measuring the consistency and internal reliability of multiple-item scales strength. Cronbach’s Alpha is computed by correlating the score for each scale item with the total score for each observation (usually individual survey respondents), and then comparing that to the variance for all individual item scores. Cronbach’s alpha is thus a function of the number of items in a test, the average covariance between pairs of items, and the variance of the total score. We conducted the reliability test for each scale that we have separately, to see how the participants were responding across all items.

Therefore, all the scales were first subjected to reliability analysis using IBM SPSS tool. The findings of the reliability test are presented in Table 14 below. Almost all instruments except sensing agility presented alpha greater than 0.8 confirming their reliability.

*Table 14 - Reliability Statistics Table*

<b>Scales and Dimensions</b>	<b>Cronbach's Alpha (Reliability)<sup>a</sup></b>	<b>Cronbach's Alpha Based on Standardized Items</b>	<b>N of Items</b>
<b>Model Reliability</b>	<b>0.981</b>	<b>0.981</b>	<b>53</b>
<b>Organizational Agility</b>	<b>0.878</b>	<b>0.879</b>	<b>15</b>
Sensing Agility	0.645	0.642	3
Decision-making Agility	0.770	0.776	5
Acting Agility	0.787	0.787	7
<b>Business &amp; IT Alignment</b>	<b>0.984</b>	<b>0.985</b>	<b>38</b>
Business Alignment	0.919	0.919	6
Intellectual Alignment	0.971	0.972	8
Operational Alignment	0.962	0.962	6
Cross- Alignment "A"	0.949	0.950	6
Cross- Alignment "B"	0.957	0.958	6
IT Alignment	0.977	0.979	6

<sup>a</sup> Highly reliable > 0.8 or 0.9 (Cronbach & Shavelson, 2004)

*Source: IBM SPSS Reliability test analysis result*

The reliabilities of sensing agility, decision-making agility and acting agility are generally lower, while reliabilities of IT alignment, intellectual alignment, and operational alignment and cross alignments are generally higher. As most of the alpha coefficient's approach 1 it can be concluded that the items have shared covariance and measure the same underlying concepts related to business and IT alignment as well as organizational agility. Thus, the internal consistency of both the organizational agility scales and business and IT alignment scales can be acceptable.

#### **4.2.5 Normality Test**

Normality tests are used to determine whether data set of the variables are modelled for normal distribution as many statistical functions require that a distribution be normal or nearly normal. There are both graphical and statistical methods for evaluating normality and we used statistical methods using IBM SPSS to test data sets of the BITA and OA variables. The skewness values for sensing agility and decision-making agility are -0.511 and 0.187 respectively whereas that of acting agility is -0.410. On the other hand, the kurtosis values of the three variables are -0.350, -0.090 and -0.521 respectively. Values of both the skewness and kurtosis of these OA variables are close to zero indicating that our data set is nearly normally distributed or approximately symmetric.

On the overhand, the skewness values for all BITA variables (business alignment, intellectual alignment, operational alignment, cross alignment "A", cross alignment "B" and IT alignment) are close to zero. Kurtosis values of business alignment and IT alignment are also close to zero. These suggests that our data set is nearly normally distributed. The remaining four variables namely

intellectual alignment (IA), operational alignment (OPA) and cross alignment “A” (CAA) and cross alignment “B” (CAB) have positive values greater than 1 but less than 3 indicating that our data set has slightly lighter tails than the normal distribution. **Annex 2** presents the normality test results of the three organizational agility and six BITA variables analysed.

### 4.3 Results, Analysis, and Interpretations

In this section a detailed analysis and interpretation of the relationship between the various constructs of business and IT alignment and organizational agility has been made using output results of IBM SPSS. In doing so, correlations, cross tabulation, simple linear regression, and graphs have been used.

#### 4.3.1 Correlation Analysis

Using correlation, we tried to measure the strength and direction of association between all the organizational agility and business alignment variables. There are three dimensions of organizational agility scales including Sensing Agility (SA), Decision-Making Agility (DMA), and Acting Agility (AA). There are also six business –IT Alignment (BITA) domains including Business Alignment (BA), Intellectual Alignment (IA), Operational Alignment (OPA), Cross Alignment “A” (CAA), Cross Alignment “B” (CAB) and IT Alignment (ITA). To analyse the correlation between these variables we have used the Pearson correlation which is the most widely used correlation statistic to measure the degree of the relationship between linearly related variables. Table 15 below shows correlation coefficient for all the constructs.

*Table 15 – Pearson Correlation Analysis of Constructs*

	SA	DMA	AA	OA	BA	IA	OPA	CAA	CAB	ITA	BITA
<b>SA</b>	1										
<b>DMA</b>	.280 .098	1									
<b>AA</b>	.368* .027	.510** .001	1								
<b>OA</b>	.728** .000	.767** .000	.810** .000	1							
<b>BA</b>	.550** .001	.617** .000	.626** .000	.777** .000	1						
<b>IA</b>	.203 .236	.653** .000	.609** .000	.628** .000	.749** .000	1					
<b>OPA</b>	.156 .365	.465** .004	.551** .000	.503** .002	.659** .000	.863** .000	1				
<b>CAA</b>	.407* .014	.608** .000	.347* .038	.589** .000	.768** .000	.685** .000	.629** .000	1			
<b>CAB</b>	.470** .004	.604** .000	.440** .007	.656** .000	.765** .000	.633** .000	.589** .000	.934** .000	1		
<b>ITA</b>	.470** .004	.533** .001	.278 .100	.557** .000	.706** .000	.645** .000	.575** .000	.920** .000	.889** .000	1	
<b>BITA</b>	.467** .004	.690** .000	.586** .000	.753** .000	.889** .000	.870** .000	.811** .000	.920** .000	.904** .000	.883** .000	1

\*Correlation is significant at the 0.05 level ( 2-tailed)  
\*\* Correlation is significant at the 0.01 level ( 2-tailed)

Source: IBM SPSS Correlation analysis result

The results indicate that the correlations between majority of the constructs except are significant at the 0.01 and 0.05 levels. Comparison of the correlation coefficients values between BITA and the three organizational agility dimensions revealed that the organization’s current level of BITA has greater positive role in shaping decision making agility and relatively lower role in sensing agility of the organization.

**4.3.1.1 Correlation between the Core Research Variables**

One of the research questions proposed was to evaluate role of Business and IT Alignment in shaping Organizational Agility in terms of responding quickly and effectively to unexpected opportunities and threats. Table 16 shows correlation coefficients between these two main research variables, i.e., organizational agility (OA) and business and IT alignment (BITA). The role of all business and IT alignment in shaping the organizational agility are high as indicated by the positive correlation coefficient of 0.559. In other words, there is a significant positive relationship between business and IT alignment (strategic alignment) and the three organizational agility dimensions at the 0.01 level.

*Table 16 - Means, Std. Deviations, and inter-correlations of the core variables*

	N	Mean	Std. Deviation	OA	BITA
<b>Organizational Agility (OA)</b>	35	3.41	0.597	1	
Sig. (2-tailed)				.001	
<b>Strategic Alignment (BITA)</b>	35	3.58	0.745	0.559**	1
Sig. (2-tailed)				.001	

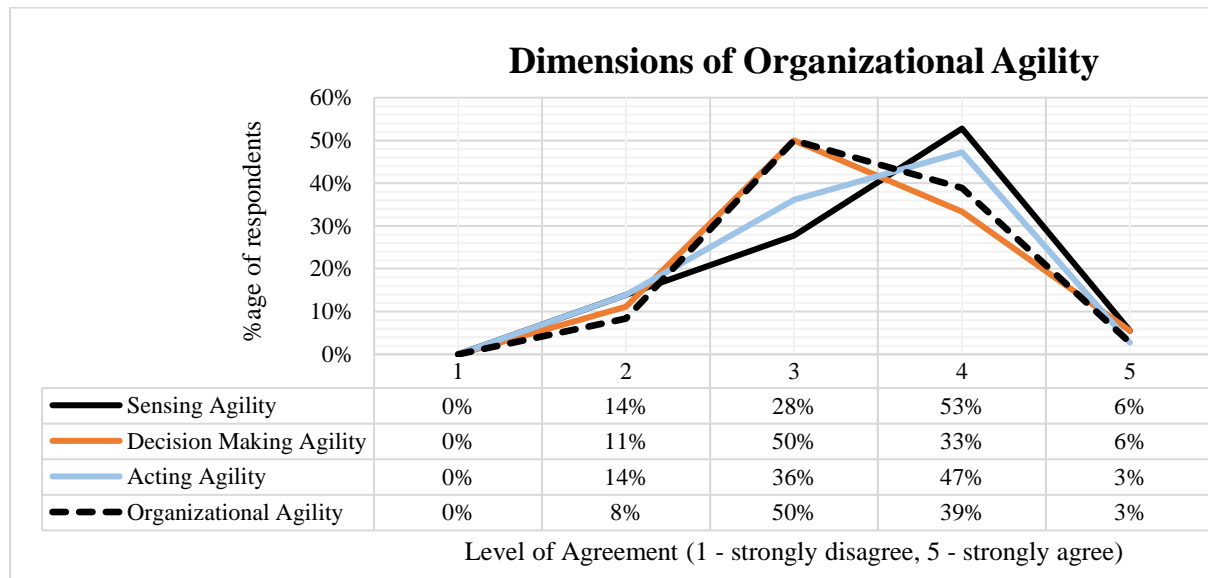
*Source: IBM SPSS Correlation analysis result*

The results indicate the presence of significant correlation between the two core variables (OA, and BITA). The level of business and IT alignment (BITA) or strategic alignment in the company is high (Mean=3.58; SD=0.745), which also led to a higher organizational agility (OA) (Mean=3.41; SD=0.597). The Table shows the correlation between OA and BITA (0.753; P > 0.01) implying that, high level of BITA increases organizational agility forming a positive linear relationship among the two variables.

**4.3.1.2 Level of Organizational Agility Dimensions**

The other research question proposed in the introduction part was to assess the level of organizational agility in ABIG Investment Group. The objective was to assess the level of business agility and speed in the market of the company. To this end, the study assessed perception of the management team on the extent to which the organization is capable of sensing, deciding, and acting up on marketplace opportunities and threats.

Figure 5 below shows the relation between the three organizational agility dimensions namely sensing agility, decision-making agility and acting agility. Accordingly, responses of the participants on their perception of the three organizational agility dimensions within their organization shows similar trend, with most of the respondents agreeing that that the organization has achieved agility in the marketplace.



*Figure 5 - Levels of Organizational Agility Dimensions*

On average, 42% of the participants agree or strongly agree that the company has developed abilities to ability of organizations to thrive, survive and grow in an unexpected competitive marketplace of constant change, exceptionally through a rapid response and to meet the needs of their customers. The remaining 50% of the respondents have neutral (indifferent) perception on this. Looking at the correlation coefficient between the three constructs and organizational agility, we noted that the coefficient value between organization agility and acting agility (0.810) is higher than the rest.

*Table 17 - Correlation between Organizational Agility Constructs*

	SA	DMA	AA	OA
Sensing Agility	1			
Decision Making Agility	0.280	1		
<i>Sig. (2-tailed)</i>	<i>0.089</i>			
Acting Agility	0.368*	0.510**	1	
<i>Sig. (2-tailed)</i>	<i>0.027</i>	<i>0.006</i>		
Organizational Agility	0.728**	0.767**	.810**	1
<i>Sig. (2-tailed)</i>	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	

\*Correlation is significant at the 0.05 level (2-tailed).  
 \*\*Correlation is significant at the 0.01 level (2-tailed).

*Source: IBM SPSS Correlation analysis result*

As indicated on Table 17 above, there is positive linear relationship between all the constructs of organizational agility and the strength of association between sensing agility is slightly lower than that of decision making and acting agility. All the correlation coefficients are significant at the 0.01 level except sensing agility with acting agility.

#### 4.3.1.3 Levels of Business and IT Alignment (BITA)

The other research question proposed in the introduction part was to assess the extent of business and information technology alignment in ABIG Investment Group. The objective was to assess the level of business and information technology alignment within the organization. To this end, the study assessed perception of the management team on the extent to which the organization has achieved alignment in terms of the different domains of BITA. Figure 6 below shows the relationship between the six domains of organizational agility: business alignment, intellectual alignment, operational alignment, cross alignment “A”, cross alignment “B” and IT alignment. The graphical intuitive analysis of responses of the participants on their perception of the level of different domains of BITA in the organization shows different results.

The results indicate that, the company has achieved significant level of business and IT alignment as explained by the high percentage of respondents agreeing on the high level of alignment in each BITA domains. On average more than 50% of the participants agree or strongly agree that business and IT alignment is fulfilled within the company. A close look at the respective domains revealed that, 72% of the respondents believe that the organization there is more alignment between the lower-level internally focused business infrastructure and process and IT infrastructure and process (i.e., operational alignment domain), that the rest the BITA alignment domains.

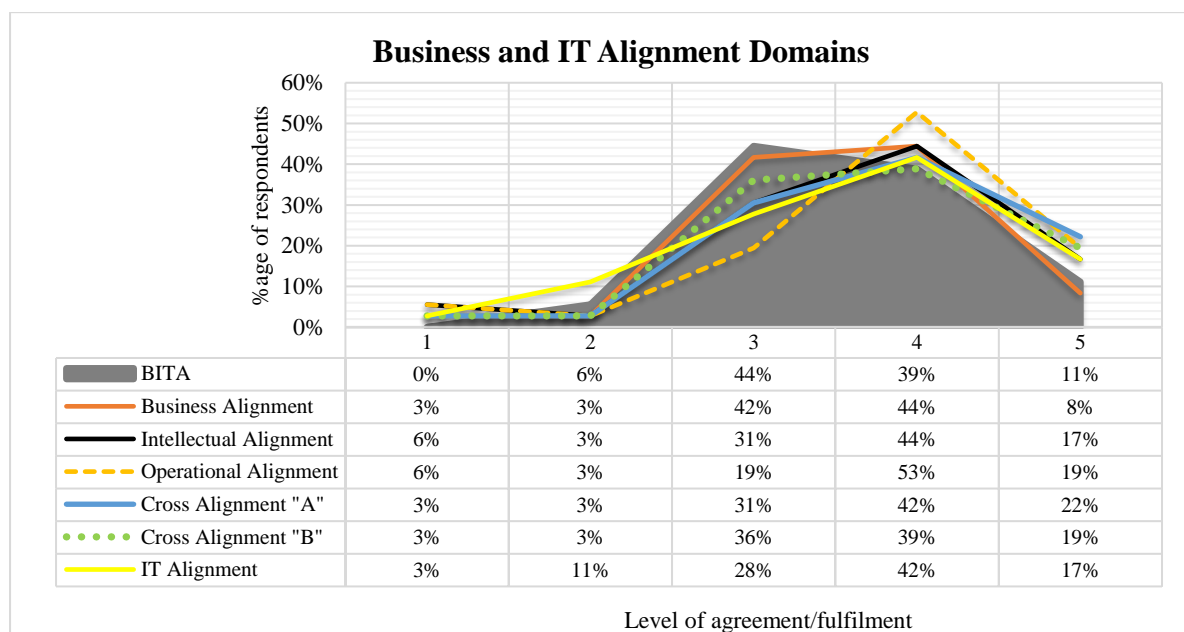


Figure 6 –Business and IT Alignment Domains

On the other hand, on average, significant number of the respondents (i.e., more than 33%) are indifferent on whether the organization has put in place cross alignment “A” (alignment between business strategies and business infrastructure and processes) and cross alignment “B” (alignment between IT strategies and business infrastructure and process).

Looking at the correlation coefficient between the constructs BITA, we noted that the coefficient value between cross alignment “A” and cross alignment “B” is the highest (0.934), while the lowest correlation value exists between IT alignment and operational alignment (0.575). Table 18 below depicts the correlation coefficients of all the BITA domains.

*Table 18 - Correlation between business and IT alignment domains*

	BA	IA	OPA	CAA	CAB	ITA	BITA
BA	1						
IA	.749**	1					
	.000						
OPA	.659**	.863**	1				
	.000	.000					
CAA	.768**	.685**	.629**	1			
	.000	.000	.000				
CAB	.765**	.633**	.589**	.934**	1		
	.000	.000	.000	.000			
ITA	.706**	.645**	.575**	.920**	.889**	1	
	.000	.000	.000	.000	.000		
BITA	.889**	.870**	.811**	.920**	.904**	.883**	1
	.000	.000	.000	.000	.000	.000	

\*\*Correlation is significant at the 0.01 level (2-tailed).

*Source: IBM SPSS Reliability test analysis result*

As indicated above there is a linear positive relationship between all the domains and separately with BITA (or strategic alignment). All the correlation values are statistically significant at 0.01 levels.

### **4.3.2 The Role of Business-IT Alignment Domains on Agility**

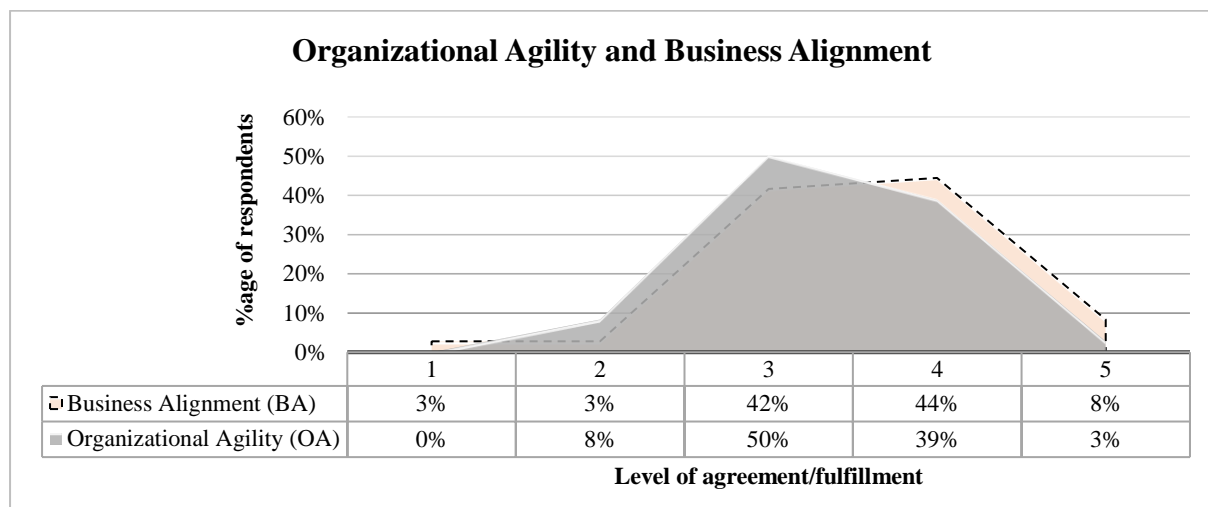
The third research questions proposed in the introduction part was to assess the extent of business and information technology alignment in ABIG Investment Group. The objective was to identify role of Business and Information Technology Alignment in shaping Organizational Agility of the selected organization. To this end, the study assessed perception of the management team on the extent to which the organization has achieved agility by aligning its business and information technology. In this regard we have looked at the role of each BITA domain item by item in relation to organizational agility.

#### **4.3.2.1 Organizational Agility and level of Business Alignment**

As discussed in previous sections, business alignment indicates the alignment between business strategy & business structure/process. To this end, the study assessed perception of the management

team on the extent to which business strategies and internally focused business infrastructure and processes are aligned within the firm. The results were compared against the perceived level of organizational agility, and we noted that there is a significant association between the two.

Figure 7 below indicates that 44% of the participants agree that the firm’s high-level strategies and internal process are aligned. In addition, 8% of the participants strongly agree that firm’s high-level strategies and internal process are aligned. These in turn is reflected on the agility of the organization as indicated by almost more than half of the respondents agreeing that the firm has the capability to sense, decide and act to market changes in proper time.



*Figure 7 - Organizational Agility and Business Alignment*

In this part of the analysis, we are trying to get a sense of whether the firm’s business process help the management staff execute and develop their strategy for competing in the market as well as whether that has shaped the organization’s ability to respond to market changes in proper time. We have also analysed the association of the two variables using a bivariate correlation analysis. The result shows that organizational agility and business alignment are very highly correlated as indicate by the positive correlation coefficient of 0.777 which is statistically significant at 0.01 level.

*Table 19 - Correlation between organizational agility and business alignment*

	<b>Organizational Agility</b>	<b>Business Alignment</b>	<b>Sig. (2-tailed)</b>
Organizational Agility	1	0.777**	0.000
Business Alignment	0.777**	1	
** <i>. Correlation is significant at the 0.01 level (2-tailed).</i>			

*Source: IBM SPSS Correlation analysis result*

This indicates that, among other things, the firm’s internal business policies, procedures, personnel, and structure strongly support their business missions and goals which in turn helps in shaping the organization’s capability to sense, decide and act up on marketplace changes without delays.

#### 4.3.2.2 Organizational Agility and Level of Intellectual Alignment

As discussed in previous sections, intellectual alignment is the alignment between business strategy and IT strategy, which measures the alignment between the firm’s higher-level business strategies and IT strategies. The study assessed perception of the ABIG management team on the extent to which business strategies and IT strategies are aligned within the firm. The results were compared against the perceived level of organizational agility in the organization in terms of sensing, decision making and acting agilities. Figure 8 below illustrates that 46% of the participants agree that the firm’s business and IT strategies are aligned while 17% of the participants strongly agree that their business and IT strategies are aligned.

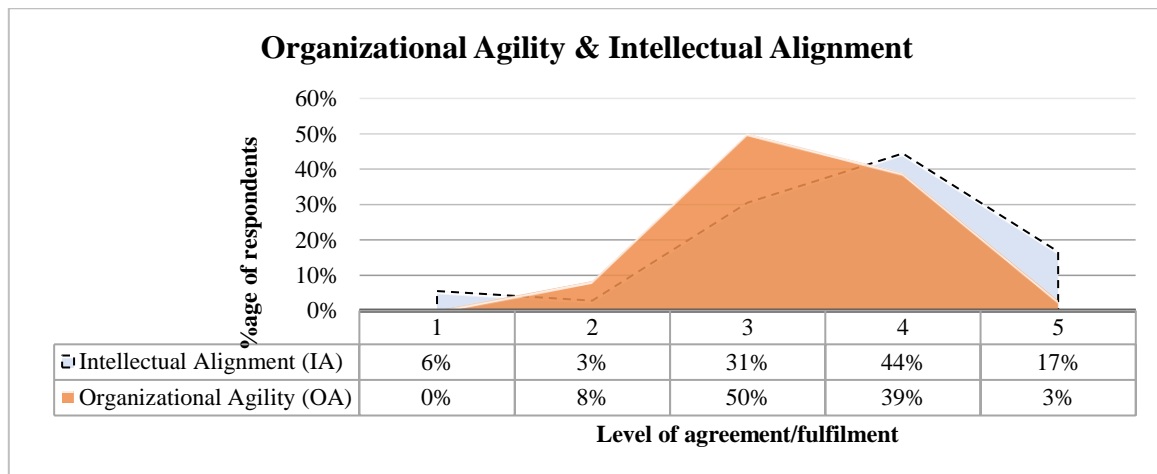


Figure 8 – Relationship between Organizational Agility and Intellectual Alignment

In addition to the above intuitive analysis, we have also conducted a correlation analysis between the two variables as indicated on below. As we are trying to get a sense of whether the firm’s IT strategy supports how its business competes in the market as well as whether that has contributed for the organization’s agility in the marketplace. To this end, the results of the correlation analysis indicates that there is a significant linear positive relationship between the firm’s intellectual alignment and organizational agility.

Table 20 - Correlation between Organizational Agility and Intellectual Alignment

	Organizational Agility	Intellectual Alignment	Sig. 2 –tailed
Organizational Agility	1	0.628**	0.001
Intellectual Alignment	0.628**	1	
**Correlation is significant at the 0.01 level (2-tailed).			

Source: IBM SPSS Correlation analysis result

The correlation coefficient which is 0.628 indicates that there is a positive linear relationship between the intellectual alignment and organizational agility which is statistically significant at 0.01 level.

#### 4.3.2.3 Organizational Agility and Level of Operational Alignment

As indicated in the previous sections, operational alignment is the alignment between business infrastructure/process and IT infrastructure/ process. In this study we tried to get a sense of whether the firm has the required technical capabilities in place to support your business process, and whether that has an impact on the organization ability to quickly respond to marketplace changes.

Figure 9 below shows that significant number (72%) of the participants are believe that the firm’s business process and IT process are really aligned. However, majority of these participants are neutral (indifferent) on whether the organization has the capability to sense, decide and act up on new marketplace threats and opportunities as quickly as possible.

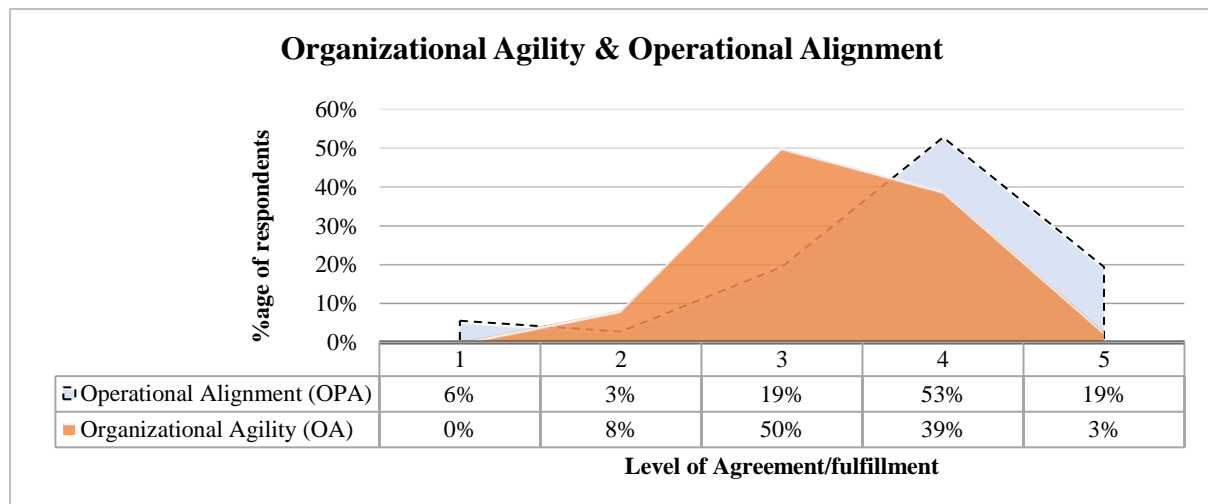


Figure 9 - Relationship between Organizational Agility and Business Alignment

Thinking about the alignment between the lower-level internally focused business infrastructure and process and IT infrastructure and process, we have analysed the extent to which these functions are fulfilled in the organization. In addition to the above analysis, we have also analysed the association between organizational agility and operational alignment using bivariate correlation analysis. Table 21 below indicates that even though there is a positive relationship between the two variables, but the association is weak as indicated by the relatively low level of correlation coefficient. The coefficient (0.503) is statistically significant at the 0.01 level.

*Table 21 - Correlation between Organizational Agility and Operational Alignment*

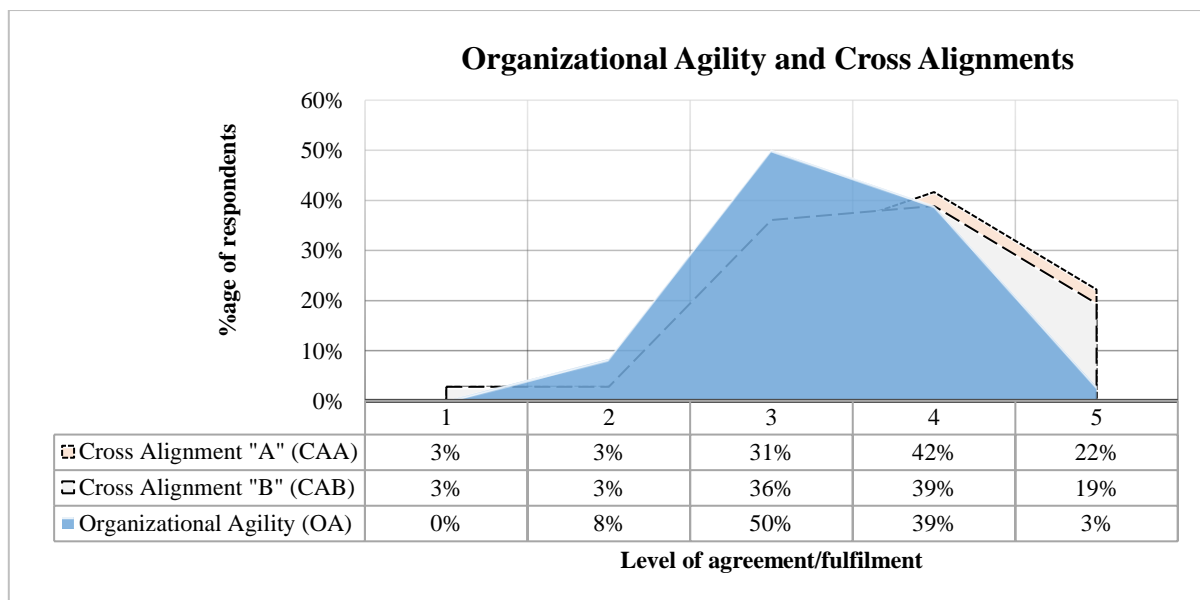
	<b>Organizational Agility</b>	<b>Operational Alignment</b>	<b>Sig. (2 – tailed)</b>
Organizational Agility	1	0.503**	.002
Operational Alignment	0.503**	1	
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: IBM SPSS Correlation analysis result

#### 4.3.2.4 Organizational Agility and Cross Alignment Levels

There are two types of cross alignment as discussed in previous sections: Cross Alignment “A” (CAA) which indicates the alignment domain between business strategy and IT infrastructure/process, and cross alignment “B” (CAB) which shows the alignment between IT strategy & business infrastructure/processes. In this study we tried to identify the participants’ perception on both cross-alignment domains.

Looking at the extent to which the bridge between the firm’s higher-level business strategies and its internally focused IT infrastructure and process are aligned (i.e., CAA), it is noted that significant number (64%) of the participants agree/strongly agree that there is a tight bridge between the firm’s business strategies and its IT infrastructure and process. On the overhand, 58% of these participants agree that the organization has the capability to sense, decide and act up on marketplace changes timely.



*Figure 10 - Organizational Agility and Cross Alignment "A" and Cross Alignment "B"*

In this part of the analysis, we tried to get a sense of whether the firm’s technical capabilities help the management staff of the firm execute and develop strategy for competing in the market, whether the

firm’s business process helps the management staff execute and develop their IT strategy, as well as whether these has shaped the organization’s ability to respond to market changes in proper time. To this end, in both cases, 42% of the respondents agree that the firm has developed a capability to proactively sense, and quickly decide and act up on marketplace threats and opportunities in proper time. However, significant amount of these respondent (50%) is indifferent on whether the firm has organizational agility. In addition to the above analysis, we have analysed the correlation organizational agility and cross alignments to better understand the association between the two variables.

**Table 22 - Correlation between Organizational Agility and Cross Alignment "A" and "B"**

	<b>Organizational Agility (OA)</b>	<b>Cross Alignment A (CAA)</b>	<b>Cross Alignment B (CAB)</b>	<b>Sig. (2 - tailed)</b>
Organizational Agility (OA)	1			.000
Cross Alignment A (CAA)	0.589**	1		
Cross Alignment B (CAB)	0.656**	0.934**	1	
**. Correlation is significant at the 0.01 level (2-tailed).				

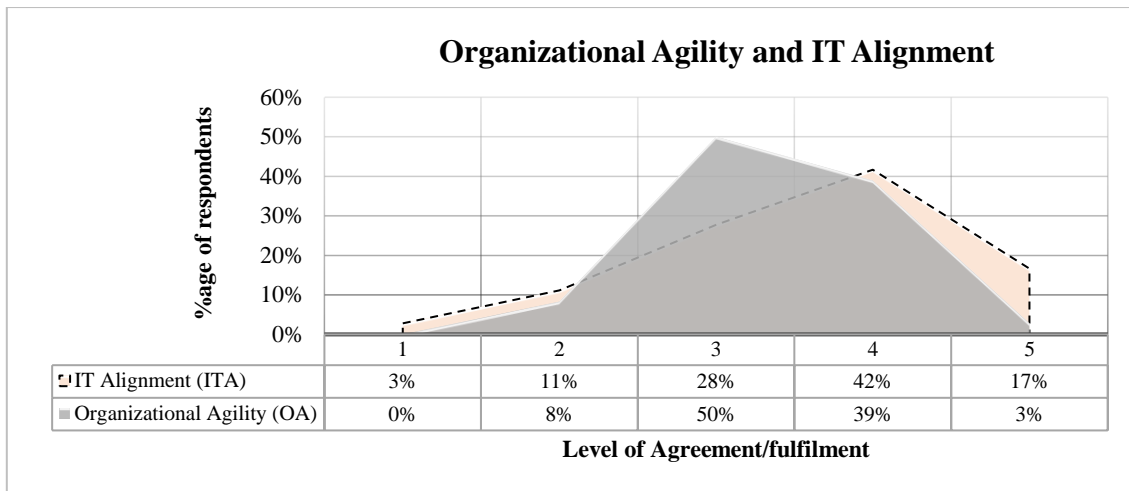
To this end, the correlation analysis results indicate that there is a positive linear relationship between organizational agility both domains of cross alignment within the firm. The correlation coefficient between OA and CAA is 0.589, while the correlation coefficient between OA and CAB is 0.656, and both are statistically significant at 0.01 level. However, when we compare the two, the correlation organizational agility with Cross Alignment “B” is stronger than with Cross Alignment “A”.

The results indicates that, among other things, the firm’s IT policies, procedures, personnel, and systems support its business missions and goals, while the firm’s internal business policies, procedures, personnel, and structures strongly support its IT mission and goals.

#### **4.3.2.5 Organizational Agility and Level of IT Alignment**

As discussed in previous chapters, IT alignment refers to the alignment between an organization’s IT strategy and IT infrastructure/process. In this study we tried to get the perception of participants other extent of the alignment between the organization’s higher-level IT strategies and lower-level IT infrastructure and processes, and how that helped in shaping agility of the organization.

Figure 11 below indicates that 69% of the participants agree that IT alignment of the organization is fulfilled/entirely fulfilled. However, only 39% of these participants believe that the organization have developed the capability to proactively sense, timely decide and act up on changes in the marketplace, while the remaining 50% of the participants are indifferent on whether the firm has achieved organizational agility. The results show very weak association between organizational agility and IT alignment.



*Figure 11 - Organizational Agility and IT Alignment*

In this part of the analysis, we are trying to get a sense of whether the management staffs technical capabilities help them execute and develop your IT strategy. To this end, we have also conducted a correlation analysis to support the above intuitive analysis, in which a very low correlation coefficient is found between the two variables. The correlation coefficient between organizational agility and IT alignment (0.557) is found to be statistically insignificant at 0.05 level.

*Table 23 - Correlation between Organizational Agility and IT Alignment*

	Organizational Agility	IT Alignment
Organizational Agility	1	
Sig. (2- tailed)		
IT Alignment	0.557	1
Sig. (2- tailed)	.001	

*Source: IBM SPSS Correlation analysis result*

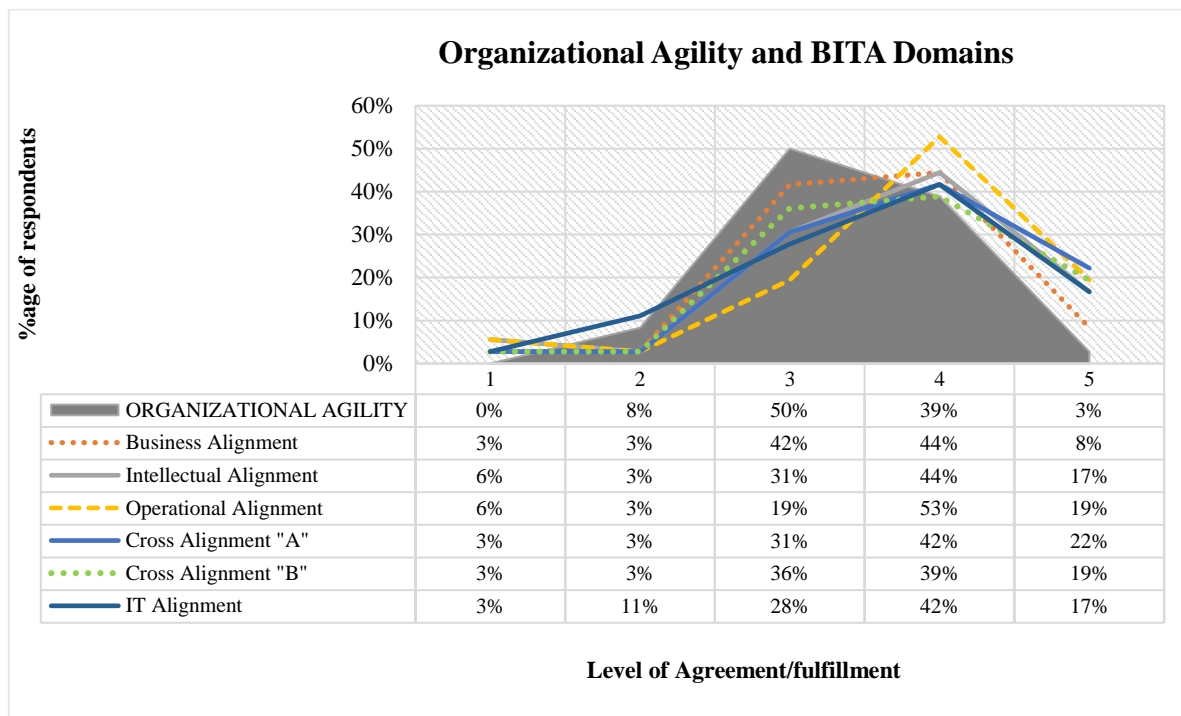
This, among others, indicates that the firm’s IT policies, procedures, personnel, and systems do not strongly support its IT mission and goals, you would select.

#### **4.3.2.6 Analysis of Organizational Agility and Business and IT Alignment**

Having analysed the individual dimensions of business – IT alignment separately against organizational agility above, in this section we analysed the relationship of the two major variables, i.e., organizational agility and business – IT alignment. The alignment of all domains if business – IT alignment is what Henderson & Venkatraman (1993) called it Strategic Alignment (SAM). We have indicated in previous chapters that organizational agility is the ability of organizations to thrive, survive and grow in an unexpected competitive marketplace of constant change, exceptionally through a rapid response and to meet the needs of their customers.

Strategic alignment or business – IT alignment on the other hand is a way of applying information technology (IT) in harmony with business strategies and objectives. Hence, in this part of the analysis

we tried to see how the combined alignment of all domains of Strategic Alignment or BITA relate with the organizational agility of the firm under discussion. Accordingly, as illustrated on figure below all the domains of business and IT alignment show similar trend as compared to that of organizational agility (the line in the graph). This is depicted by the relatively symmetrical nature of all the business and IT domains graphs having similar shapes as that of organizational agility. On average 60% of the respondents perceive that the business and IT alignment is fulfilled within the organization, while 46% if these respondents also believe that the organization has developed the ability to thrive, survive and grow in an unexpected competitive marketplace of constant change.



*Figure 12 - Relationship between Organizational Agility and all Constructs of BITA*

However, the above intuitive analysis is not adequate to determine which of the BITA constructs are strongly related with overall organizational agility. To this end we have analysed the Pearson correlation coefficient results indicated on Table 24 below.

*Table 24 - Correlation between Organizational Agility and BITA domains*

	BA	IA	OPA	CAA	CAB	ITA	OA
BA	1						
IA	0.749**	1					
OPA	0.659**	0.863**	1				
CAA	0.768**	0.685**	0.629**	1			
CAB	0.765**	0.633**	0.589**	0.934**	1		
ITA	0.706**	0.645**	0.575**	0.920**	0.889**	1	
OA	<b>0.777**</b>	<b>0.628**</b>	<b>0.503**</b>	<b>0.589**</b>	<b>0.656**</b>	<b>0.557**</b>	1

\*\*Correlation is significant at the 0.01 level (2-tailed)

Source: IBM SPSS Correlation analysis result

As indicated above cross alignment “B” and business alignment have higher level of association with organizational agility as indicated by the statistically significant positive values (i.e., 0.656 and 0.777). This indicates that the increased alignment between the company’s business strategies and business processes as well as the alignment between the companies IT strategies and business processes significantly relate with higher level of organizational agility. The correlation coefficient between Organizational Agility (OA) and Intellectual alignment (IA) the correlation value is 0.628 whereas Organizational Agility (OA) and operational alignment (OPA) shows correlation value of 0.503. On the overhand, the correlation between organisational alignment (OA) with cross alignment “A” (CAA) and cross alignment “B” (CAB) are 0.589 and 0.056, respectively. The last BITA construct, i.e., IT alignment (ITA) has a correlation coefficient value of 0.557. Accordingly, as indicated above, business alignment which is the alignment between business strategy & business infrastructure/processes have stronger positive relationship with organizational agility than the rest as indicated by the correlation value of 0.777. All the remaining BITA constructs also have significant positive correlation with organizational agility at the 0.01 level.

#### 4.3.2.7 Regression Analysis

To estimate and summarize the relationship between the two core variables, i.e., business and IT alignment (the predictor variable) and organizational agility (the outcome variable) we have run a simple linear regression analysis. Before interpreting results of the regression, we have checked some assumptions for regression. First, given that regression is very sensitive to outliers we have checked whether outliers exist using the residuals statistics output. Accordingly, the standardized residuals the minimum and maximum residual values are -2.592 and 2.297. Since, the values should not exceed -3.29 and 3.29 suggesting that we do not have outliers. Moreover, we have checked for independence of observations by examining the independence of errors using the Durbin Watson test. Accordingly, the Durbin Watson statistic output is close to 2. Since the statistic is not less than 1 or greater than 3, the assumption of independence of observations has also been met.

Finally, we have checked for normality looking at the P – P plot of regression standardized residual dependent variable (organizational agility) and noted that the dots generally line up along a 45-degree line, so we have normality of residuals - the dependent variable is normally distributed. The scatter plot of the standardized residuals versus the predicted values looks elliptical as it should be. Therefore, the assumptions for regression have been met (See **Annex 2** for the details).

*Table 25 - Model Summary<sup>b</sup>*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.559 <sup>a</sup>	.313	.292	.661	2.162

a. Predictors: (Constant), Business and IT Alignment

b. Dependent Variable: Organizational Agility

As indicated on the table above the correlation between BITA and OA is 0.559 which is also equal to the value indicated under section 4.3.1.1. The correlation between the two variables is moderately high. The  $r^2$  which is the coefficient of determination is the proportion of variability in the outcome variable that was explained by the predictor variable. It tells us the proportion of variance in organizational agility accounted for by business and IT alignment. The  $r^2$  for the equation is 0.313 that means 31.3% of the variance in organizational agility was predicted from the level of business and IT alignment. ANOVA is another way of looking at our regression model, and what it tells us is that our model with one predictor works better than simply predicting using the mean. The significance value (as indicated on the table below) indicated that the model is using business and IT alignment as a predictor was significantly better than prediction without burnout in the model.

**Table 26 - ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.767	1	6.767	15.469	.000 <sup>b</sup>
	Residual	14.872	34	.437		
	Total	21.639	35			

a. Dependent Variable: Organizational Agility  
b. Predictors: (Constant), Business and IT Alignment

There is statistically significant relationship between the predictor and the outcome variable. The ANOVA showed that the model works, below we have figured out how it works. As indicated under the unstandardized beta coefficients column the ‘b’ value is positive and is statistically significant as indicated by the comparison between the t-value and the significance value. The ‘a’ value is also positive (i.e., 1.282) which is the constant value. The positive sign of the beta coefficient shows us that the dependent variable (organizational agility) increases due to an increase in the predictor variable which is business and IT alignment in our case.

**Table 27 – Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	1.282	.526		2.436	.020	.213	2.351
Business and IT Alignment	.569	.145	.559	3.933	.000	.275	.863

a. Dependent Variable: Organizational Agility

Accordingly, for every one unit increase in the business and IT alignment, organizational agility will increase by 0.569 points. Similarly for every one standard deviation increase in business and IT alignment, organizational agility will increase by 0.559 of a standard deviation (which is exactly equal to the correlation between the two variables). Therefore, the regression equation for predicting organizational agility from business and IT alignment is depicted as  $\hat{y} = 1.282 + 0.569x$ , where y is the dependent variable (OA), and x is the predictor variable (BITA).

## 4.4 Discussion of Findings

In the previous section the association between business and IT alignment and organizational agility were presented based on three organizational agility dimensions (i.e., sensing, decision making and acting agilities and six business and IT alignment domains including business alignment, intellectual alignment, operational alignment, cross alignment “A”, cross alignment “B” and IT alignment. The model used a five Likert scale measurement to assess how management staffs of ABIG perceive the level of business and IT alignment and organizational agility within the company. The results regarding organizational agility indicated that there is positive linear relationship between all the constructs of organizational agility and the strength of association between sensing agility is lower than that of the decision making and acting agility. This indicates that all dimensions of OA, i.e., sensing agility, decision making agility and acting (practicing) agility are very critical for the organization to achieve a full-fledged organizational agility.

The correlation matrix and intuitive graphical analyses indicated that each domain of business and IT alignment have significant role in shaping organizational agility in terms of proactively sensing threats and opportunities, deciding, and acting. However, we did not find a significant difference on the role among BITA domains on their role in shaping organizational agility of ABIG. The major reason for not having significant difference on the role of BITA domains on organizational agility seems to be the existence of high correlation between the variables.

The study revealed key findings that are important to understand and improve the role business and IT business alignment plays in shaping organizational agility of ABIG, such that it has the ability to thrive, survive and grow in an unexpected competitive marketplace of constant change, exceptionally through a rapid response and to meet the needs of its customers. The findings are discussed here based on the sequence of research questions that are described in the introduction chapter.

The first research question asks how strong the extent of business and information technology alignment in ABIG Investment Group is. The objective here was to assess the level of Business and Information Technology Alignment in ABIG. In this part of the analysis, we tried to get a sense of the extent of business and information technology alignment of the organization as measured by the six BITA domains. Based on the study results, having well developed business process and structure as well as strategy (i.e., business alignment) is only a mandatory condition and not sufficient condition to achieve organizational agility. The study pointed out that the availability of all the BITA domains (business alignment, intellectual alignment, operational alignment, cross alignment “A”, cross alignment “B” and IT alignment) plays an important role in influencing the dimensions of OA.

The *second* research question tries to identify the level of organizational agility in ABIG Investment Group. The objective here was to assess the level of Organizational Agility in ABIG in terms of sensing,

decision-making and acting abilities. Responses of the participants on their perception of the three organizational agility dimensions within their organization shows similar trend, and significant number of the respondents (42%) agree that the company has achieved organizational agility in the marketplace. The findings also indicated that ABIG have stronger sensing agility as compared to decision-making and acting agility.

The *third* research question tries to identify how significant the role of Business and IT Alignment is in shaping Organizational Agility in terms of responding quickly and effectively to unexpected opportunities and threats in the marketplace and environment. The objective here was to identify the role Business and Information Technology Alignment plays in shaping Organizational Agility of the organization. The findings revealed that the level of business and information technology alignment in the organization have significantly helped in shaping agility of the organization in the marketplace. On average 60% of the respondents perceive that the business and IT alignment is fulfilled, while 46% if these respondents also believe that the organization has developed the ability to thrive, survive and grow in an unexpected competitive marketplace of constant change.

To this end, correlation analysis between the two major variables also indicated that there is a significant linear positive relationship between business and IT alignment and organizational agility. This shows that high level of Business and IT Alignment increases organizational agility forming a significant positive linear relationship among the two variables. Further look into the role of specific BITA domains in shaping organizational agility indicates that operational alignment, which is the alignment between the organizations business processes/infrastructure and IT processes/infrastructure played significant role as compared to the rest of the domains.

Finally, further to the intuitive & correlation analysis done a simple linear regression is conducted to summarize the relationship between the two core variables, i.e., business and IT alignment (as predictor variable) and organizational agility (as an outcome variable). The results indicates that there is a significant positive relationship among the two variables. Business & IT alignment predicts organizational agility. There is statistically significant relationship between the predictor and the outcome variable. The positive sign of the beta coefficient shows us that the dependent variable (organizational agility) increases due to an increase in the predictor variable which is business and IT alignment in our case. The regression equation for predicting organizational agility from business and IT alignment in our case is depicted as  $\hat{y} = 1.282 + 0.569x$ , where  $y$  is the dependent variable (organizational agility), and  $x$  is the predictor variable (BITA). Accordingly, for every one unit increase in the business and IT alignment, organizational agility will increase by 0.569 points.

# CHAPTER FIVE

## Summary, Conclusion and Recommendation

### 5.1 Summary of Major Findings

The purpose of this study was to identify the role business and IT alignment plays in shaping organizational agility. The study was carried out at ABIG Investment Group, guided by the three core research questions focused on business and IT alignment domains and organization alignment dimensions. Descriptive research design was used in this study in which all management staff members of the selected organization were selected for the study. A structured questionnaire was used to collect primary data from the sample. The measurement of the BITA was adopted from Gerow et al. (2015), while measurements for organizational agility were adopted from Jaworski & Kohli (2012). The data collected from the respondents were analysed using both descriptive and statistical analysis with the help of IBM SPSS tool and the findings were presented on tables and charts. To discover the relationship and effect of BITA on organizational agility, intuitive graphical analysis, Pearson's Correlation, and simple linear regression model were used. To this end, survey questionnaire feedbacks from 36 senior management staff members in ABIG were presented and analysed in detail. This section, therefore, summarizes and presents the core points and major findings as follows:

On average, almost 42% of the participants agree or strongly agree that the company has developed abilities to ability of organizations to thrive, survive and grow in an unexpected competitive marketplace of constant change, exceptionally through a rapid response and to meet the needs of their customers. Looking at the correlation coefficient between the three constructs and organizational agility, we noted that the correlation between organization agility and acting agility is stronger than the rest. In general, the organization has better acting agility than decision-making and sensing agility, that means the organization has been slow in terms of detecting changes that occur in customer preferences for products, movements of competitors as well as changes in technology (sensing agility) but fast in decide to and to act.

The results indicate that, the company has achieved significant level of business and IT alignment as explained by the high percentage of respondents agreeing on the high level of alignment in each BITA domains. On average more than 50% of the participants agree or strongly agree that business and IT alignment is fulfilled within the company. Exceptionally, there is more alignment between the lower-level internally focused business infrastructure and process and IT infrastructure and process (i.e., operational alignment domain), than the rest BITA domains. Majority of the respondents (72%) believe that the organization can identify the fit between its IT process/infrastructure and business infrastructure/process and the two strongly correspond to each other. Relatively speaking, the

association between cross alignment “A” and Cross Alignment “B” is the highest among all the BITA domains, indicating stronger cross alignment within the high-level strategies and lower-level process/infrastructures in the organization.

Generally, the results indicate that business and IT alignment predicts organizational agility. There is a statistically significant positive relationship between business and IT alignment (predictor variable) and organizational agility (outcome variable); such that higher business and IT alignment amongst all the business and IT alignment domains (strategic alignment) leads to higher organizational agility in terms of shaping the sensing, decision-making and acting agility of the organization. Organizational agility increases due to an increase in the predictor variable which is business and IT alignment in our case. In our model, for every one unit increase in the business and IT alignment, organizational agility will increase by 0.569 points.

## **5.2 Conclusion**

This study attempted to understand the role business IT and alignment plays in shaping organizational agility in the case of ABIG Investment Group. Using multiple theoretical lenses, this study tried to develop a better understanding of the role of business and IT alignment on the ability of the organization to manage opportunities and threats. It discovered the multifaceted roles of BITA in enhancing organizational agility the firm. The method used to measure the business and IT alignment and organizational ability in the company is totally perception based - focused on evaluating the perception of major actors (business and IT managers/directors) and domains of an organization, using survey questionnaires. In general, this study found out that the business-IT alignment has a significant positive effect in shaping organizational agility of the firm. Majority of the sub domains of business and IT alignment also have significant role in shaping organizational agility as illustrated in the case of ABIG.

In addition, to meet business objectives and achieve organizational agility an alignment must be continuously established among the other different domains of strategic alignment (BITA). Firms including ABIG, which pursue cross alignment of IT strategy & business infrastructure/processes may experience stronger organizational agility and may be able to achieve a sustainable competitive advantage in the market. There is a strong relationship between operational alignment and intellectual alignment. Aligning business and IT strategies (i.e., intellectual alignment) and IT strategy & business infrastructure/processes (i.e., cross alignment “B”) is more closely associated with higher levels of organizational agility than other strategic alignment combinations examined in this study. This suggests that firms such as ABIG may not need to place as much emphasis on aligning the other three business – alignment domains to see higher levels of organizational agility in the short run. Moreover, all

organizational agility dimensions are necessary to achieve a full-fledged agility in the marketplace. Exceptionally, acting agility are highly associated with greater organizational agility of companies.

Finally, it can be concluded that business and IT alignment significantly predicts organizational agility. Higher business and IT alignment amongst all the business and IT alignment domains (strategic alignment) leads to higher organizational agility in terms of shaping the sensing, decision-making and acting agility of the organization.

These conclusions imply that, given the increasing importance of information technology in business, research in Ethiopia need to consider the alignment of the two concepts. The alignment of both concepts should be further explored specially during this time where turbulent marketplace has become sweeping and drastic. The results from this study indicate that, we have reached in an era where the role of CIOs and IT in business can never be ignored and is an integral part of organizational agility efforts. Furthermore, this study helps ABIG and other similar organizations to benchmark where they stand in their business and IT alignment as well as organizational agility and perhaps more importantly, how they can improve their strategic alignment and agility in the marketplace, such that they create a sustainable competitive advantage and achieve profit. Organizations that do not adapt will probably lose their competitive edge over time and disappear.

### **5.3 Recommendations**

Organizational Agility and Business and IT Alignment is a process, not a point in time event. Business and IT alignment happens in stages with each increment resulting in higher value to the company. An enterprise that achieves Business and IT Alignment is generating the maximum value from its IT investments and business structures. Given that environmental changes are pervasive today, no organization is immune to external factors, but organizations that have better business and IT alignment within their system are in a better position to sense threats and opportunities, shift focus, modify goals, restructure process, and develop new forms quickly. Hence, the assessment of a company's business and IT alignment and status of organizational agility is a fundamental step in identifying the role a Strategic Alignment (SAM) or similarly Business and IT alignment plays in shaping organization's ability to thrive, survive, and grow in an unexpected competitive marketplace of constant change, exceptionally through a rapid response.

There is an apparent link between business and IT alignment and organizational agility, but the goal of perfect alignment is unachievable due to the dynamic nature of business. Based on the research findings and conclusions made above, the following are recommended for ABIG and similar organizations in Ethiopia:

First, organizations should train management staffs' members on the importance of IT to business, because to achieve strategic alignment, first and foremost, IT related management staff needs to understand the business and the business management needs to appreciate the role of IT. Organizations need to set up a separate strategic function and responsibility that continuously measure the level and maturity of business and IT alignment of their organizations and the organization's ability to survive and grow in unexpected competitive environment of constant change. To this end, organizations should also adopt an objective methodology (either perception based, or model based) that they can use to measure and periodically assess the level of alignment as well as agility.

Second, organizations should continuously compare the desired or "to-be" business and IT capability with the current or "as is" business and IT capability and identify gaps that are causing misalignment and the potential fixes, which is essential in making organizations agile.

Third, to ensure business and IT alignment continuously shapes organizational agility; business functions and IT functions need to have a service level agreement and continuously revise terms as both marketplace and knowledge and tools change overtime. Moreover, since the presence of proven business process solely does not serve the purpose, management team should be willing to invest in IT based on business requirements.

Fourth, with increasing opening up of Ethiopia economy to the world local companies are being concerned on how they can compete with international companies. Hence, the way out here is to adopt information technology and align it with the core business, which gives them an edge in the market. This is quite relevant to local companies who wish to expand their business either locally or regionally amid recent changes in the economy such as privatization of state-owned companies, opening of selected sectors to the international market etc. Finally, in addition to business strategic roadmap, IT strategic roadmap should be developed amid the mission and vision of the organizations. Such roadmaps should also complement with the direction the country is heading to in terms of information technology, thereby creating a competitive advantage for organization.

## **5.4 Limitation and Future Research Direction**

Research on business and IT alignment and organizational agility is relatively new in Ethiopia, but its development has increased over the past decade in the western world. Even though this research area is now topical, there is lack of similar published studies specifically in Ethiopia's context which made our discussion less comprehensive. This is an important and dynamic field of research, and we are hopeful that this project paper will help speed progress in Ethiopia in this area by highlighting key issues that need attention on the subject. Finally, one of the limitations of this study is it did not consider qualitative. Had it been mix research method, the quantitative and the qualitative data will complement each other,

and we would have got rich and quality data. In general, there are more future research opportunities to be considered in the field of business and IT alignment and organizational agility with alternative methodologies and approaches. Further research also can be done using different evaluation method or framework such as model – based frameworks (instead of perception – based), which is focused on assessing the quality of relationship between the modelled elements between business and IT domains using a documented model in an organizational any.

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# Annexes

## Annex 1 – Normality Test Results

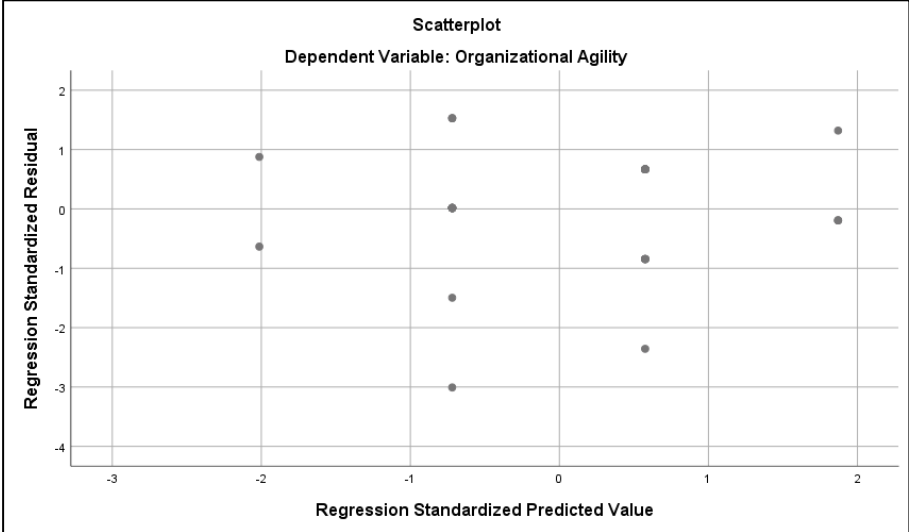
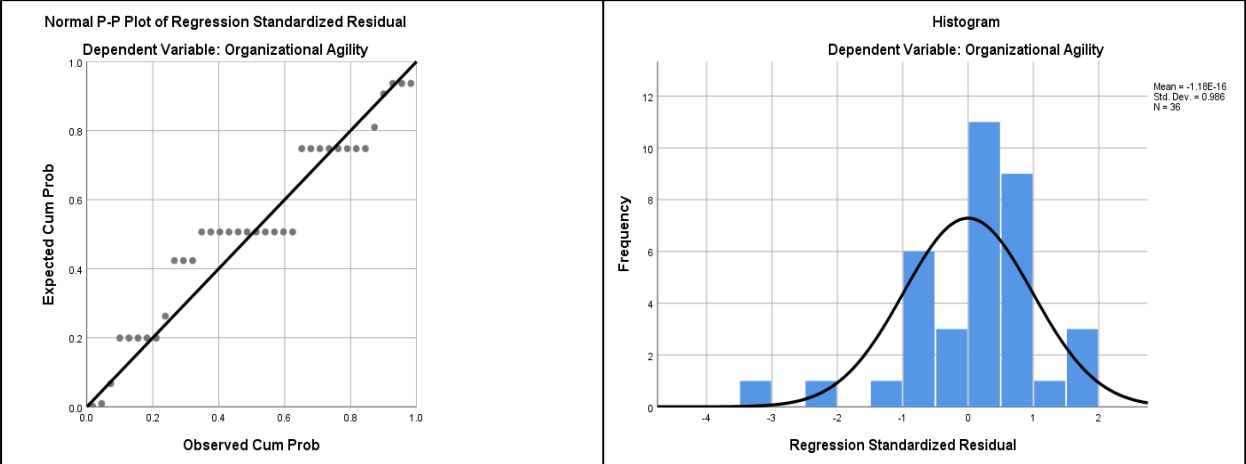
*Table 28 - Normality Test Results for Organizational Agility Variables*

		Sensing Agility	Decision Making Agility	Acting Agility
<b>N</b>	Statistic	36	36	36
<b>Mean</b>	Statistic	3.50	3.33	3.39
	Std. Error	0.135	0.126	0.128
<b>Std. Deviation</b>	Statistic	0.811	0.756	0.766
<b>Variance</b>	Statistic	0.657	0.571	0.587
<b>Skewness</b>	Statistic	-0.511	0.187	-0.410
	Std. Error	0.393	0.393	0.393
<b>Kurtosis</b>	Statistic	-0.350	-0.090	-0.521
	Std. Error	0.768	0.768	0.768
<b>Range</b>	Statistic	3	3	3
<b>Minimum</b>	Statistic	2	2	2
<b>Maximum</b>	Statistic	5	5	5

*Source: IBM SPSS Normality test analysis result*

		BA	IA	OPA	CAA	CAB	ITA
<b>N</b>	Statistic	36	36	36	36	36	36
<b>Mean</b>	Statistic	3.4	3.53	3.74	3.72	3.67	3.56
	Std. Error	0.134	0.163	0.157	0.146	0.146	0.158
<b>Std. Deviation</b>	Statistic	0.806	0.979	0.944	0.874	0.876	0.95
<b>Variance</b>	Statistic	0.65	0.958	0.891	0.763	0.767	0.902
<b>Skewness</b>	Statistic	-0.344	-0.703	-1.143	-0.576	-0.56	-0.411
	Std. Error	0.393	0.393	0.393	0.393	0.393	0.393
<b>Kurtosis</b>	Statistic	1.198	0.623	1.883	0.806	1.279	0.109
	Std. Error	0.768	0.768	0.768	0.768	0.768	0.768
<b>Range</b>	Statistic	4	4	4	4	4	4
<b>Minimum</b>	Statistic	1	1	1	1	1	1
<b>Maximum</b>	Statistic	5	5	5	5	5	5

# Annex 2 – Tests Results – Assumptions for Regression



## Annex 3 - Questionnaire

### Part 1 of 3

#### Personal and Occupational Information

Please tick your preferred answer in the check box provided.

1. Where do you work within your organization?

- Human Resource Management
- Finance (Accounting)
- Information Technology (Systems)
- Sales and Marketing (Commercial)
- Operations (Production)
- Legal Counsel
- Internal Audit
- Others \_\_\_\_\_

2. What is your Job Title?

- CXO
- Vice President
- Director/Head
- Manager
- Supervisor/Team Leader
- Team Leader
- Senior Staff
- Other \_\_\_\_\_

3. How many are the employees under your direct supervision?

- Over 100
- Between 50 and 100
- Less than 50
- None

4. How long have you been in the company (in years)?

- More than 10 years
- Between 5 and 10 years
- Between 3 and 5 Years
- Less than 3 years

5. What is your gender)?

- Male
- Female
- Prefer not to say

6. Have you ever received (IT) related trainings such as IT governance & strategy and business & IT alignment?

Yes

No

7. Have you ever received trainings related to organizational agility & flexibility - organizations ability to quickly respond to marketplace changes?

Yes

No

### Part 2 of 3

### ORGANIZATIONAL AGILITY (OA) related questions

#### SENSIGN AGILITY

Please, evaluate on a 5-point scale from 1 (Strongly disagree) to 5 (Strongly agree) the following statements in relation to your organization. 1 = Strongly disagree, 2= Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

1. The organization has been fast in terms of detecting changes that occur in customer preferences for products.

*Strongly disagree*      *Strongly agree*

2. The organization has been fast in terms of detecting changes that occur in the movements of competitors

*Strongly disagree*      *Strongly agree*

3. The organization has been fast in detecting changes in technology.

*Strongly disagree*      *Strongly agree*

#### DECISION –MAKING AGILITY

1. The organization analyses important events concerning customers, competitors, and technology without any delay.

*Strongly disagree*      *Strongly agree*

2. The organization detects opportunities and threats to changes in customers, competitors, and technology in time.

*Strongly disagree*      *Strongly agree*

3. The organization carries out a specific action plan to meet customer needs without any delay.

*Strongly disagree*      *Strongly agree*

4. The organization implements a plan of action to respond to the strategic movements of competitors without delay.

*Strongly disagree*      *Strongly agree*

5. The organization implements an action plan on how to use new technologies without delay.

*Strongly disagree*      *Strongly agree*

#### ACTING AGILITY

1. The organization can reconfigure its resources in the proper time.

*Strongly disagree*      *Strongly agree*

2. The organization can re-adjust operations carried out in a timely manner.

*Strongly disagree*      *Strongly agree*

3. The organization can generally use a new technology in proper time.

*Strongly disagree*      *Strongly agree*

4. The organization can generally introduce new products in the proper time (without delays).

*Strongly disagree*      *Strongly agree*

5. If need be, the organization can change product prices quickly in the proper time.

*Strongly disagree*      *Strongly agree*

6. The organization can change strategic things in the proper time.  
*Strongly disagree*      *Strongly agree*
7. The organization can solve customers' needs and complaints without delay.  
*Strongly disagree*      *Strongly agree*

**Section 3 of 3**

**BUSINESS – IT ALIGNMENT (BITA) related questions**

**BUSINESS ALIGNMENT - Business Strategy & Business Infrastructure/process**

Thinking about the alignment between your higher-level externally focused business strategies and lower level internally focused business infrastructure and processes, to what extent are the following functions fulfilled in your firm. We are trying to get a sense of whether your business process help you execute and develop your strategy for competing in the market. Please, evaluate on a 5-point scale from 1 (Entirely unfulfilled) to 5 (Entirely fulfilled). For example, if your internal business policies, procedures, personnel, and structure strongly support your business missions and goals, you would select "Entirely fulfilled". In my firm...

1. Our business processes support our business strategies.  
*Entirely unfulfilled*      *Entirely Fulfilled*
2. We adapt our business strategies to our internal business processes.  
*Entirely unfulfilled*      *Entirely Fulfilled*
3. Our business strategies and internal business processes match each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
4. We identify the fit between our business-related strategic opportunities and our business infrastructure.  
*Entirely unfulfilled*      *Entirely Fulfilled*
5. Our business infrastructure and business strategies correspond to each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
6. Our business infrastructure aligns with our business strategies.  
*Entirely unfulfilled*      *Entirely Fulfilled*

**INTELLECTUAL ALIGNMENT - Business Strategy and IT Strategy**

Thinking about the alignment between your higher-level externally focused business strategies and IT strategies, to what extent are the following functions fulfilled in your firm. We are trying to get a sense of whether your IT strategy supports how your business competes in the market. Please, evaluate on a 5-point scale from 1 (Entirely unfulfilled) to 5 (Entirely fulfilled). For example, if your IT mission and goals are tightly integrated with your business mission and goals, you would select "Entirely fulfilled". In my firm...

1. Our IT strategies support our business strategies  
*Entirely unfulfilled*      *Entirely Fulfilled*
2. Our business strategies and IT strategies match each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
3. We adapt our IT strategy to business strategic changes.  
*Entirely unfulfilled*      *Entirely Fulfilled*
4. Our IT strategies align with our business strategic plan  
*Entirely unfulfilled*      *Entirely Fulfilled*
5. We assess the strategic importance of emerging technologies.  
*Entirely unfulfilled*      *Entirely Fulfilled*
6. We adapt our IT goals and objectives to our business goals and objectives.  
*Entirely unfulfilled*      *Entirely Fulfilled*
7. We identify the fit between our IT-related strategic opportunities and our business's strategic directions.  
*Entirely unfulfilled*      *Entirely Fulfilled*
8. Our IT strategies and business strategies correspond to each other.

*Entirely unfulfilled*      *Entirely Fulfilled*

### **OPERATIONAL ALIGNMENT-Business Infrastructure/process and IT Infrastructure/ process**

Thinking about the alignment between your lower-level internally focused business infrastructure and process and IT infrastructure and process, to what extent are the following functions fulfilled in your firm. We are trying to get a sense of whether you have technical capabilities in place to support your business process. Please, evaluate on a 5-point scale from 1 (Entirely unfulfilled) to 5 (Entirely fulfilled). For example, if your IT policies, procedures, personnel, and systems strongly support your internal business policies, procedures, personnel, and structure, you would select "Entirely fulfilled". In my firm....

1. Our IT processes support our business processes.  
*Entirely unfulfilled*      *Entirely Fulfilled*
2. We adapt our IT processes to our business processes.  
*Entirely unfulfilled*      *Entirely Fulfilled*
3. Our business processes and IT processes match each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
4. We identify the fit between our IT infrastructure and our business infrastructure.  
*Entirely unfulfilled*      *Entirely Fulfilled*
5. Our IT infrastructure and business infrastructure correspond to each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
6. Our IT infrastructure aligns with our business infrastructure.  
*Entirely unfulfilled*      *Entirely Fulfilled*

### **CROSS ALIGNMENT "A" - Business Strategy and IT Infrastructure/process**

Thinking about the bridge between your higher-level externally focused business strategies and your lower-level internally focused IT infrastructure and process, to what extent are the following functions fulfilled in your firm. We are trying to get a sense of whether your technical capabilities help you execute and develop your strategy for competing in the market. Please, evaluate on a 5-point scale from 1 (Entirely unfulfilled) to 5 (Entirely fulfilled). For example, if your IT policies, procedures, personnel, and systems strongly support your business missions and goals, you would select "Entirely fulfilled". In my firm...

1. Our IT processes support our business strategies.  
*Entirely unfulfilled*      *Entirely Fulfilled*
2. We adapt our internal IT process to our business strategies.  
*Entirely unfulfilled*      *Entirely Fulfilled*
3. Our business strategies and internal IT process match each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
4. Our IT infrastructure and business strategies correspond to each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
5. Our IT infrastructure aligns with our business strategies.  
*Entirely unfulfilled*      *Entirely Fulfilled*
6. Our IT infrastructure aligns with our business infrastructure.  
*Entirely unfulfilled*      *Entirely Fulfilled*

### **CROSS ALIGNMENT "B" - IT Strategy & Business Infrastructure/Processes**

Thinking about the bridge between your higher-level externally focused IT strategies and your lower-level internally focused business infrastructure and process, to what extent are the following functions fulfilled in your firm. We are trying to get a sense of whether your business process help you execute and develop your IT strategy. Please, evaluate on a 5-point scale from 1 (Entirely unfulfilled) to 5 (Entirely fulfilled). For example, if your internal business policies, procedures, personnel, and

structures strongly support your IT mission and goals, you would select "Entirely fulfilled". In my firm...

1. Our IT strategies support our business processes.  
*Entirely unfulfilled*      *Entirely Fulfilled*
2. We adapt our IT strategies to our internal business processes.  
*Entirely unfulfilled*      *Entirely Fulfilled*
3. Our externally focused IT strategies and internal business processes match each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
4. We identify the fit between our IT-related strategic opportunities and our business infrastructure.  
*Entirely unfulfilled*      *Entirely Fulfilled*
5. Our business infrastructure aligns with our externally focused IT strategies.  
*Entirely unfulfilled*      *Entirely Fulfilled*

### **IT ALIGNMENT - IT Strategy and IT Infrastructure/Process**

Thinking about the alignment between your higher-level externally focused IT strategies and lower level internally focused IT infrastructure and processes, to what extent are the following functions fulfilled in your firm? We are trying to get a sense of whether your technical capabilities help you execute and develop your IT strategy. Please, evaluate on a 5-point scale from 1 (Entirely unfulfilled) to 5 (Entirely fulfilled). For example, if your IT policies, procedures, personnel, and systems strongly support your IT mission and goals, you would select "Entirely fulfilled". In my firm...

1. Our IT processes support our IT strategies.  
*Entirely unfulfilled*      *Entirely Fulfilled*
2. We adapt our IT strategies to our internal IT process.  
*Entirely unfulfilled*      *Entirely Fulfilled*
3. Our IT strategies and internal IT processes match each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
4. We identify the fit between our IT-related strategic opportunities and our IT infrastructure.  
*Entirely unfulfilled*      *Entirely Fulfilled*
5. Our IT infrastructure and IT strategies correspond to each other.  
*Entirely unfulfilled*      *Entirely Fulfilled*
6. Our IT infrastructure aligns with our IT strategies.  
*Entirely unfulfilled*      *Entirely Fulfilled*