Investigating Sustainable Strategic Alignment of IT-Business and Organisational Performance: the Role of Business Excellence in Jordan

A Thesis submitted for the Degree of Doctor of Philosophy

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Abstract

Researchers have called for more research on the causal relationships between IT investments and organizational performance. The findings of empirical studies have been inconclusive alongside the existence of the mixed conclusions on the relation between IT investment and organizational performance; this is partly caused by the neglecting of the role of sustainable strategic IT-business alignment as a construct supports the organizations in improving the positive effect of IT on organizational performance. Also, the lack of empirical attention to the antecedent factors affecting sustainable strategic IT-business alignment. Moreover, the elusive relationship between strategic IT-business alignment and performance requires more research into intermediate variables that could impact organizational performance. Although there is respectable literature on antecedents and consequences of strategic alignment; insignificant progress has been made in developing an overall theoretical understanding of the way organizations can leverage strategic alignment to impact performance positively within the dynamic business environment. This research develops a theoretical framework by using the theory of dynamic capability and Resource based view theory to investigate the impact of antecedent factors (i.e. shared domain knowledge between IT and business, and strategic IT flexibility) on sustainable strategic alignment. Also, the impact of sustainable strategic IT-business alignment on organizational performance through business excellence enablers (i.e. leadership excellence, process excellence, employees' excellence, partnership and resources excellence, and policy and strategy excellence) as intermediary variables. This research adopts a quantitative methodology along with the positivist philosophical approach to investigate the hypothesized relationships within the theoretical framework. This research used a survey completed by IT and business managers and applied the structural equation modelling to analyze and validate the data. The result indicates there is a significant relationship between shared domain knowledge and sustainable strategic alignment, while strategic IT flexibility has no impact on sustainable strategic alignment. There are significant relationships between sustainable strategic alignment and business excellence enablers. Business excellence enablers have significant relationships with organizational performance. Thus, sustainable strategic alignment has, both directly and indirectly, a significant relationship with performance. The overall findings of this research indicate that business excellence enablers partially mediated the relationship between sustainable strategic alignment on performance. The contribution to the knowledge of this research is the development of a sustainable strategic IT-business alignment and organizational performance Framework for the IT and business managers, and practical guidelines for its effective implementation. The researcher recommends that future research should conduct a longitudinal investigation of the presented framework to support the theoretical underpinnings of this research. Also, it would be motivating to realize how far the finding is influenced by incorporating a qualitative case study or mixed-method research in a similar context.

Dedication

To my father's soul who learned me a lot ….

To my mother, my sisters & brothers, for their endless Love & Support …

To my husband's family for their support & Encouragement, with deepest appreciations

To My beloved Husband "Murad" who inspired me all the time ……..

To my brave son "Yousef", who bore my absence ……..

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Declaration

I, Nour Qatawneh, hereby declare that the materials contained in this thesis are fully independently developed by me towards the fulfillment of the requirements for the degree of Doctor of Philosophy at Brunel University London. I also declare that all information in this research has been obtained and presented under academic rules and ethical conduct. I also declare that my thesis has not been previously submitted in whole or in part in any other institution. Some of the materials reported in my thesis have been proposed in the following:

Academic Papers:

Nour Qatawneh. The Impact of Strategic Alignment of Business and IT on Organizational Performance: Using the mediation of Business Excellence in Jordan (2019). *International Journal of Enterprise Information Management*. (In progress)

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List of Abbreviations

AGFI	Adjusted Goodness-of-Fit Index
AMOS	Analysis of Moment Structures
AVE	Average Variance Extracted Average
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index Course
CR	Composite reliability Degree
DCT	Dynamic Capability Theory
EFQM	European Foundation Quality Management
GFI	Goodness-of-Fit Index
KMO	Kaiser-Mayer-Olkin
Malcolm Baldrige model	MBNQA model
MIS	Management Information Systems
NFI	Normed Fit Index
RBV	Resource-Based-Theory
RMSEA	Root Mean Square Error of Approximation Quality
SAMM	Strategic Alignment Maturity Model
SEM	Structure Equation Modelling
SPSS	Statistical Package for Social Sciences
X2	Chi-Square
X2/df	Normed Chi-Square
α	Cronbach's alpha

CHAPTER 1: INTRODUCTION

1.1 Research background

The realized value of information technology (IT) has attracted wide interest from academic and practitioners for decades (Esmail *et al.,* 2018; Wang *et al.,* 2014; Shao, 2019). Several kinds of research investigated the way IT affects organizational performance (Irani, 2002). Assessing the business value of IT and its effect in organizations was summarized in two leading approaches. The first approach investigates the direct links between IT investment and organizational performance across economic sectors. While the second approach investigates the indirect relations between IT investment and organizational performance by specifying intermediaries processes, these two approaches commonly cause contradictory findings (Tai *et al*., 2019; Chen *et al.,* 2015). Some earlier research showed that no significant relationship between IT investment and organizational performance (Brynjolfsson, 1993), on the other hand, other researches referred to a positive relationship between them (Kohli *et al.* 2012; Stoel and Muhanna, 2009). Therefore, the issue is not just to define the pivotal factors that impact the organizational performance but also to create a credible causal chain between IT and the organizational performance (McCardle *et al.,* 2019; Gerow *et al.,* 2014; Im *et al.,* 2001; Sabherwal *et al*., 2019; El-Masri *et al*., 2015; Chen *et al*., 2014).

IT and business researchers and practitioners are looking into further evidence of how IT can become more effective in affecting the performance. This requires investigating of the relationships between business strategy and IT strategy, and business structure and IT structure (i.e. namely IT-business alignment), with the organizational performance. However, most of MIS researches describe IT-business alignment like a missing link between IT and organizational performance (Luftman, 2000; Burn and Szeto, 2000, Luftman 2000; Byrd *et al.,* 2006; Dong *et al.,* 2008, El-Masri *et al.,* 2015).

Numerous existing research on alignment in strategic IS management has focused either on the alignment between business and IT strategies, called strategic alignment, or business and IT structures, known as structural alignment (Gerow *et al.,* 2014; Sabherwal *et al.,* 2019). Commonly researchers suggest a type of alignment where business strategy defines IT strategy (Odiit *et al.,* 2014; Kearns and Lederer, 2003). Furthermore, few researchers theorize the way IT strategy could determine business strategy (Byrd *et al.,* 2006). Moreover, much research does not explicitly depict the interaction process between business strategy and IT

strategy. For instance, (Cataldo *et al.*, 2012) referred to the issue of strategic alignment as a pervasive conundrum since several years has not a matter to be aligned or misaligned, but enhancing the chances for improving the integration between both IT and business strategies to achieve a verifiable success in organizations.

In addition, some scholars (e.g. Luftman *et al.*, 2017, Shao, 2019; Gerow *et al.*, 2014) called for more investigation on the dynamic (process) perspective of alignment by conceptualizing strategic IT-business alignment based on theory of dynamic capability, as a dynamic process with dynamic, adaptive and self-purposeful practices to align strategies and structures of IT and business (Benbya and McKelvey, 2006; Luftman, 2000; El-Masri *et al*., 2015; Peppard and Breu, 2004). In other words, current researches argue that alignment demands processes, structures, dynamic capabilities, relationships and the integration of both IT and business strategies together (Luftman, 2003; Luftman and Ben-Zvi, 2010; Silvius, 2009; Luftman *et al*., 2017). On the other hand, much prior research theorize alignment as a static construct, and several approaches to quantifying the static of alignment (e.g., Venkatraman, 1989) where alignment is built upon concepts from strategic management and contingency theory, which do not richly explain the mechanisms and processes by which alignment is fostered and competitive advantage is created. Researches begun to conceptualize the dynamic nature of alignment rather than the static nature (Sabherwal *et al.*, 2001; Benbya and McKelvey, 2006), however, dynamic operationalization of strategic alignment have yet to be investigated vastly (Luftman *et al*., 2017; Bergeron *et al.*, 2001).

The interest in strategic alignment based on the need for more robust theoretical underpinnings for this area of research. Research is needed that is based upon more explanatory, established theories from reference disciplines or from IS itself (Chan and Reich, 2007; Gerow *et al.*, 2015). Theoretical refinement is necessary to describe the concept of alignment and measure it to explain strategic alignment's primary role in providing value to organizations. Consequently, the potential relationship between strategic IT-business alignment as a dynamic process and organizational performance is investigated in this research, since such liaisons may provide benefits to top IT and business managers by understanding the desired resources to realize the possible practices and values of IT investments in their organizations. The presented research is based on the theory of dynamic capability as an extension of the theory of Resource-based-view, which both has discussed their relationships to the research's constructs.

Achieving strategic IT-business alignment within the organization is the IS discipline that focuses on enhancing the ability of organizations to reach this end. However, despite a large number of researches that performed in the last few decades especially in developed countries, there is still a massive gap regarding the successful framework for sustainable strategic IT-business alignment (Sabherwal *et al*., 2019; Luftman *et al.*, 2017; Gutierrez, 2014). Most of the available researches emphasized on measuring the level of strategic alignment, such as (e.g., Luftman, 2003; Khaiata and Zualkernan, 2009; Gerow *et al*., 2015). Other researches focused on the investigation of the antecedent factors that might contribute to alignment (e.g., Weiss and Anderson, 2004; Gutierrez et al., 2009; Samper *et al*., 2013). However, misalignment between IT strategy and business strategy is still a common problematic issue as some argued (e.g. Baker *et al.*, 2011; Aladaileh, 2017). Therefore, scholars (e.g. Yalya and Hu, 2012; Kummer and Schmiedel, 2016) have called for more in-depth research on examining the associations between IT and business.

However, organizations in the current business environment in different fields focus on maximizing the realized value of their IT investments and their potential role in enhancing excellence and performance. Based on that, this research seeks to focus on this concern within the context of the Jordanian public shareholding firms which is one of the most important strategic sectors in Jordan which classified as (banks, insurance, services, and industrial sectors). In particular, the current research focuses on investigating the antecedent factors that contribute to sustainable strategic alignment, and the impact of sustainable strategic alignment on performance through the business excellence enablers. The selection of this issue based on the idea that the real value of IT resources is emerging from the ability of these resources to create and sustain a strategic business advantage and supporting the effectiveness of an organization. The primary aim is to propose and validate a framework that can provide guidelines for decision-makers and managers to enhance the sustainable alignment between IT strategy and business strategy in a systematic way that can improve the business excellence and in turn the overall performance.

1.2 Research problem

Organizations are seeking to reform, transformation, and the adoption of models and approaches which have proven useful in improving the organizational performance. To cope with international crisis and external and internal pressures, organizations must do at least three things, first; organisations need to exercise as much discretion as they can in the areas under their control to ensure responsiveness to their stakeholders. Second, organizations need

to develop good strategies to deal with their changed circumstances. Moreover, third, they need to develop a coherent and defensible basis for decision making' (Bryson, 1988, p. 74). Besides, both public and private sector have exposing pressures to have productive work with least resources; meanwhile human resource and IT are considered as the primary capability affecting performance and achieving organizational goals such as maximizing the financial return in private sector, and minimizing the costs of public sector (Bingle *et al*., 2013). Researches referred to the value of strategic management and its positive effect on performance based on a strategy that aligns employees and resources as well as manages the organizational resources with environmental threats and opportunities (Walker, 2013). Accordingly, organizations have to align IT and business strategies to realize the value of IT resources because of IT as one of the primary organizational resources (Tallon and Kraemer, 2003; Chebrolu and Ness, 2013; Bharadwaj *et al.*, 2013).

Nowadays, organizations in developing countries continue to make economic reforms; which has become a priority on the political agenda of governments in developing countries. Accordingly; organizations need to be customer service oriented to cope with the objectives of reforms aside from financial outcomes (Yusuf and Saffu, 2009). Directors and decision-makers in the organizations of developing countries need strategic planning and IT strategic planning to improve the organisational performance, meeting stakeholders' needs and enhancing the expected service level. Therefore, further research is needed to investigate factors that enable or hinder both strategic planning and IT planning where the applicability of aligning business and IT strategies in organizations in developing countries rely on addressing these issues. While Implementing IT investments in organizations, requires adopting IT strategies in prospect as a critical driver to achieve organizational goals and objectives. Therefore, aligning business and IT strategies is encouraged to enhance organizational performance in cases of IT investment failure, which have been witnessed organizations in the developing countries.

Many organizations have limited knowledge of the strategic significance of IT for achieving enhanced performance. However, the field of IT-business alignment attracted much attention, and researchers have consistently attempted to understand the impact of IT-business alignment on organizational performance in various ways. The literature has generated mixed findings on the relationship between strategic IT-business alignments on organizational performance. Although some studies found a non-significant impact of alignment on

performance (e.g., Chae *et al.*, 2014; Ramos-Garza, 2009), most studies find a significant positive impact (e.g. Johnson and Lederer, 2010; Almajali and Dahalin; Al-Adwan 2014; Santhanam *et al*., 2003; Hussin *et al.*, 2002; Tallon and Pinsonneault, 2012; Yayla and Hu, 2012; Gerow *et al.*, 2015; Wu *et al.*, 2015). Therefore, researchers agree that this issue relies on the context and the nature of the organization and call for further research.

Most managers focus on business and relatively neglect IT. Chan and Reich (2007) concluded that strategic alignment is difficult to attain if there is unpredictable nature of the business world in the era of globalization, which needs constant changes in strategy to cope with changing conditions in the business environment." In other words, alignment can have difficulty in adjusting to the new business environment when the environment changes. In Peppard and Ward (2002) stated that once a strategy is established and a strategy process founded, the strategy should become a continually evolving process and strategic plans should be modified regularly, based on environmental changes. However, conventional strategic alignment does not focus on such issues and treats strategic alignment as a static end-state, rather than a dynamic process. Most of the research considered strategic alignment as a static end state alignment; therefore, this conventional strategic alignment can be difficult to achieve in practice and rapidly changing environments. On the other hand, some scholars (Luftman, 2004; Vessey and Ward, 2013; Baker *et al*., 2009) present the process perspective of alignment, which considers sustainable strategic alignment as a dynamic process rather than the conventional static strategic alignment as illustrated in this research.

Considerable evidence demonstrates that organizational performance can be improved when organizations can align IT strategy with business strategy (Tallon and Pinsonneault, 2011; Chan *et al.*, 2006), however, the interest in this topic remains strong. Furthermore, some researchers (e.g. Aladaileh, 2017; Yalya and Hu, 2012 Tanriverdi, 2005; Huang *et al*., 2010; Tanriverdi and Venkatraman, 2005; Tallon and Pinsonneault, 2011; Celuch *et al*., 2007; Mithas *et al.*, 2011) referred to the elusive link and mixed findings regarding the relationships between strategic alignment antecedent factors, sustainable strategic alignment, and organizational performance call for more in-depth research into intermediate variables that convert strategic alignment into increased organizational performance.

In addition, the literature referred to a lack of clear theory on IT-Business alignment and organizational performance (Maes *et al.*, 2005; Luftman *et al.*, 2015). The empirical findings on such relationship whether strategic alignment enhances organizational performance or not,

still widely conflicting (Gerow *et al.*, 2015; Walter *et al.*, 2013). However, modern organizations lack sufficient knowledge of aligning business strategies and IT strategy and hence assessing its impact on organizational performance (Gerow *et al.*, 2015; Reich and Benbasat, 2000). Another challenge concerning the level of disagreement on the factors affecting strategic alignment and performance requires further investigation. However, a mass need for replicating such relationship in different contexts to better understand the outcomes of such relationship in different types of organizations, also, investigating the mediation impact of some variables on the relationship between organization's ability to align business and IT strategies and performance is needed.

1.3 Research motivation

Strategic IT-business alignment has been considered as a top management interest for IT and business managers for the past 30 years (Luftman and Zadeh 2011, Luftman *et al.*, 2017; Gerow *et al.*, 2015) where alignment contributes to enhance the capabilities and overall performance for organizations (Maes *et al.*, 2000; Azab, 2005). Thus, IT and business managers need to pay high interest to issues related to the field of IT and focus on identification of the missing links as part of the causal chain between IT investment and overall performance (Cohen 2003; Sabherwal and Chan, 2001; Naryan and Awashti, 2014; Tallon, 2007).

Scholars highlighted the fact that strategic alignment enables organizations to benefit from their IT investment (Esmail *et al.*, 2018; Chan *et al*., 1997, Tallon and Pinsonneault, 2011) and in turn higher profitability. Luftman and Zadeh (2011) refer to the importance of the presence of strategic alignment to enable IT to make a significant contribution towards organizational survival, growth, profitability. However, researchers called for further research to fill the gaps in the alignment issue. Strategic alignment leads to a positive effect for organizations when considering IT as a strategic resource to support organizations' operations and in turn, improve their performance (Sadeh *et al*., 2013).

Recent researchers (for example, Chan *et al*., 2006; Naryan and Awashti, 2014) call for further research on the antecedent factors that impact sustainable strategic IT-business alignment as well as the coupling process between sustainable strategic alignment and organizational performance. Besides, contingency and antecedent factors which impact strategic IT-business alignment have been studied by different researchers (Tai *et al*., 2019;

Hussin *et al.*, 2002, El-Masri *et al*., 2015; Chege *et al.*, 2018; Ismail and King, 2014; Reich and Benbasat, 2000). Moreover, other researchers have specified several antecedents that affect strategic alignment, such as environmental uncertainty, organizational size (Chan *et al.*, 2006). However, most previous researches focused primarily on the antecedent factors of strategic alignment (Masadeh and Kuk, 2009; Chan and Reich, 2007) rather than the intermediaries that could enhance the relationship between strategic alignment and performance which is one the primary assumptions on this research.

The elusive link and mixed findings regarding the relationships between sustinable strategic alignment antecedents factors, sustinable strategic alignment, and organizational performance call for more in-depth research into intermediate variables that convert strategic alignment into increased organizational performance (e.g. Yalya and Hu, 2012 Tanriverdi, 2005; Huang *et al*., 2010; Tanriverdi and Venkatraman, 2005; Tallon and Pinsonneault, 2011). Therefore, based on highlighted gaps in this research, this research focuses on business excellence enablers (namely; leadership, process, employees, partnership and resources, and policy and strategy) as an essential intermediary to enhance the relationship between sustainable strategic alignment and performance. This is because the real value of IT investments cannot be realized with the absence of a high level of such strategic alignment. Also, organizations in different fields are spending plenty of IT investment, but there is a large percentage of failed IT project (McAdam *et al*., 2019; Gargeya and Brady, 2005).

The concept of business excellence as a comprehensive concept has become a driving concern for many types of business organizations that seek superior performance. This research argues that the real value of aligning business strategies and IT strategies is best seen as an improvement in the overall business excellence, which can mediate (enhance) the relationship between sustinable strategic alignment and performance. Bou-Llusar *et al.* (2009) stated that organizations with high business excellence significantly improved their performance. He called for more investigation of the impact of business excellence on organizational performance. In addition, (Sadeh *et al*., 2013) refer to the supportive roles of IT on business excellence enablers and in turn on performance, also they stated that the relationship between IT and business excellence enablers (leadership excellence, process excellence, employees' excellence, partnership and resources excellence, and policy and strategy excellence) should be investigated further. Al-Adaileh (2017) found that strategic IT-business alignment has a significant direct effect on the business excellence enablers as perceived by managers and refer to the importance of enhancing the strategic alignment by

directing all IT investments in line with the strategic direction of the firm. However, business excellence based on the organizational ability to promote and improve the drivers of excellence as well as the power to achieve rapid change for maintaining the competitive position amongst organizations in a business environment. Therefore, due to the scarcity of theoretical research on the relationships between sustainable strategic alignment, business excellence, and organizational performance, this research will take them into account in the current research.

1.4 Research questions

Based on the gaps summarized in the literature (see Section 2.9), this research seeks to answer the following questions to achieve its aims and objectives.

RQ1. What is the impact of the antecedent factors (i.e., shared domain knowledge, strategic IT flexibility) on sustainable strategic IT-business alignment?

RQ2. What is the impact of sustainable strategic IT-business alignment on business excellence enablers (i.e., leadership, process, employees, partnership and resources, and policy and strategy)?

RQ3. What is the impact of sustainable strategic IT-business alignment on organizational performance through the proposed intermediary variables (leadership, process, employees, partnership and resources, and policy and strategy)?

RQ4. Is the proposed framework of the associations among sustainable strategic IT-business alignment antecedents (i.e., shared domain knowledge, strategic IT flexibility), sustainable strategic IT-business alignment, and organizational performances through business excellence enablers, valid?

1.5 Research aim and Objectives

The main aim of this research is to examine the impact of antecedent factors (i.e. shared domain knowledge, strategic IT flexibility) on sustainable strategic IT-business alignment, and the mediating role of business excellence enablers (i.e. leadership, process, employees, partnership and resources, and policy and strategy) on the relationship between sustainable strategic IT-business alignment and organizational performance.

To meet this research aim, this research pursued the following objectives:

1. Develop and validate a framework of the sustainable strategic IT-business alignment and organizational performance using the mediation of business excellence enablers based on the Theory of Dynamic Capability and Resource-Based View theory supported by implementation guidance.
2. Identify the main constructs of this research by critically reviewing strategic IT-business alignment, business excellence enablers, and organizational performance to highlight current gaps in extant research.
3. Evaluate and analyze the hypothetical relationships of sustainable strategic IT-business alignment and organizational performance via business excellence enablers as mediators.
4. Link the research result with the literature, drawing theoretical implications and developing recommendations for the large Jordanian public shareholding firms followed by suggestions for future research.

1.6 Research contributions

This research seeks to make an original contribution to the existing body of knowledge in the area of management information systems (MIS). Therefore, this research is dissimilar to most of the previous literature, which examined either the effect of antecedents on strategic alignment or the alignment's effects on organizational performance. The presented research investigates in one empirical research the relationships between sustainable strategic IT-business alignment and organizational performance in the Jordanian public shareholding firms, and also investigates the relationships between several antecedent factors, namely (shared knowledge between business and IT managers, and strategic IT flexibility), on sustainable strategic alignment. In addition, this research focuses on how the mediating roles of business excellence enablers impacts organizational performance. Moreover, the current research contributes to strategic IT-business alignment literature by adopting the dynamic perspective of the concept of strategic alignment. Therefore, this research offers an empirical analysis of these relationships.

The contributions of this research are valuable for academia and practitioners. Regarding academic perspective, this research seeks to fill the gap of the incomplete causal chains between IT investments and organizational performance. Also, since most strategic

alignment literature is theoretical and lacks empirical evidence, the presented research provides a succinct and holistic review of the existing literature on strategic IT-business alignment. Based on the recommendation of some researchers (e.g. Chan and Reich, 2007; Tallon and Pinsonneault, 2011; Nambisan and Swahney, 2007) that there are an elusive link and mixed results on the direct relationship between strategic alignment and organizational performance and therefore called for additional research into intermediate variables in which strategic alignment may influence organizational performance. Therefore, this research incorporates different alignment's antecedents, sustainable strategic alignment, business excellence enablers (namely, leadership. process, policy and strategy, employees, and partnership and resources), and organizational performance into an assessment instrument based on a theoretical framework. Furthermore, this research uses Chan *et al.'s* (2006), Al-Adaileh (2017), and Chan and Reich's (2007) recommendations, by further developing and validating a comprehensive framework to evaluate strategic alignment within organizations. The theoretical contribution further illustrated in Chapter 7.

Furthermore, regarding the industry practitioners, this research is beneficial for IT managers and business managers in terms of their relationships with each other, and to obtain the best practices for managing strategic IT-business alignment in the organizations. Therefore, the present results provide useful and practical guidelines to IT managers and business managers to work through their investment decisions and also the resources required to realize the potential values of their IT investments in terms their organizational performances. The presented framework could applied by top management, academics, and practitioners as an analytical instrument to assists organizations place where fundamental progress is absent, and at the same time as a practical method to distinguish processes that need to generate. Furthermore, management should correspond to share responsibility for achieving strategic IT-business alignment, sustaining it, and realizing organizational performance through it. Therefore, effective partnership between IT and business in an organization is the best way to assess and respond to the particular conditions facing it. The practical contribution is further illustrated in Chapter 7.

1.7 Research methodology: an outline

This research adopts a positivism research methodology with a quantitative approach by using primary data from a survey and applying judgemental sampling. The empirical analysis conducted by utilizing two appropriate and useful statistical techniques, namely the Statistical Package for the Social Sciences (SPSS) V 20.0 and AMOS V23. The research

performed reliability and validity and structural equation modeling analysis. The research methodology adopted in this research illustrated in Chapter 4.

1.8 Structure of the thesis

The thesis organized and divided into seven chapters as follows

Chapter One (Introduction). This chapter introduces a brief background and provided the research problem, motivation, questions, aim, and objectives. Also, the chapter outlined the research methodology, scope and limitations, and contribution.

Chapter Two (Literature review). This chapter covers the literature review concerning the emergence, concepts, dimensions, and models related to of strategic alignment, strategic alignment models, further explaining the antecedents of strategic alignment, comparing between conventional and sustainable strategic alignment. In addition, this chapter also critically reviews the current relevant literature on the concept of business excellence, models; IT-related issues, the importance of business excellence in order to increase performance. Finally, it also describes the dimensions of firm performance and how research measure organizational performance as related to IT investments and IT-business strategic alignment, the importance of IT investment in order to increase performance, the link between strategic alignment and organizational performance.

Chapter Three (Theoretical Framework). This chapter presents the proposed theoretical framework of this research by explaining the nature and direction of the suggested relationships. The chapter identifies and defines the constructs associated with the framework. Furthermore, It provides and discusses the theoretical foundations for the proposed framework, namely, dynamic capability theory (DCT), Resource-based view Theory. The chapter then develops a concise explanation of all of the dependent relationships and the proposed hypotheses based on relevant literature.

Chapter Four (Research Methodology). This chapter details and justifies the applied methodology, which this research uses to test the proposed theoretical framework. This chapter explains the research paradigms and reasoning approach and offers the rationale for adopting the positivist paradigm and deductive approach. Furthermore, this chapter addresses the sampling frame and technique and explains the steps undertaken to collect the data. Also, it presents the survey development and administration process, It also presents data analysis

techniques. The chapter ends by outlining the critical ethical issues that considered through the research design and data collection process.

Chapter Five (Data Analysis and Results). This chapter provides a detailed description of the research sample, the processes of screening and examining the data for missing values, outliers, and its appropriateness for multivariate analysis. It also evaluates the quality of the measurement models in term of reliability and validity. This chapter presents the results of testing the structural model. The research collected the data by using a questionnaire and quantitatively analyzed the data with the Statistical Package for Social Sciences (SPSS) V 20 for the described sample description. The latest version of the Amos software package is used for SEM to measure the relationships between the variables.

Chapter Six (Discussion and Conclusions). This chapter presents the research findings in depth in light of other relevant empirical work. It provides reasonable explanations were appropriate for counterintuitive findings.

Chapter Seven (Conclusions). This chapter summarises the conclusions, discusses the contributions of the research and its theoretical, managerial, and methodological implications as well as recommendations for future research directions.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Strategic IT-business alignment has been considered as one of the crucial issues, both academically and in practice. Researchers has been dedicated to investigating the significance of strategic alignment and its impact on organizational performance (Coltman *et al*., 2015; Luftman *et al*., 2004) The purpose of this research is to see whether or not strategic alignment has any impact on organisational performance through the mediation of business excellence enablers. In addition, it aims to investigate the factors that impact strategic alignment and thereafter builds a theoretical framework based on critical evaluation of current strategic alignment frameworks. This chapter discusses the related researches in the area of strategic alignment between business and Information Technology (IT) to provide a comprehensive view of strategic alignment. It also presents the theoretical foundation of this research.

This chapter includes three parts (strategic alignment, business excellence, and organizational performance). Firstly, Section 2.2 – 2.7 presents the evolution, concept, and the dimensions of strategic alignment, antecedents of strategic alignment. Secondly, Section 2.8 presents the concept of business excellence, business excellence models, the role of IT in business excellence, the link of business excellence and performance. Thirdly, Section 2.9 discusses organizational performance, its dimension, performance measurement, selection of measurement in this research, IT investment and performance, and strategic alignment and performance. Finally, Section 2.10 summarises the chapter.

2.2 The evolution of IT-Business alignment

The rapid development in IT field pushed organizations to employ IT in managing their business by aligning their strategic IT and business plans together to realize the maximum value of IT deployment in business, especially within the current environmental volatility and uncertainty conditions in the business markets. The strategic IT-business alignment integrates both IT and business strategies in a way that effectively and strategically manage the organizational resources and capabilities to achieve the organization's objectives and sustained competitive advantage due to the distinct role of alignment in organizational transformation (Henderson and Venkatraman, 1999). The importance of strategic IT-business alignment in predicting current and upcoming IT-business requirements increase the chance to achieve high business performance (Chang *et al.*, 2008; Kearns and Lederer, 2003). Over 25 years of research and debate, the notion of strategic IT-business alignment has been considered as a top priority in management field because of its importance as a way measures

the extent of fit between IT and business strategies and its effect on performance, productivity and growth (Chan *et al*. 2006; Oh and Pinsonneault, 2007; Preston and Karahanna, 2009; Tallon and Pinsonneault, 2011).

The research on the field of IT-business alignment launched at the end of 1980s and presented by Morton as a part of 'Management in 90 project'. This project focused on the most dominant users of IT corporations in Europe and the United States, such as (British Petroleum and US Army). A unique framework emerged called (MIT90s Framework); involves a description of the relationships between many important constructs (strategy, structure, technology, people, and management processes). The purpose of this framework is to examine IT-led organizational transformation (Morton, 1991). Around the same period of MIT90s project, researchers (Raghunathan and Raghunathan, 1989; Rockart and Morton, 1984; Earl, 1989; Mason and Mitroff 1973; King and Zmud, 1981; Venkatraman and Ramanujam 1987) focused on the direct linkages between business and IS strategy which affected by technology, competitive environment, and resources in organization and thus affected its ability to make IS more strategic.

Researches focused on understanding the interchangeable relationships between the four quadrants (business strategy, IT strategy, organizational infrastructure, and processes, IS infrastructure and processes) of strategic alignment model (SAM model) developed by Henderson and Venkatraman (1989, 1990). Consequently, prior researches focused primarily on exploring the relationships between business and IS strategy with two areas, namely, organizational role and IS planning. It is safe to summarize that, these researches failed to achieve the same level of popularity as Henderson and Venkatraman's research on the Strategic Alignment Model, where (SAM) model was initially been encompassed both of IT planning and execution (King, 1988; McFarlan *et al.*, 1981; Parker and Benson, 1988).

At the end of the 1980s, researchers focused on advantage of strategic IS planning processes, for example, Henderson and Venkatraman who widely acclaimed as the fathers of strategic IT-business alignment referred to the evident gap between the IT investment decision and the realization of IT value. They developed the concept of alignment and provided a model called the Strategic Alignment Model (SAM) which based on four domains: business strategy, IT strategy, organizational infrastructure, and processes, IS infrastructure and processes. This model argues that strategic IT management must consider both strategic integration and functional integration to realize the maximum values of IT investments on all organizations'

levels. Therefore, these domains became the core and the requirements for effective strategic IT management (Henderson and Venkatraman, 1989). Arguably, the focus was on ensuring the effectiveness of strategic IT planning processes.

Once the concept of strategic IT-business alignment had emerged, several kinds of research were conducted to understand the cross-domain integration in (SAM) model. Past researches had a normative nature, where the main focus was on how IT can be a strategic resource; meanwhile, there was a lack in the systematic theorizing of IT-business alignment and its effects in an organizational context. Followed that several cross-sectional types of research that proposed descriptive conceptual models to realize the value of the connection between IT business partnerships, IT planning, and strategic management with considering possible implications within a given organizational context to derive significant benefits (Henderson and Venkatraman, 1992; Sauer and Yetton, 1997). For example, Kearns and Lederer (2003) focus on how IT implications facilitate knowledge sharing between business and IT executives and attain competitive advantage. As a truism, the challenges of organizational transformation are best conceptualized by a dynamic strategic alignment process that manages the area of complexity in managing organizations. However, researches focused mainly on ensuring that IT management is consistent with concepts of strategic management and addressed the functional complexities of IT management. Consequently, the dominant idea was to find some harmony between IT and business strategies.

The orientation towards IT and the organizational transformation were widely popular in the mid of 1990s, where IT could lead, instead of respond (react) to business strategy. During this decade, there was a weakness in the fundamental frameworks in realizing the potential value of IT investment in organizations. However, research by Henderson and Venkatraman (1993) form a transition point to move from the traditional perspective of IT (only administrative support) toward deriving several perspectives of strategic alignment which aims to control the managerial practices. This debatable point leads IT from being a tactical tool to be a strategic resource (Morton, 1991; Sauer and Yetton, 1997). Other researches efforts examined the "productivity paradox" of information system (IS) and conclude how spending on IT may cause increases in product quality and variety, but there was a mass need for identifying the strategies which can contribute to significant IT productivity (Brynjolfsson and Hitt, 1996; Brynjolfsson, 1993). Hence, the researches attempted to increase the realized value from IT, but there was a need to distinctive alignment to shifting from whether IT pays off to what supports IT pay off. Arguably, at the end of the 90s there was a clear basis for the IT

alignment concept, where researchers (e.g., Reich and Benbasat, 1996; Chan *et al*., 1997) had the motivation to examine the antecedents, compositions, and consequences of strategic IT alignment.

At the start of the new millennium, the linkage between IT and business has become a fundamental interest of IT and business managers where they provide a significant attention to economic changes and competition in the volatile market within conditions of uncertainty (Reich and Benbasat, 1996). To cope with changeable environment, organizations focus on how to implement IT projects to increase the efficiency of business strategies (Massey *et al.*, 2000). It has conclusively been shown that strategic IT goals achieve high level of IT-business alignment implementation and best realization of IT business value (Tallon *et al*., 2002). Past literature confirms that IT-business alignment effects positively on organizational performance (Chan *et al.*, 2006; Reich and Benbasat, 2000). This provides a good insight for researchers who are striving to strengthen current performance and achieve more than high performance. Chan and Reich (2007) referred that the importance of alignment entrenched in its nature as an on-going process requires two perspectives, are IT and management capabilities as well as focusing on antecedents, measures, and outcomes of alignment. Therefore, the forthcoming research on alignment should build on the proper literature include these perspectives (Kearns and Lederer, 2003).

At the mid of 2000, IT-business alignment emerged as a new strategic management tool to significantly improve the IT investment in organizations as well as provide more organization-wide consistency in the long term as an evidence of consistency (Chan and Reich, 2007) indicated that business IT-alignment is the alignment of (business strategy, plans, and priorities) with (IT strategy, plans, and priorities). However, IT-business alignment is relatively a challenging issue that makes researchers conceptualize it from a variety of Interpretations (Coltman *et al.*, 2015). During the development of IT business strategies-relationships, the definition of IT-business alignment has changed. Labeled as "a continuous evolutionary process" (Benbya and Mckelevy, 2006), 'fit' (Porter, 1996), 'integration' (Bradbent and Weill, 1996) or 'Fusion' (Smaczny, 2001), the concept of IT business alignment were explained extensively in Section 2.3.

The literature on the evolution of IT-business strategic alignment discussed in this section showed that the strategic IT-business alignment had become a top management area (Gerow

et al., 2015; Kearns and Sabherwal, 2007; Chan and Reich, 2007). Moreover, the increased focus on IT-business alignment field has been driven by pressures from the competitive environment in recent years. Tremendous challenges such as globalization, global markets, the new partnership and strategic alliances in a current competitive environment need significant business transformation to respond for changes and exploiting the existing opportunities (Merali, 2012; Ward, 2012). However, the strategic use of IT has a critical role in business transformation, and that requires aligning both IT and business strategies (Henderson and Venkatraman, 1989; Luftman *et al*. 1993; Kearns and Lederer, 2003).

The research in the IT-business alignment field is still extensive, and there is a broad debate on achieving and maintain IT-business alignment (Luftman *et al*., 2017. However, IT-business alignment as one of the top concerns still has questions that have not been addressed in literature yet (Luftman and Ben-Zvi, 2011; Chan and Reich 2007; Silvius, 2009). This research aims to provide a critical evaluation of IT-business alignment literature to look for areas that have not been covered and address some questions that are still open.

2.3 The concept of IT-Business alignment

Researchers have been expressed the notion of IT-business alignment in different expressions or synonyms since it was and still a relatively new issue. The meaning of IT-business alignment in the 90s started with 'fit' between business and IT (e.g. Chan and Huff, 1992; Venkatraman, 1989), 'linkage' to refer to the IT management role in reshaping the business strategies in their holistic conceptualization of alignment (Henderson and Sifonis, 1988), and business-IT alignment (Maes *et al.*, 2000), the degree to which the information technology mission, objectives, and plans support and are supported by the business mission, objectives, and plans' (Reich and Benbasat, 1996, p. 56). However, Chan and Reich (2007) argued that these definitions are similar, as well as indicate to the degree of coherence or integration between business and IT strategies (Avison *et al*., 2004).

There are still subtle differences among the conceptualizations of IT-business alignment. Table 2.1 illustrates the conceptual transformation in the definitions, attributes, and outcomes of strategic alignment since the 80s to the present time. However, the broad and complicated perspective of conceptualizing IT-business alignment illustrates the dynamic nature of alignment and confirms the need for constant development of IT-business alignment in term of concept, construct, and frameworks.

Table 2.1 The development of the IT-business alignment concept (1980s-present)

Focus/ Source	Conceptualization	Key attributes (Description)	Outcomes
(Business - IT) Strategy Alignment • Before 1980 Pyburn (1983), King (1978), Wiseman 1985, Nolan (1973), Earl (1989), Ein-Dor and Segev (1978)	• Defining IT-business alignment as a strategic, top-down planning event. • Focusing on the strategies	• Strategic plans combine IT and business vision. • Seeking for the best approach to achieve strategic objectives. • Align IT investment with business strategy.	• IT planning requires a strategic base. • Aligning business strategy with IT strategy. • Tools and techniques to enhance IT strategic planning process (e.g., critical success factors (CSF) and value chain analysis).
(Business– IT) Structural Alignment • (1980-1990) Henderson and Venkatraman (1989), Henderson and Venkatraman (1993), Reich and Benbasat (1996), Porter (1996) Venkatraman (1989), Henderson and Sifonis (1988), Chan *et al.* (1997)	• Integration between the business and the IT domains. • Alignment of IT and business structures. • The synergy between IT-business alignment and organizational performance. • Strategy alone will not provide alignment; focusing on the importance of structural alignment.	• Alignment domains: IT planning process, Strategic Integration, Functional Integration, Cross-Domain alignment. • Aligning functional and strategic organizational components • Aligning business needs and IT capabilities	• Alignment between external (marketplace) and internal (organizational) domains. • A achieving significant level of IT-business alignment is linked with higher levels of business performance
Alignment Mechanisms • (1990-2000) Reich and Benbasat (2000); Chan (2002), Mata *et al.* (1995), Ross and Weill (2002), Luftman (2004), Luftman *et al.* (1999), Cragg *et al.*, (2002), Maes *et al.* (2000), Luftman and Brier (1999), Luftman *et al,* (1993)	• IT-business alignment as a process (IT and business is often separated) • IS and business should be kept separate. • Explores conditions leading to sustainable competitive advantage.	• Factors enable or reduce of IT-business alignment (mechanisms). • The process view does not interpret how variables interact. • Alignment mechanisms and enablers do not depict how to achieve sustained alignment overtime.	• Alignment is influenced by barriers and enablers that can be external or internal (e.g. IT sophistication, shared domain knowledge). • Some studies adopted business metrics as a type of construct. • Positive relationship between IT-

			business alignment and organizational performance.
Strategic IT Alignment • 2000-2010 Peppard and Breu (2003), Silvius *et al.* (2009), Benbya and McKelvey (2006), Sabherwal et al., (2001b), Kearns and Sabherwal (2006), Luftman *et al.* (2005), Chan and Reich (2007a), Luftman and Kempaiah (2008), Haes and Grembergen, (2009)	• Alignment is a complex, dynamic, adaptive, purposeful process and evolving over time. • The importance of strategic and structural alignment; where alignment is not an event but a process.	• Transition from searching about alignment enablers and inhibitors towards the dynamic concept of alignment. • Some insights on environmental changes that impact alignment over time.	• Aligning IT-business strategies and IT-business structures. • Emerging issues related to alignment (e.g. IT governance).
(Maturity-sustaining) Alignment • After 2010 Yayla and Hu (2012); Guillemette and Pare (2012), Kappelman *et al.* (2013), Bradley *et al*., (2012), Luftman *et al.* (2017), Luftman and Zadeh (2011) Coltman et al. (2015)	• Sustaining and maintaining the dynamic and continuous process of IT-business alignment.	• Management capabilities change the on-going process of IT-business alignment	• Attempt to measure the level of IT-business alignment. • Understanding the antecedents and consequences of alignment between business and IT.

Source: The Researcher

Different researches conceptualized alignment from different perspectives. Reich and Benbasat (1996, 2000); Chan, 2008; Croteau and Bergeron, 2001; Bergeron *et al.*, 2001) referred that IT-business alignment covers aligning IT and business strategies and structures together, (Luftman, 2004) argued that achieving alignment requires maximizing the enablers and minimizing the inhibitors, while other researches focused on aligning both IT and business plans (Kearns and Lederer, 2000; Kearns and Sabherwal, 2006; Peak *et al.*, 2005). While others focusing on IT and business alignment from the strategic dimension (Tallon, 2007; Chen, 2010). Over time different conceptualizations such as (IT capability, strategic IT planning, IT planning) appeared in alignment field and confused understanding alignment (Gerow *et al.*, 2015, Karpovsky *et al.*, 2014, Coltman *et al.*, 2015, Luftman *et al.*, 2008).

Past researches around 1980 considered IT-business alignment as a planning event that develops strategic plans to achieve strategic objectives based on combining IT and business visions. King (1978) and Earl (1989) referred that strategic planning for the informational needs in the organization is essential for attaining its goals because IS enhances achieving and exploiting competitive opportunities in IS services and provide support for organizations. Although of the static nature in approaching alignment but there were various frameworks enhanced the strategic IT planning process (e.g., CSF and value chain) (Lientz and Chen, 1980; King, 1978, Wiseman 1985; Pyburn, 1983; Ein-Dor and Segev, 1978).

The main focus in (Business– IT) structural alignment was in aligning IT and business structures in an efforts to support the organizational performance (Reich and Benbasat, 1996). Henderson and Venkatraman (1993) define strategic alignment as the degree of fit between IT strategy, business strategy, business infrastructure, and IT infrastructure. Besides, Chan *et al.* (1997) argued that strategy alone would not provide alignment. Therefore, the integration between the business and the IT domains ensure achieving higher levels of business performance (Henderson and Sifonis, 1988).

After considering alignment as integration between IT and business structures, the concept of alignment developed to be as a process affected by barriers and enablers (mechanisms) (Luftman *et al*., 1999; Luftman, 2004; Reich and Benbasat, 2000). Alignment has become defined from a dynamic perspective, Maes *et al.* (2000, p.19) defined it as 'a continuous process—involving management and design sub-processes—of consciously and coherently interrelating all components of the business-IT relationship in order to contribute to the organization's performance over time'. The mature perspective of alignment emerged where researchers focused on searching about factors that enhance or hinder the alignment (e.g. shared domain knowledge and planning behaviors, business managers' participation in strategic IT planning and IT managers' participation in business planning (Kearns and Sabherwal, 2006; Reich and Benbasat, 2000), top managers' knowledge of IT, communication between IT and business executives (Reich and Benbasat, 2000), Top management commitment, IT sophistication (Cragg *et al*., 2002) and Linked business and IS missions, strategies, planning processes, and plans (Chan, 2008).

The dominant mechanisms until the 2000s were the business metrics as a constructing alignment that illustrated in the next section. Chan (2002); Reich and Benbasat (1996); Kearns and Lederer (2004); Cragg *et al.,* (2002) focused on planning and combining IT and business objectives by considering alignment as a degree to which business mission,

objectives, and plans supported by IT mission, objectives and plans. Moreover, the effect of IT-business alignment on organizational performance became something that cannot be ignored. Thus far, an orientation toward how to achieve IT-business alignment in organizations becomes interesting area for researchers (Luftman *et al*., 1999; Luftman, 2004; Cragg *et al.*, 2002). Chan and Reich's (2007, p. 300) defines strategic alignment as a "degree to which the business strategy and plans, and the IT strategy and plans, complement each other".

By the new millennium, the definition has become more specific and defined as a top management concern and focuses on the alignment between business needs and IT capabilities (Guillemette and Pare, 2012; Kappelman *et al*., 2013). Some scholars argue that alignment should be viewed from another mature perspective to adapt to changing environments which considered alignment as a dynamic, purposeful and evolving process over time (Chan and Reich, 2007a; Benbya and McKelvey, 2006; Peppard and Breu, 2003; Sabherwal *et al*., 2001; Luftman and Kempaiah, 2008). However, the dynamic nature of strategic IT-business alignment focuses on the degree to which IT infrastructure enables business strategy and processes in organizations (Silvius, 2007). Contemporary researches (Grembergen and Haes, 2010; Luftman *et al.*, 2017; Benbya and McKelvey, 2006; Luftman and Kempaiah 2008; Peppard and Breu, 2003) focused on business activities to achieve both business and IT objectives based on a dynamic (process) approach of IT-business alignment.

Most current alignment researches focus on how to maintain and sustain the dynamic and continuous nature of IT-business alignment (Guillemette and Pare, 2012; Kappelman *et al.*, 2013; Luftman *et al.*, 2015; Luftman and Zadeh, 2011). The dynamic economic environment, open markets, and advanced technologies have become a motive for achieving and sustaining alignment as an enduring and continual process (Kappelman *et al*., 2013). However, IT is a significant enabler of organizations' efficiency and effectiveness as well as enhancing the maturity of IT-business alignment has become a persuasive and persistent issue (Luftman and Zadeh, 2011).

IT-business alignment has consistently considered as a top concern for IT practitioners and organizations' executives (Luftman and Ben-Zvi, 2010b; Luftman *et al*., 2004; Chan and Reich, 2007; Benbya and McKelvey, 2006). Over 30 years, researchers tried to transform multiple conceptualizations of alignment into operational measures and conduct empirical researches. However, until now these attempts far from complete and the guidelines for

converting these verbal connotations into operational measures in the empirical finding are not fully available for managers to effectively enabling alignment (Luftman *et al*., 2017). Also, the broad conceptualizations of alignment called researchers to use inconsistent definitions and measures of alignment (Maes *et al.,* 2000), which in turn led to non-compliant results that prevent the progress of alignments researches in the future. The extensive debate in alignment literature led IT and business executives to use the term in unclear and different ways (Silvius, 2007b; Avison *et al.,* 2004). However, the lack of consensus about alignment as a concept as well as the fragmented nature in alignment research refers to the lack in its theoretical foundation and a practical validation. Therefore, researches argued that IT-business alignment still plagued by several problems and there is a mass need for more research and constant development in term of concepts, constructs and models frameworks of alignment (Luftman and Derksen, 2012).

This research focused on the strategic dimension of alignment. This research follows the modern definition of IT-business alignment as a dynamic and co-evolutionary process with dynamic, adaptive and self-purposeful practices which links all related components of the alignment, between business and IT/IS, from the strategic level to operational and individual levels (Benbya and McKelvey, 2006; Luftman, 2004; Maes *et al.,* 2000; Peppard and Breu, 2003). Because strategic alignment can leverage the organization's capacity in utilizing IT-based resources and helping business and management holistically (Coltman *et al.*, 2015), in addition, conceptualizing strategic alignment as a continuously dynamic process can sustain an organization's performance over time and provide direction and flexibility to enable it to respond to new opportunities within dynamic business environment (Luftman and Zadeh, 2011). However, several definitions of strategic alignment developed by scholars presented in Table 2.2

Table 2.2 Definitions of Strategic Alignment

Definition	Source
"the degree to which the business strategy and plans, and the IT/IS strategy and plans, complement each other".	Chan and Reich's (2007, p. 300)
".. the degree to which the information technology mission, objectives, and plans support and are supported by the business mission, objectives, and plans".	Reich and Benbasat (2000, p. 82]
Using IT in a way consistent with the firm's overall strategy.	Palmer and Markus (2000, p. 242)

Source: The Researcher

2.4 Two perspectives of strategic IT-business alignment

Strategic alignment has been studied for more than two decades and investigated from two different perspectives. The end-state perspective and process perspectives.

2.4.1 The End-state perspective on strategic alignment

The first perspective is the end-state perspective that has been adopted by researchers to examine strategic alignment as an end state. Within this perspective, variance or factor models have been developed to explain how alignment can be implemented by manipulating several antecedents. The outcomes can be observed and quantified (Preston and Karahanna, 2009; Brown and Magill, 1994; Reich and Benbasat, 2000). These studies generally adopt a contingency theory perspective, explaining that the degree of alignment is contingent on the factors identified. Also, studies that adopt this perspective on strategic alignment enable researchers to measure the degree of alignment between a firm's business strategy and IT strategy. Moreover, within the end-state perspective, there are six different characterizations of alignment: moderation, mediation, matching, gestalts, profile deviation, and covariation (Venkatraman, 1989). In particular, Venkatraman's framework distinguishes these characterizations based on the number of variables in the equation, and the degree of specificity of the functional form of alignment, and the presence or absence of a criterion variable (Bergeron *et al.,* 2004; Venkatraman, 1989).

2.4.2 The process perspective on strategic alignment

The second perspective is the process perspective that has been adopted by researchers to explain strategic alignment as a process rather than an end state (Shao, 2019; Chan and Reich, 2007, Henderson and Venkatraman, 1993). The fact behind this perspective is that strategic alignment cannot be definitively achieved when the business environment is continually changing, thus giving rise to new information needs within the firm and necessitating changes in organizational strategy (Esmail *et al.,* 2018; Galliers, 2004). Instead of assessing the degree of alignment, the process perspective encourages researchers and practitioners to assess the interactions of the IT department with the business as a whole to see how interactions and linkages between the two facilitate the co-evolution of IT strategy and business strategy (Agarwal and Sambamurthy, 2002) (Section 2.6.4 illustrate the difference between conventional strategic alignment (static perspective) and sustainable strategic alignment (process perspective).

2.5 Review of strategic IT-business alignment models

Researchers have developed plenty of models for IT-business alignment. For examples, (Henderson and Venkatraman, 1993; Luftman *et al*., 1993; Brown and Magill, 1994; Reich and Benbasat, 1996, 2000; Maes *et al*., 2000; Bergeron *et al.*, 2001; Luftman *et al.*, 2017, Hu and Huang, 2006), the attempted to demonstrate how IT and business alignment creates value for the organization (Avison *et al*., 2004; Shao, 2019). Researchers referred to the importance of right determination to the level of alignment and differentiated it from the inflexible linkages, because cases of misalignment and disparity can be wasteful and hinder the organization's ability to cope with current challenging environment (Shpilberg *et al.*, 2007; Benbya and McKelvey, 2006; Tallon and Pinsonneault, 2011). The issue of misalignment may cause a lack of performance in business (Pongatichat and Johnston, 2008), growing inefficiencies (Piplani and Fu, 2005), which in turn affect all levels in an organization.

A large number of researchers and practitioners in the MIS field provided much support to attain a higher level of strategic alignment in organizations. They developed several strategic alignment models over time to achieve and maintain alignment. However, Table 2.3 classifies a list of key strategic alignment models with its perceptions, findings, and limitation. Although the list is not comprehensive, it provides a good sample of the main strategic alignment models in the literature. The key influential strategic alignment models are classified into strategic alignment factor model (sometimes called conventional models) (Section 2.6.1) which they considered alignment as an end state, and sustainable strategic alignment model (Section 2.6.2) which considered strategic alignment as a dynamic process (commonly called process model).

Table 2.3 Evaluation of Key Strategic alignment models

Reference/ Year	**Construct issue/Objectives**	**Operationalization**	**Model finding**	**Model weaknesses**
Henderson and Venkatraman (1993)	A construct based on two domain of strategic characteristics; strategic fit and functional integration; Conceptualizing and guiding the field of strategic management of IT	Four domains of strategic choices: Business strategy; IT strategy; Organizational; infrastructure and Processes; IT infrastructure and processes	Emphasis on organizational capabilities that can leverage technology to differentiate its operations from competitors based on aligning dimensions	Purely conceptual No means to analyze and detect the level of alignment Ignoring how organizations can achieve alignment

Brown and Magill (1994)	Explores the concept of IS and organizational design patterns of internal and external antecedents	Investigating a firm's IS organization design decision for a decentralized, centralized, or hybrid structure	A conceptual framework for IS and organization design and its assessment	Lack focusing on organizational design Small empirical evidence (just six firms) Industry type was not a reliable predictor
Sabherwal and Kirs (1994)	Alignment between organizational critical success factors and IT capability	Effects of three antecedent factors: Organizational integration Environmental uncertainty IT management sophistication	Realizing Alignment between the organization's CSF and IT capability and their effect on the organizational performance	Empirical study focused on academic institutions. Limited number of Alignment variables. Empirically derived ideal profile of IT capability.
Reich and Benbasat (1996)	Explaining the social dimension of business-IT alignment	Cross references between written business and IT plans. Mutual understanding between IS and business executives' objectives and plan. Congruence between IS and business executives' long-term visions for IT deployment. Executives' self-reported rating of linkage	Provides a scheme that shows different ways of conceptualizing Identifying short- and long-term aspects of the social dimension of alighnment.	Limited only to the social dimension of alignment Very small data sample: 10 business units in only one industry – life insurance
Luftman et al. (1993)	Alignment is concerned with relationships among the 12 components that define business-IT alignment	Twelve alignment components: Business Scope, Distinctive Competencies, Business Governance, Organization Infrastructure and	Provides a practical method of improving alignment (rules of thumb)	Lacks a theoretical basis (the process leading to alignment and how to measure alignment). Ignores relationships between 12 components

		Processes, Administrative Structure, Organization Infrastructure and Processes: Skills, Technology Scope, Systemic Competencies, IT Governance, IT Infrastructure and Processes, IT Infrastructure and Processes Architecture, IT Infrastructure and Processes Skills		
Luftman (2004)	Assessing business IT alignment maturity.	Assessing the maturity of strategic alignment. When maturity is understood, an organization can identified opportunities for enhancing the alignment.	Provides a practical method of improving alignment	Lacks stronger a theoretical basis
Luftman et al. (1999)	Identifies functional areas that promote or hinder alignment of IT plans with business plans	Enablers: Senior executive support for IT, IT involved in strategy development, IT understands the business, Business-IT partnership, Well-prioritized IT projects, IT demonstrates leadership Inhibitors: IT/business lack close relationships, IT does not prioritize well, IT fails to meet its commitments, IT does not understand business, Senior executives do not support IT, IT management lacks leadership	The areas identified as enablers and inhibitors are viewed to be common across industries, business functions, and across time	Lacks stronger a theoretical basis

Maes et al. (2000)	Redefining IT-business alignment as an issue of management and of design. The derived model is based on a generic framework for information management and an integrated architecture framework	Management (strategy, structure, operations) Areas of concern (business, information and communication, technology systems infrastructure) Design	A unified framework of alignment	Conceptual high-level model Does not examine how companies achieve alignment
Hussin et al. (2002)	The alignment between the contents of business and IT strategies	Three factors influencing alignment: CEO commitment to IT; IT sophistication; External IT expertise	Exclusively measures the fit between IT strategy and the business strategy	Limited number of alignment factors Excludes processes associated with IT alignment, such as functional integration, organizational factors.
Broadbent and Kitzis (2005)	How to weave together business and IT strategies and what related factors influence the success of IT-enabled business projects	Four factors influence alignment A CIO; An executive team with an informed expectations for an IT-enabled enterprise; Clear IT governance; Adopting portfolio management approach	A conceptual model discussing elements that provide necessary building blocks for business-IT linkages	Conceptual; Generic Lacks empirical validation
Bergeron et al. (2001)	Alignment of strategic IT management, environment uncertainty, strategic orientation, and structural complexity	Six 'fit' perspectives: Moderation Mediation Matching Covariation Profile deviation Gestalts	Describes how different conceptualizations and analysis methods of fit lead to different results	Small sample size (N= 110) No theory foundation
Gerow et al., (2015)	Meta-analysis of six types of IT business alignment and its impact on firm performance	Three domains (internal, external, cross-domain) of integration Intellectual and operational alignment. Thee domains of effect: financial	Extensive and systematic analysis of 71 studies of impact of alignment on performance Alignment dimensions are highly	Static view of alignment Dimensions Rough and often poorly developed scales for alignment dimensions

		performance, productivity, customer Benefit. Contextual variables of Turbulence strategy type governance social alignment IT investment level.	correlated. Alignments dimensions have positive effect on performance – most consistent for productivity and financial.	Only few studies looked at operational or cross domain integration that is often critical
Luftman et al. (2017)	Alignment is concerned with relationships among the 6 dimensions that promote the IT business alignment	Six dimensions promoting alignment: IT-Business Communications; Use of Value Analytics; Approaches to Collaborative Governance; Nature of the affiliation/partnership' Scope of IT initiatives; Development of IT Skills.	Operationalizes a construct rooted in the theory of dynamic capabilities. All construct dimensions contribute significantly to the level of alignment and the construct shows significant impact on firm performance	Bias Lacks empirical validation

Source: The Researcher

A critical analysis of factor (conventional) and sustainable strategic alignment models are presented in the following sections to identify the differences between the factor and sustainable strategic alignment (Section 2.6.4).

2.5.1. Strategic alignment Factor models (Conventional models)

This section presents the key strategic alignment models, which considered strategic alignment as a static nature. However, most of the models claimed that enhancing IT in organizations and ensuring the alignment between IT and business can bring substantial rewards.

2.5.1.1 Strategic Alignment Model (SAM)

Research in the area of IT-business alignment launched at the end of 1980s as a part of 'Management in 90' project, which one of the dominant models that fulfilled the MIT90s program was related to Morton (1991). The research performed at MIT (Massachusetts Institute of Technology) has been mostly-recognized as the starting point for realizing the strategic effect of IT on organizations (see Figure 2.1). Since the late 1980's alignment has been recognized as an essential issue to the business field (Watson *et al.*, 1997) since it helps organizations to realize the potential benefits of IT investments (Tallon and Pinsonneault 2000) as well as enhances organizational performance by aligning the organizational and technological infrastructures.

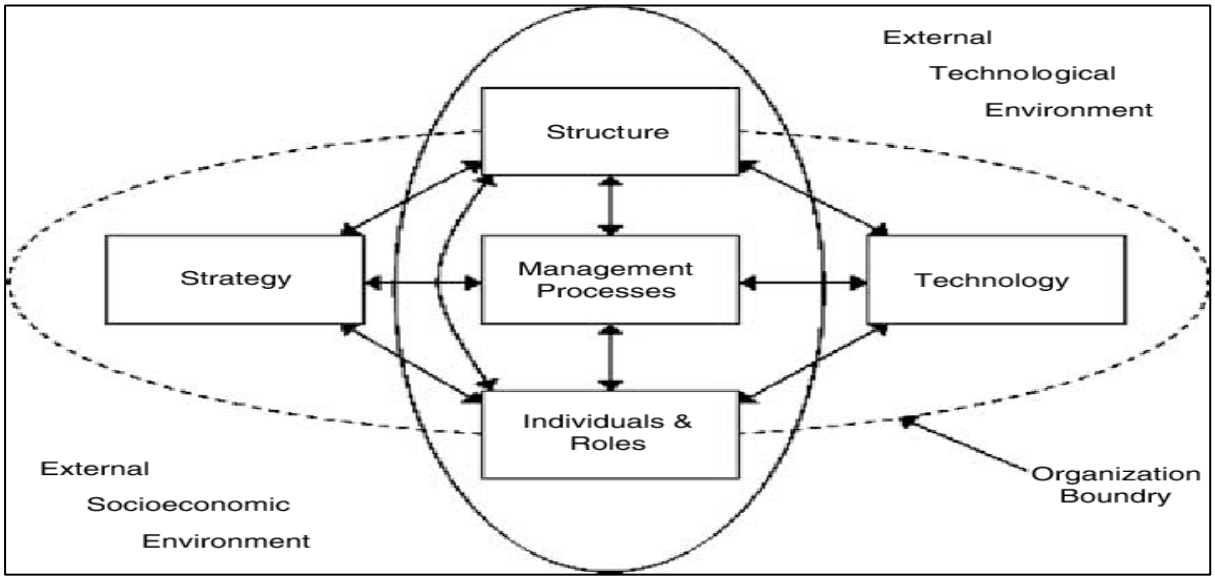


Figure 2.1 The MIT90s Framework

Source: Morton (1991)

A unique framework was emerged called (MIT 90's Framework) argues that significant rewards could be achieved in organizations if a proper alignment achieved between external forces (the technological and socioeconomic environment), and internal forces (business strategy, IT strategy, organizational structure and culture, human resource policies, and management processes) with the aim of inspecting IT-led organizational transformation (Morton, 1991).

One of the most influential models is the Strategic Alignment Model (SAM), developed by Henderson and Venkatraman (1993), which based on the MIT 90's model, by Morton's

(1991). SAM model (Figure 2.2) suggests that there are four domains of strategic choice: business strategy, IT strategy, organizational infrastructure and processes, and IT infrastructure and processes (Avison *et al*., 2004).

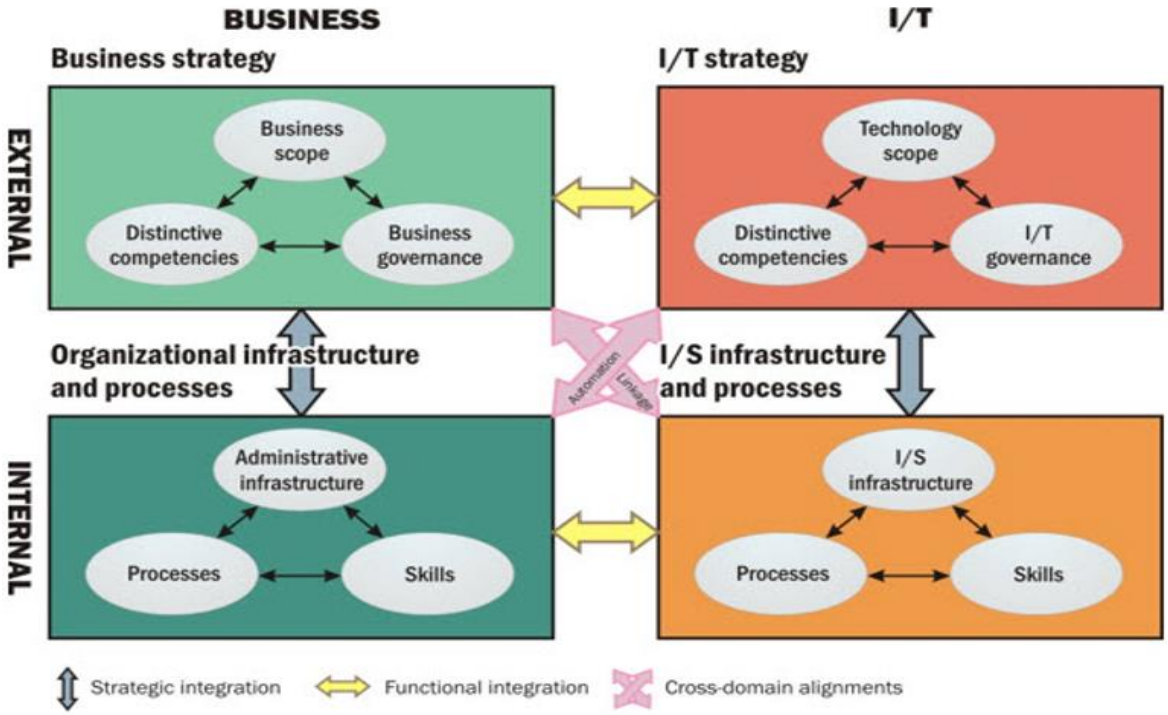


Figure 2.2: The Henderson and Venkatraman Strategic Alignment Model (SAM)

Source: Henderson and Venkatraman (1993)

The components of the internal domain of business strategy contain administrative structure (the ways an organization deal with roles, responsibilities, and authority structures), business processes (the ways an organization use to execute business strategies), and business skills (Henderson and Venkatraman, 1993; Papp, 1995). On the other hand, the external domain of business strategy contains decisions about business scope (market scope, product-market offerings), distinctive competencies (brand, pricing, quality, a customer satisfaction strategy, and product development), and business governance (choices to organize the business such as strategic alliances, joint ventures, partnership).

The components of the internal domain of IT strategy contains IT architecture (portfolio of applications networks and the data management), IT processes (systems development, maintenance, control systems), and IT skills (IT training and capabilities). On the other hand, the external domain of IT strategy components contains IT scope (IT applications such as

networks and expert systems), systematic competences (system reliability, interconnectivity, and flexibility) and IT governance.

The relationships between the four components in SAM model are assorted into three types. (1) The bivariate fit (linking only two domains) as well as shows the horizontal and vertical relationship between the four domains (Henderson and Venkatraman, 1993). (2) cross-domain alignment (aligning three domains) which shows the relationship between business strategy and IS infrastructure and processes, as well as IT strategy and organizational infrastructure and processes, as these relationships need to consider one more domain. Cross-domain alignment is concerned with the relationship between business strategy and IS infrastructure and processes, as well as IT strategy and organizational infrastructure and processes, where these relationships need to consider one more domain. For instance, the business strategy can impact on the design of organizational infrastructure and IS infrastructure, while proper organizational infrastructure and IS infrastructure can help the implementation of business strategy. Finally, strategic alignment as a holistic relationship linking all four domains with their components mentioned previously.

SAM model has two fundamental features of strategic management, which both shape the overall strategy of an organization. The first is strategic integration (fit), which refers to the interrelationships between internal and external domains. The second is the functional integration, which means the integration between the business and technology domains (Avison *et al.*, 2004; Gutierrez *et al*., 2008). Functional integration enhances the IT capability to provide competitive advantages (Reich and Benbasat, 1996). Henderson and Venkatraman (1993) argued that strategic fit and functional integration have to be involved in order to achieve strategic alignment.

However, these interactions lead to four types of perspectives on alignment (Henderson and Venkatraman, 1993, 1999). (1) Strategy execution, which is the most common alignment perspective, since the business strategy articulated as a driving force for organizational design and IT infrastructure. (2) Technology transformation, which includes assessing the implementing the selected business strategy using appropriate IS strategy. The other two perspectives occur when IT is considered an enabler of an enhanced business strategy. (3) Competitive potential, which is concerned with IT capabilities as it enhances the strategy execution and building partnerships. The last perspective is (4) service level, which focuses

on establishing a world-class IT service organization to ensure the effective use of IT in organizations.

There is a lot of empirical and practical support for SAM in MIS literature (e.g., Luftman, 1999; Avison *et al.,* 2004; Maes *et al.,* 2000; Chan and Reich, 2007). For instance, Avison *et al.* (2004) applied the SAM model in financial service firms to confirm whether it is useful as a management tool to achieve strategic alignment between IT and business. However, regarding some scholars, this model has its limitations. For instance, Gerow *et al.* (2015), Luftman *et al.* (2017) argued that this model was purely conceptual and unable to analyze and detect the level of alignment. Similarly, the applicability of the model may be different and depend on how IT-intensive an industry is. Likewise, Maes *et al.* (2000) also criticize the SAM, since it considers the mutual influences between business and IT to be direct, whereas the relationship is much more complicated. Moreover, the SAM model does not take into consideration the antecedent factors that lead to greater strategic alignment (Chan and Reich, 2007). However, these limitations did not prevent the SAM model from being a reference for many researchers in this field.

Several scholars have built on and extended this model to detect the level of alignment (e.g., Hussin *et al.,* 2002; Luftman *et al*., 1999; Maes *et al.,* 2000). Avison *et al.* (2004) contend that there are two critical extensions of the initial strategic alignment model. The first is Luftman *et al*.'s (1999) research, which focuses on the concept of alignment perspectives and identifies a set of enablers and inhibitors to alignment. The second is the generic model developed by Maes *et al.* (2000), which enhances the SAM by involving additional functional and strategic layers to cover the need for information and communication within organizations.

2.5.1.2 The Generic Framework

Maes *et al.* (2000) argued that SAM model failed to include all the key factors that affect the alignment between business and IT, where the horizontal dimension (Strategy and IT) is not the only dimension that influences the alignment. Therefore, Maes *et al*. (2000) proposed a Generic Framework Alignment Model as an extension of SAM, as shown in Figure 2.3. This model extended SAM model from 2X2 dimension to 3X3 dimension, which added a horizontal column to separate the internal domain into structural and operational levels. The additional vertical column is between business and IT strategies. The additional horizontal column represents the structural level which presents some of the long-term architectural

components, competencies, and infrastructures, while the vertical column presents the architecture of the information/communication and work as a translator between IT and business (Maes *et al.*, 2000; Avision *et al.*, 2004). The structural level of Generic Framework is linked with architecture and capabilities, while process and skill are related to the operational level (Avison et al., 2004).

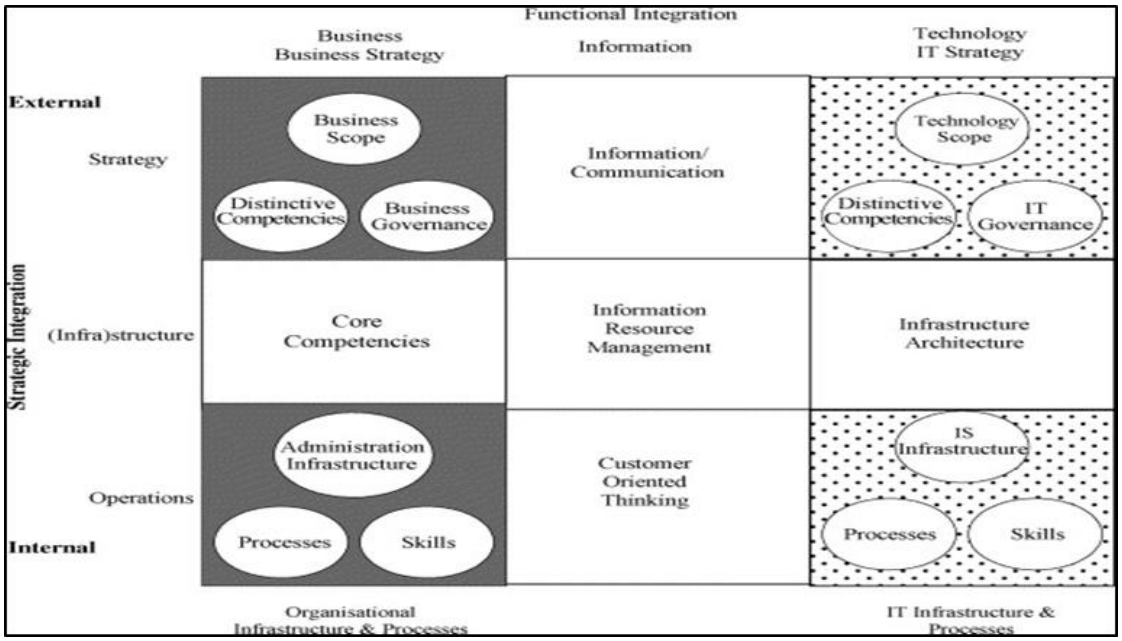


Figure 2.3 A Generic Framework for Information Management

Source: Maes *et al.* (2000); Avison *et al.* (2004)

Although the Generic Framework model focuses on the operational level, the additional components raise the complexity in applying the model. In addition, the model was highly conceptual and did not examine how the company achieves the alignment. Also, this model is more relevant in addressing the external factors and therefore its adopting in public organisations might not cover some internal resources comprehensively. For instance addressing the issues of resource management and management of risk regarding IT are important to avoid the uncertainty in information sources (Stewart, 2008).

Sabherwal and Kirs (1994) argued that business strategy and IT strategy as the two key domains for alignment. Their model focused on the strategic content rather than processes, realized strategies rather than intended strategies, as well as the IS strategy rather than IT and information management (IM) strategies. They examined the performance implications of alignment between business CSFs (environmental uncertainty, integration, and IT management sophistication) and the organization's IT capability. However, the model was not

complete and focused on general parts of business and IT domains without going pointedly on IT and business architecture. Also, it mainly operates only at a strategic and tactical level, without focusing on the business and IT processes. However, both models of Sabherwel and Kirs (1994) and Maes *et al*. (2000) have powerless theoretical grounding, adopt weak operationalization of IT-business alignment and consequently suffer from considerable challenges related to how to measure the level of alignment. Broadbent and Kitzis (2005) conceptualize alignment model weaving IT and business strategies together, and they identified factors effect on the success of IT projects. Both of Broadbent and Kitzis (2005) and Maes *et al.* (2000) have a high level of conceptual models with lacks empirical validation which limit the power of these models.

Reich and Benbasat (1996) investigated factors associated with the social dimension of alignment which includes: shared domain knowledge, IT implementation success, communication between business and IT executives and connections between business and IT planning that directly influence alignment. Although of the importance of their study, the model limited by the social dimension and using a small number of firms in one industry. Similarly, (Hussin *et al*., 2002) exclusively measures the fit between IT strategy and business strategy by using a limited number of alignment factors and excluding processes associated with IT alignment. They conducted the study among small UK manufacturing firms and indicated that a large number of small firms had achieved high IT alignment and consequently achieved large firms' performance, unlike firms with low IT alignment. However, both of these studies used a limited number of factors that influence alignment with a small number of samples, which considered a limitation as well as prevents the generalizability of these findings.

As an extension of the Reich and Benbasat's (1996) model, Hu and Huang (2006) added relationship management as an antecedent and used a Balanced Scorecard tool as a management system. Their model was complex and mainly focused on the operational level as well as lacks of focus on the organizational and architectural aspects such as modularity.

From the comparative side, first, strategic Alignment model SAM by Henderson and Venkatraman (1993), a Generic Framework for Information Management by Maes *et al*. (2000), Luftman's Alignment Model Luftman (2000), and Hu Huang Alignment Model (2006) are applicable for all sizes of organizations. On the other hand, Hu Huang Alignment Model, 2006 and Sabherwal and Chan Alignment Model (2001) apply only to medium and

small size organizations. Second, the business and IT strategic planning integration is at low level which is also called business process level in each of (SAM model by Henderson and Venkatraman 1993, Integrated Architecture Framework by Maes 2000 and Alignment Model of Hu Huang 2006, While in Luftman's (2000) alignment model, it is at functional level. On the other hand, in Reich and Benbasat's 2000 Model and Sabherwal and Chan's 2001 Alignment Model, it is at a high level called intra-organizational level. Regarding the complexity, each of Architecture Framework by Maes et al. 2000, Luftman's (2000) alignment model and Model of Hu Huang 2006 have a high level of complexity. Therefore business staff cannot apply these models directly. However, Reich and Benbasat's 2000 Model are relatively simple models where business and IT staff can apply these models for the alignment on an organization, and finally, the complexity of applicability of SAM model by Henderson and Venkatraman 1993 is medium (El-Mekawy *et al.*, 2012).

2.5.2 Sustainable strategic alignment models (Process models)

One of the critiques which have been repeatedly explained by several researchers is that strategic alignment is too "theoretic," tight and mechanistic (Hung *et al*., 2010; Chan and Reich, 2007). This means it can be hard to achieve strategic alignment continually in rapidly changing environments. The effect of external factors such as the business environment considered as one of the most obstacles of IS strategic planning (Lederer and Mendelow, 1986). Recently, in the MIS field, scholars recognized the importance of rapidly changing environments and claim that organizations should improve the dynamic capability of IT (Tai *et al*., 2019; Esmail *et al.*, 2018; Chen, 2010; ElSawy and Pavlou, 2008). A growing number of researches (e.g., Sabherwal *et al.*, 2019; Baker *et al*., 2011; Vessey and Ward, 2013; Chen *et al*., 2010; Benbya and McKelvey, 2006) have considered strategic alignment as a dynamic process rather than as a static end. Therefore, increasing research on the relationship between strategic alignment and changing environments has been conducted in the present years to maintain the strategic alignment in a current business environment.

With the fast development of technology and more and more complex business environments in the last few years, researchers have begun to be conscious of the significance of dynamics in strategic alignment (Sabherwal and Chan, 2001; Chan and Reich, 2007; Ben-Zvi and Dwivedi, 2010). Strategic alignment research has changed from the end-state perspective (Venkatraman, 1989) to the process perspective (Luftman, 2004). For Instance, Benbya and McKelvey (2006) relied on co-evolutionary and complexity theories to enhance IT alignment. They consider strategic alignment as a continuous dynamic process in which business

strategy, IT strategy, IT department, business department co-evolve and adapt to changing environments. However, this perspective focuses only on the co-evolution of the elements, rather than the way that strategic alignment can adapt to the change in business environments.

Likewise, Baker *et al.* (2011) examined the way sustainable strategic alignment can benefit business performance and provide an approach to conceptualizing sustainable strategic alignment. Based on the dynamic capabilities framework, they conclude that organization's ability to achieve a high degree of alignment between IT and business strategy is an enduring competency which is a source for competitive advantage and allows the organization to respond to rapidly changing environments. Therefore, researchers agree that strategic alignment is a dynamic process. Also, to consider strategic alignment as a process provides a way to sustain strategic alignment (Tai *et al.*, 2019; Diaz, 2011). This research also treats strategic alignment as a dynamic process.

Several strategic alignment models have been reported in the literature. We evaluate a few fundamental frameworks that have been particularly influential, such as Luftman's Alignment Model (2000), and Strategic Alignment Maturity Model (SAMM). These models discussed in the following sections.

2.5.2.1 Luftman's Alignment Model (2000)-Enablers and Inhibitors

Luftman's Alignment Model (2004) is one of the most elaborated models in MIS researches, which presents strategic alignment as a complete holistic process includes establishing alignment by maximizing its enablers and minimizing inhibitors. Luftman (2004) believed that many organizations failed to exploit IT investments to achieve their long-term benefit because of inhibitors and enablers that must be minimized and maximized respectively, to align IT with business effectively. Luftman *et al*. (1999) asked 1,051 business and IT executives from over 500 US firms in 15 different industries to determine the enablers and inhibitors of strategic alignment. The top six of them listed in Table 2.4.

Table 2.4 Inhibitors and Enablers of Business-IT Alignment

Enablers	**Inhibitors**
Senior executive support for IT	IT/business lack close relationships
IT involved in strategy development	IT does not prioritize well
IT understands the business	IT fails to meet its commitments
Business - IT partnership	IT does not understand business
Well-prioritized IT projects	Senior executives do not support IT
IT demonstrates leadership	IT management lacks leadership

Source: Luftman *et al.* (1999)

Strategic alignment between business and IT as a dynamic process depends on minimizing the inhibitors and maximizing the enablers. Luftman *et al.* (1999) suggested a six steps approach to achieve alignment, as mentioned below (Balhareth *et al.*, 2013; Luftman *et al.*, 1999):

1. Set the goals and establish a team

2. Understand the business IT linkage.

3. Analyze and prioritize gap

4. Specify the actions (project management)

5. Choose and evaluate success criteria

6. Sustain alignment

Therefore, Luftman *et al.* (1999) referred to the necessity of following these steps by IT and business executives to get inhibitors and enablers minimized and maximized, respectively. However, researchers have built on enabler and inhibitors since its impact on enhancing strategic alignment in organizations (Tallon and Pinsonneault, 2012; El-Masri *et al.*, 2015, Gerow *et al.*, 2015).

2.5.2.2 Strategic Alignment Maturity Model (SAMM)

With the aim of assessing the maturity of strategic-IT alignment in an organization, Luftman (2000) proposed a model called strategic alignment maturity (SAMM) to assess the extent to which business and IT functions align. This model is one of the key extensions to the SAM (Tallon and Pinsonneault, 2011; Kurniawan, 2013), and has received strong receptivity among IT researchers and practitioners from around the world (e.g., Pelletier *et al.*, 2014; El-Masri *et al.*, 2015; Sledgianowski *et al.*, 2004). The model provides a holistic view of strategic alignment and validated by extensive research (Luftman, 2003, 2005, 2017). The twelve components of the SAM, in harmony with enablers and inhibitors research (Luftman *et al.*, 1999), considered the basis of SAMM (Chen, 2010; Belfo and Sousa, 2013). Achieving alignment needs executives to maximize the enablers and minimize the inhibitors. SAMM model would help organizations to evaluate these practices to permit an organization to see where it stands and how to improve particular aspects once the maturity of its strategic choices and alignment practices become available to the executives of that organization (El-Masri *et al.*, 2015; Luftman, 2004). The model includes five levels of strategic alignment

maturity, includes: follows: 1. Initial/Ad Hoc Process, 2. Committed Process, 3. Established Focused Process, 4. Improved/Managed Process, 5. Optimized Process (Luftman, 2004) (see Figure2.3).

Also, SAMM model comprised of six criteria/dimensions, validated with an evaluation of 25 Fortune 500 companies; each is measured to determine the level of alignment maturity (Luftman and Kempaiah, 2008; Luftman, 2004; Salim and Arman, 2014) (Figure 2.4). These criteria include communication, competency, governance, partnership, technology scope, and skills. This model identifies a set of management practices/attributes which are associated with each criterion that organizations must nurture to achieve maturity in IT-business alignment. The management practices classified under five process levels based on the extent an organization performs them (Figure 2.5). For instance, to achieve mature alignment between IT and business, an organization must mature its governance practices (from ad hoc to optimized) by improving the management of IT investment and strategic business planning among other enablers. These managerial practices can be implemented in practice to align business with IT in the organization.

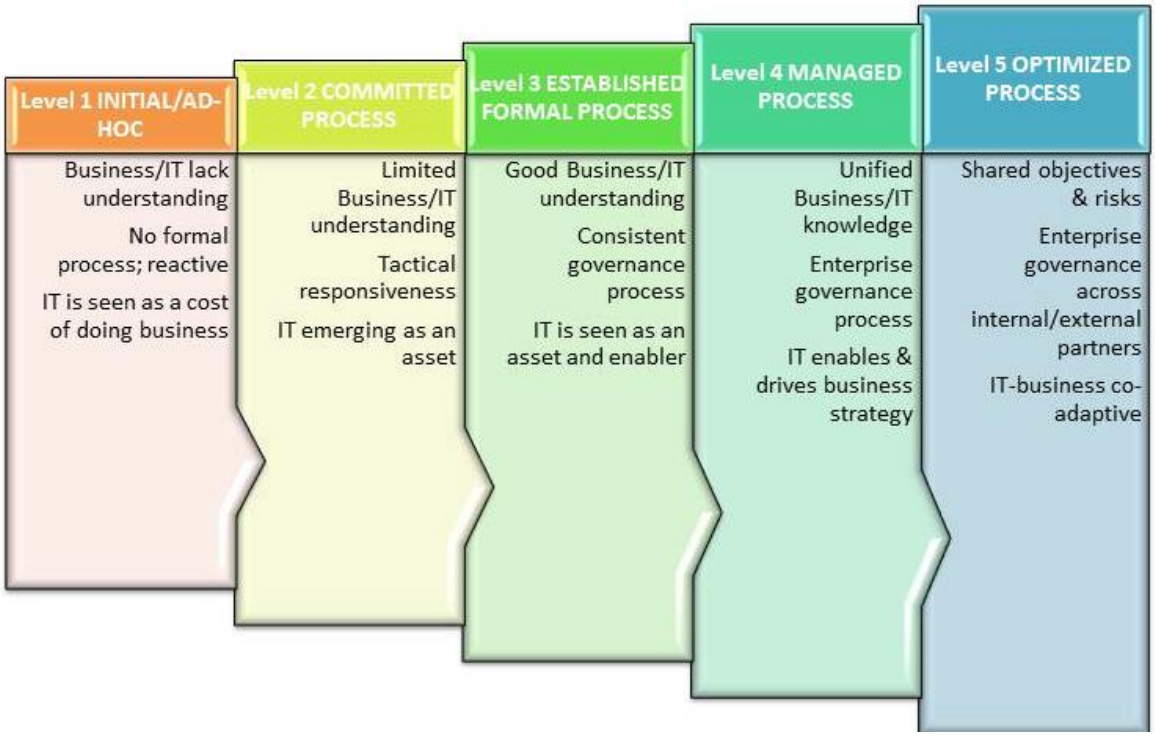


Figure 2.4 Strategic Alignment Maturity Summary

Source: Luftman (2004)

Communications: the effective on-going exchange of knowledge and clear understanding between business and IT units within organizations allowing them to comprehend the

strategies, plans, risks, environments (both Business and IT) and priorities of the organization and the way to achieve them (Luftman, 2004, p.15). The attributes of the criteria include understanding of business by IT, understanding of IT by business, inter/intra organisational learning, protocol rigidity, knowledge sharing and liaisons' effectiveness (Luftman *et al.*, 2004).

Competency: 'Demonstrating the value of IT in terms of contribution to the businesses in languages that the IT, as well as the business units, comprehend and accept (Luftman, 2004, p.15). The measures of this dimension are: formal assessment/review, service level agreement, balanced metrics, IT metrics, benchmarking, continuous improvement, and business metrics (Luftman *et al*., 2004).

Governance: 'Ensuring that the appropriate business and IT participants formally discuss and review the priorities and allocation of IT resources' (Luftman, 2004, p.17). The attributes of the criteria are prioritization process, steering committee, IT investment management, budgetary control, IT strategic planning, reporting/organization structure and strategic business planning (Luftman, 2000; Luftman *et al*., 2004).

Partnership: indicates 'the relationship that exists between business and IT organization' Luftman (2004, p.17). The attributes of the criteria include the role of IT in Strategic business planning, business perception of IT value, IT program management, business sponsor, trust style business, shared goals, risk, rewards/penalties (Luftman *et al*., 2004).

Scope and Architecture: an assessment to IT maturity through measuring the extent to which IT can go beyond physical location, supports a flexible infrastructure, evaluate and apply emerging technologies, enable and drive business strategies and provides customizable solutions to customers as stated by Luftman (2004, p.18). The attributes of the criteria include systemic competencies, traditional, enabler/driver external, standard articulation, architectural transparency, flexibility, and architecture integration (Luftman *et al.*, 2004).

Skills: defined by Luftman (2004, p.18) 'Includes all the human resources' considerations for the organization'. Skill attributes include locus of power, innovation, entrepreneurship, social, education, cross-training, career crossover, change readiness, hiring, and retention (Luftman *et al*., 2004).

Strategic alignment maturity model SAMM has been evaluated several times and was found to be sound (El-Masri *et al.*, 2014; Adaba *et al*., 2010). This model involves five levels of

maturity covering the six dimensions/criteria of alignment which make it as the most favorable tool to assess strategic alignment and has shown acceptable validity for different components and has been recommended to apply in research (Belfo and Sousa, 2013; Grant *et al*. 2012). For example, in empirical research of more than 3000 global participant of business and IT executives from 400 Fortune 1000 companies, Luftman *et al.,* (2017) found that SAMM is a well balanced model and one of the most promising instrument in the IT/business alignment research in terms of validity. Chen (2010) applied SAMM to evaluate the strategic alignment maturity of Chinese companies, whereas, Adaba *et al*. (2010) examined the strategic alignment maturity of a public sector organization in Ghana using the SAMM.

The confusion in conceptual and measurement between different perspectives in alignment field (Gerdin and Greve, 2004; Chan and Reich, 2007) refer to the chance of identifying the missing links in comprehending of IT-business alignment as a dynamic process. However, some researches referred that in some cases strategic IT-business alignment has no direct effect on overall organizational performance and where the first effects of alignment apparent on particular intermediate variables of performance like process agility (Tallon and Pinsonneault, 2011). On the other hand, some researchers have claimed that alignment has become so institutionalized, which it is no longer a source of differentiation of organizational performance that it once was (Palmer and Markus, 2000).

2.5.3 The distinguish between conventional strategic alignment and sustainable strategic alignment

Research into strategic alignment is not without criticism. Researchers have criticized the conventional strategic alignment (as end state is) for being too static, mechanistic and belonged to an era of greater stability in the business world (Baker *et al.,* 2012; Chan and Reich, 2007). This means that conventional strategic alignment can be challenging to achieve in practice and rapidly changing environments. Smaczny (2001) recommended a mutual process of strategic development for IT and business strategies, rather than a developing the IT strategy in response to business strategy. Therefore, some scholars (McCardle *et al.,* 2019; Luftmn, 2004; Vessey and Ward, 2013; Baker *et al.*, 2009) present the sustainable strategic alignment which considers strategic alignment as a dynamic process rather than the conventional static strategic alignment.

The first comparison is that conventional strategic alignment is seen as a static end-state, while the sustainable strategic alignment treated as a dynamic process. The majority of early

literature (before 2000) on strategic alignment treats it as a static end-state (e.g., Pyburn, 1983 Earl, 1989; Brown and Magill, 1994; Henderson and Venkatraman, 1993). In more detail, the end-state perspective on strategic alignment depends on factor models which have been developed to demonstrate the way the alignment can be carried out through manipulating a set of antecedent' factors which precede alignment. The outcomes can then be quantified (Preston and Karahanna, 2009; Reich and Benbasat, 2000). However, such studies focused mainly on the contingency theory perspective, which interpreting the degree of alignment is contingent on the antecedent factors. Researches that applied this perspective enable researchers to measure the "degree" of alignment between business strategy and IT strategy in an organization. Within the end-state perspective, there are six types of measurement of alignment: moderation, mediation, matching, gestalts, profile deviation, and covariation (Venkatraman, 1989). Venkatraman's framework assorts these types based on the number of factors in particular equation (Bergeron *et al*., 2004; Venkatraman, 1989).

The rapid development of IT and the emergence of Internet networks led business environment to change rapidly and significantly. The conventional (static) perspective of strategic alignment becomes not suitable for fast-changing circumstances. Therefore, sustainable strategic alignment has emerged. Sabherwal and Chan (2001) examine the dynamics of strategic alignment, claiming that strategic alignment evolves with the changing environment. In addition, Luftman and Brief (1999) proposed a six-step approach to maximise the enablers and minimise the inhibitors of strategic alignment, includes: "Set the goals and establish a team", "Understand the business-IT linkage", "Analyze and prioritize gaps", "Specify the actions (project management)", "Choose and evaluate success criteria", "Sustain alignment" (Luftman *et al.,* 1999, p. 115). Several researchers (e.g. Luftman *et al*. (2004, 2015); Baker *et al.* (2009; 2011), Levy and Powell (2000), Orlikowski, 1996, and Vessey and Ward, 2013) have considered strategic alignment as a continuous process which needs to be sustained. Pelletier and Raymond (2014) focus on the fact that strategic alignment is not a static target but a continuously moving process which need to maintain and sustain to avoid cases of strategic alignment misalignment happen due to environmental and unexpected challenges.

The second comparison is that the conventional strategic alignment is too tight (Cumps *et al.,* 2009), whereas the sustainable strategic alignment concentrates more on flexibility and agility (Tallon and Pinsonneault, 2011). Cumps *et al*. (2009) found that tight alignment has the potential to restrict an organization's ability to recognize environmental changes and limit

the strategic flexibility as well as cause difficulty in breaking out patterns of institutional behavior (Pierson, 2004). On the other hand, sustainable strategic alignment depends more on flexibility. Benbya and Mckelvey (2006) suggest that IT modular flexibility is the key for sustaining strategic alignment since flexibility embodied in performing frequent adjustments to both organizational strategy and IT strategy which required for an organization to compete successfully in the marketplace. Likewise, Wetering *et al*. (2018) asserted that the combined synergetic effect of IT flexibility and dynamic capabilities enable organizations to cope with changing environmental conditions and drive competitive firm performance. Also, Tallon and Pinsonneault (2011) refer that IT flexibility and organizational agility are significantly important in sustainable strategic alignment. Therefore, strategic alignment cannot be tightly planned.

The third comparison between sustainable strategic alignment and conventional strategic alignment is the "theoretic" (Chan and Reich, 2007, p. 311). Conventional strategic alignment has been criticised for lack of theoretical support to the issue of alignment (Bergeron *et al.*, 2001). Most strategic alignment researches developed based on strategic alignment literature and contingency theory. However, these bases are not seen as providing comprehensive theoretical supports of the mechanisms and processes by which organisations develop and sustain strategic alignment (Chan and Reich, 2007). In recent years, Well-established theories (e.g. Wernerfelt's (1984) resource-based view (RBV) of the firm and DiMaggio and Powell's (1983) institutional theory) are seen as potentially providing robust theoretical supports for strategic alignment research and how it enhance the organisations' performance. In addition, sustainable strategic alignment literature uses rich theoretical explanation to support the researches.

There are two main theories applied in sustainable strategic alignment literature, which are co-evolution theory and the dynamic capabilities theories. The Co-evolution theory means that each component in an environment influences and is in turn influenced by all other related (components) in that environment in a process known as co-evolution (Vessey and Ward, 2013; Benbya and McKelvey, 2006). The dynamic capability theory as an extension of the resource-based view (RBV) of the firm focuses on "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece *et al.,* 1997, p. 516). These two theories provide holistic theoretical support for sustainable strategic alignment research (e.g. Luftman *et al.,* (2004, 2008, 2015);

Chen, 2008; Baker *et al*., 2009, 2011). This research adopt the RBV and DCT as a foundation of the presented framework based on some justification (See Chapter 3, Section 3.4).

To sum up, in today's rapidly changing environments, the conventional strategic alignment perspective can lead to cases of misalignment in organizations as well as failing in achieving strategic alignment, while the sustainable strategic alignment perspective can enhance the organizations' ability to achieve and sustain strategic alignment.

2.6 Factors enhancing strategic alignment

The large research on alignment has produced a comprehensive list of factors that contribute to strategic alignment. Following Chan and Reich (2007), this research classifies these factors into two groups: background factors such as corporate culture and IT implementation success, and foreground factors which are apparent activities of the organization that affect alignment such as Top Management Support for IT and Strong Leadership. However, since the history and development of these factors have been comprehensively reviewed and investigated within the last three decades (Chen *et al*., 2006; Chan and Reich, 2007), and because the focus of this research is specifically on factors that promote sustained strategic alignment, Table 2.5 presents an updated summary of the factors that contribute to strategic alignment in static models.

Table 2.5 Factors enhancing Strategic Alignment

Foreground Factor	**Source**
IT involvement in strategy Development	Luftman and Brier (1999)
Business IT partnerships	Luftman and Brier (1999)
Well prioritize IT projects	Luftman and Brier (1999)
Senior executive's support for IT	Luftman and Brier (1999)
IT demonstrates leadership	Luftman and Brier (1999)
IT understanding of Business	Luftman and Brier (1999)
Strong Leadership	(Baker, 2004)
Communication	Reich and Benbasat (2000), Sledgianowski et al., (2006)
Relationship between CEO and CIO	(Feeny et al. (1992)
Misalignment between strategy	Balhareth, Liu, and Alsoud (2013)
IT maturity	Hussin *et al.* (2002)

Level of CEO's software knowledge	Hussin et al. (2002)
Top Management Support for IT	Lederer and Mendelow (1989)
IT infrastructure flexibility	Chung, Rainer, and Lewis (2003)
IT flexibility	Tallon and Pinsonneault (2011)
Documenting the Business Plan	Lederer and Mendelow (1989), Reich and Benbasat (2000)
IT Governance	Orozco et al. (2015)
IT agility	Tallon and Pinsonneault (2011).
IT expertise	Lee et al. (2005)
System maturity	Lee et al. (2005)
Clearly Defined Goals	Cragg et al. (2002)
System maturity	Lee et al. (2005)
IT budgeting	Luftman and Derksen (2012
IT reaction capacity	Luftman and Derksen (2012)
IT strategic planning	Luftman et al. (2012
Environmental uncertainty	Yayla and Hu (2012)
Strategic orientation	Yayla and Hu (2012)
IT maturity	Ismail and King (2014)
Background Factor	**Source**
Shared Domain Knowledge	Chan et al. (2006), Yayla and Hu (2009), Reich and Benbasat (2000), Trienekens et al. (2014)
IT Implementation Success	Reich and Benbasat (2000), Chan et al. (2006)
Prior IS success	Chan et al. (2006),
Connections between business and IT planning	Reich and Benbasat (2000)
Communication between business and IT executives	Reich and Benbasat (2000)
Successful IT history	Reich and Benbasat (2000), Yayla and Hu (2009), Ismail and King (2014)
Information intensity of the value chain	Kearns and Lederer (2003)
Environmental Uncertainty	Chan et al. (2006)
Organizational Size	Chan et al. (2006), Chung et al. (2003)

Planning Sophistication	Chan et al. (2006)
Corporate Vision	Brown and Magill (1994)
Locus of Control for System Approvals	Brown and Magill (1994)
Strategic IT Role	Brown and Magill (1994)
Satisfaction with Use of Technology	Brown and Magill (1994)
Satisfaction with Management of Technology	Brown and Magill (1994)
Organisational culture	Fattah and Arman (2014)

Source: The Researcher

Researchers agreed that strategic alignment requires complete knowledge of the factors that could impact (e.g. Luftman *et al*., 1999, Reich and Benbasat, 1996, Gutierrez and Lycett, 2011; Chan *et al*., 2006, Naryan and Awashti, 2014; Yalya and Hu, 2011). For example, Luftman *et al*. (1999) identify enablers and inhibitors of the strategic alignment between business and IT strategies as one of the most practical extensions to the original model of strategic alignment (SAM model). They found that senior executive support for IT is a key enabler of alignment, and the lack of a close working relationship between IT and business is a key inhibitor. However, the findings of such research helped in developing the theoretical framework of current research (Chapter 3).

The majority of researches used the SAM model as their base model and expanded it by incorporating different factors that affect IT-business alignment, as shown in Table 2.5. There are additional factors (alongside the original factors of Strategic Alignment Maturity Model SAMM by Luftman 2004) which were found to be significant in affecting strategic alignment. These additional factors are not considered or involved in SAMM, and researchers call for more investigation of these factors in different research contexts.

A few factors found to be significant by different researches, for example, environmental uncertainty (Tallon and Kraemer, 2003, Chan *et al*., 2006; Yayla and Hu, 2012; Tallon and Pinsonneault, 2011), IT expertise (Ismail and King, 2014; Lee *et al.*, 2005), shared domain knowledge (Reich and Benbasat, 2000; Trienekens *et al*., 2014; Yayla and Hu, 2009), prior IS success (Chan *et al*., 2006; Reich and Benbasat, 2000; Tallon and Pinsonneault), organizational size (Chan *et al.*, 2006; Chung *et al.*, 2003), strategic IT flexibility (Tian *et al.*, 2010, Tallon and Pinsonneault, 2011). However, there is a need to detect the effect of these four additional factors in the strategic alignment field. Researches referred that some factors have no significant impact on strategic alignment. For instance, each of Gutierrez *et al*.

(2009) and Luftman *et al*. (2008) found that organizational size has no significant impact on achieving strategic alignment; similarly, Hussain *et al.* (2002) stated that IT expertise did not have a significant impact on strategic alignment. Also, environmental uncertainty has less conflicting results in different researches.

2.6.1 Factors enhancing sustainable strategic alignment

Through the abundant researches on strategic alignment are a limited number that describes factors that have an impact on strategic alignment over time (i.e., factors prompt the sustainable strategic alignment which consider alignment as a process). Hiekkanen *et al.* (2012) argued that the factor alignment models founded on the state perspective of alignment and based on the resource-based view (Barney, 1991; Wernerfelt, 1984) and Porter's (1980) competitive strategy appear not suitable to deal with current complex and changing the business environment. Also, organizational capabilities for efficiency and flexibility need to be improved to ensure sustained high performance. Recent researchers (e.g. Baker *et al.*, 2011; Chan *et al.*, 2006; Baker and Jones, 2008, Chan and Reich, 2007, Tallon and Pinsonneault, 2011) have called continuously for further research into the factors that affect sustainable strategic alignment, and the coupling process between sustainable strategic alignment and enhanced business performance. In accordance with reviewing the sustainable or dynamic strategic alignment in changing environments (Section 2.6.2), this section review some critical factors that affect sustainable strategic alignment in the IS literature. Table 2.6 present limited factors enhancing sustainable Strategic Alignment.

It has been found that shared domain knowledge (Reich and Benbasat, 2000; Chan *et al*., 2006), and the strategic IT flexibility (Jorfi and Najjar, 2017; Chan *et al*., 2006; Tian *et al.*, 2010, Tallon and Pinsonneault, 2011) are antecedents to long-term alignment (i.e. sustained alignment). Reich and Benbasat (2000. p87) defined Long-term alignment as "a shared understanding of IT vision," whereas short-term alignment, as "a shared understanding of short-term goals." Besides, long-term alignment differs from the concept of sustained strategic alignment, which is an alignment that is maintained over multiple periods (Baker *et al.*, 2011). However, this research argues that shared domain knowledge between business and IT executives, and strategic IT flexibility considered as a basis for the sustained strategic alignment.

Table 2.6 Factors promoting sustainable strategic alignment

Factor	Source
Shared Domain Knowledge	Chan *et al.* (2006), Reich and Benbasat, (2000), Baker *et al.* (2011)
Strategic IT flexibility	Tian *et al.* (2010), Tallon and Pinsonneault (2011)
Strategic Business Plans	Reich and Benbasat (2000)

Source: The Researcher

Shared domain knowledge

In their proposed model, Reich and Benbasat (2000) argued that two background factors which are the shared domain knowledge and successful IT history lead to increased behaviors such as communication between IT and business executives and connections between IT and business planning. Altogether these four factors also lead to greater strategic alignment (see Figure 2.7). They collected data from ten business units through 57 semi-structured interviews, minutes from IT steering committee meetings, and written business and IT strategic plans. Furthermore, alignment measured by the degree of shared understanding of current objectives or short-term goals (short-term alignment), and the shared understanding of IT vision between business and IT executives (long-term alignment). The factor of a shared domain of knowledge between business and IT executives was measured by assessing the existing amount of IT experience among the business executives, and the actual amount of business experience among the IT executives.

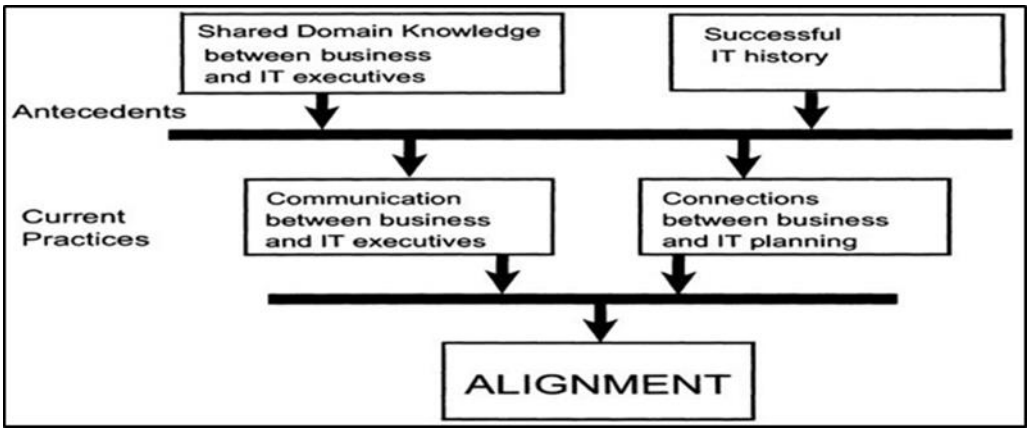


Figure 2.5 Reich and Benbasat Research Model

Source: Reich and Benbasat (2000, p.84).

Reich and Benbasat (2000) found that the above four factors affected short-term alignment but only shared domain knowledge influenced long-term alignment. Likewise, some researcher such as Chan *et al*. (2006) and Baker *et al*. (2011) argued that sharing mutual knowledge between business and IT executives not only enhances shared understanding but also improves a common vision and therefore confirm that shared domain knowledge was an antecedent to long-term alignment. Shared domain knowledge was the only variable that affected long-term alignment, which has been identified as the ability of IT and business executives to understand, to participate within others input processes, and to respect the contributions and challenges of each other at a deep level (Reich and Benbasat, 2000, p. 86). Shared domain knowledge between business and IT managers helps achieve strategic alignment, enhance the quality of business planning, minimize problems with IT projects, and improve organizational performance (Alaceva and Rusu, 2015; Kearns and Sabherwal, 2006). Shared domain knowledge can occur by motivating IT personnel to obtain practical experience from different business departments, this could also involve participating in conferences, sending the IT staff to engage with the sales offices and clients, encouraging non-IT personnel to senior IT roles, and by disseminating the message that IT is a primary part of the business (Reich and Benbasat, 2000). Likewise, Ravishankar *et al*. (2011) indicate that the most notable antecedents of business-IT alignment are shared domain knowledge. However, researchers and practitioners should devote more efforts towards shared domain knowledge.

Strategic IT flexibility

Early work described IT infrastructure flexibility as a core competency of the organization, and it should be flexible and robust (e.g., Weill, 1993; Davenport and Linder, 1994; Duncan, 1995; Byrd and Turner, 2000). Weill (2003) asserted that an IT infrastructure should be flexible in dealing with increased customer demands without increased costs. Duncan (1995) referred that IT infrastructure may enable strategic innovations in business processes. She described IT infrastructure flexibility through several characteristics (i.e., connectivity, compatibility, and modularity), when an organization has a high level of modularity, compatibility, and connectivity then would have high technical IT infrastructure flexibility. She also indicated that IT infrastructure flexibility enhances the ability of systems' developers to design and create systems to meet organizational business objectives. Duncan (1995) defined connectivity as the ability of any technology component to communicate with any of the other components inside and outside of the organizational environment. Byrd and

Turner (2000) defined compatibility as the ability to share any information across any technology component throughout the organization, and modularity as the ability to easily add, modify and remove any software, hardware or data components of the infrastructure with and with no significant overall effect.

Strategic IT flexibility is defined as an essential organizational capability for organizations operating in dynamic markets to capture emerging IT-enabled opportunities through merging new IT components into the existing IT infrastructure or by changing the configuration of the existing IS (Tian *et al*., 2010). Similarly, Tallon and Pinsonneault (2011) define it as the adaptability and scalability of IT hardware, software, and networks, which are the components of IT infrastructure. More detailed, Byrd and Turner (2000, p. 172) defined IT flexibility as "the ability to easily and readily diffuse or support a wide variety of hardware, software, communications technologies, data, core applications, skills and competencies, commitments, and values within the technical physical base and the human component of the existing IT infrastructure". From the above, we can conclude that IT flexibility enables businesses to respond to various IT and IS demands as well as to effectively use IT to flourish in dynamic competitive environments. This flexibility had been viewed as a prerequisite to cope with dynamic environments (Tian *et al*., 2011; Byrd and Turner, 2001; Chung *et al*., 2003). Chan *et al*. (2006) argued that executives tend to rely on IT flexibility to comply with rapidly changing environment as an enabler of strategic alignment. Reviewing the literature uncovered that IT flexibility is the most critical aspect of keeping up strategic alignment for current changing environments (Jorfi *et al.,* 2011) and also, studies in this factor are limited. Therefore, this research examines the effects of strategic IT flexibility on sustainable strategic alignment.

Duncan (1995) first presented IT flexibility to strategic alignment research in his study of IT infrastructure. He focused on the importance of the flexibility of an organization's IT infrastructure since it enabled strategic innovations and alignment in business processes. Moreover, Tallon and Pinsonneault (2011) found that IT flexibility has a positive effect on strategic alignment, as well as enhance the strategic alignment to enhance organizational agility in the rapidly changing environments. Furthermore, Tian *et al*. (2009) in their exploratory study on the impact of IT deployment capabilities on competitive advantage found that the influence of business-IT alignment on competitive advantage is significantly influenced by strategic IT flexibility and business IT partnership. It is widely believed by several researchers (e.g., Croteau and Bergeron, 2009; Croteau *et al*., 2001) that IT flexibility

has a significant role in enabling alignment to have a positive impact on an organization's performance. In particular, these researchers employed the resource-based view, which has already been considered to be too static, leading to inadequacy in dealing with dynamic environments. Therefore, there is still a lack of knowledge as to how IT flexibility affects sustainable strategic alignment, which investigated in this research.

2.7 Business excellence enablers as intermediary variables between sustainable strategic alignment and organizational performance

The mixed results of the linkage between strategic alignment and organizational performance call for more research into intermediary variables that translate the benefits of strategic alignment into increased organizational performance (see Al-Adaileh, 2017, Yalya and Hu, 2012; Tanriverdi, 2005; Tanriverdi and Venkatraman, 2005; Mithas *et al.,* 2011; Celuch et al., 2007; Chan and Reich, 2007). Rookhandeh and Ahmadi (2016) argued that achieving organizational sustainability requires moving towards excellence and continuous improvement and achieving business excellence results in the survival and stability of organizations. Some scholars (e.g., Sadeh *et al.,* 2013; Sohn *et al.* (2007) emphasize the need for large firms to integrate their IT with business excellence enablers in order to survive in their highly competitive business environments. Also, researchers (e.g., Barek *et al.,* 2011; Pollalis, 2003) argues that strategic alignment can create positive effects for firms if they view IT as a strategic component rather than as a support tool for the firm's operations. Therefore, some researchers emphasize that business excellence could be a vital mediator between IT and firm performance (Al-Adaileh 2017; Calvo-Mora *et al.* (2014).

2.7.1 The concept of business excellence

Various thoughts exist about the evolution of business excellence and in particular, its relationship with Total Quality Management (TQM). TQM has been considered as an old-fashioned concept (Jaeger, 2018; Mann, 2008), and defined as "a set of management practices applicable throughout the organization and geared to ensure the organization consistently meets or exceeds customer requirements," Talib *et al.* (2011, p. 270). Some researchers such as Escrig-Tena *et al.* (2019) and Dahlgaard *et al*. (2011) suggested that business excellence replaced TQM, while others such as Wang and Ahmed (2001) have seen them to be separate entities, even though there are many similarities. TQM emerged in the 1980s as a tool for promoting the competitiveness and productivity level of Western business organizations in response to the rapid competition from Japan and other economic markets such as South Korea (Tickle *et al*., 2016). The first use of the term "Total Quality Management" was in a

paper in 1984 (Rehder and Ralston, 1984). Also, TQM was demonstrated further with the development of widely accepted TQM frameworks. The most famous TQM frameworks are Baldrige Criteria for Performance Excellence and the EFQM Excellence Model. In detail, the Malcolm Baldrige Criteria (later known as the Baldrige Criteria for Performance Excellence) was introduced in 1987 and considered as a basis for Malcolm Baldrige Award developed by the United States as a major step in quality management. This model is considered the first clearly defined and globally recognized TQM model. The EFQM Excellence Model was introduced in 1991, and considered as a basis for the EFQM Excellence Award developed by the European Foundation of Quality Management to improve quality throughout Europe. The EFQM Excellence Model (EEM) has become applied by managers and academics as a proxy for the implementation of total quality management (TQM) (Bagheri and Najmi, 2019; Sternad and Schmid, 2019; Gomez-Gomez *et al.*, 2017). Bou-Llusar *et al.* (2009) stated that the enabler criteria of the EFQM model contain both the social and the technical factors of a TQM approach. These factors are mutually related and constitute the factor "enabler excellence." Besides, Calvo-Mora *et al.* (2014) also classified the EFQM enablers in groups of factors corresponding to those that the literature specialized in TQM call social and technical factors. They found that the EFQM model sets up a structured and systematic ordering of the critical factors for the functioning of the whole organization.

To achieve competitiveness, organizations in different countries need to redesign themselves towards excellence using tools of creativity and innovation (Escrig-Tena *et al.*, 2019; Khandwalla and Mehta, 2004). Other similar models developed before or after the models mentioned above, such as the Australian Business Excellence Award and Canadian models, but they did not have the same international impact (Mann *et al.*, 2011). Asian countries follow a similar way in developing excellence models, and award, such as China and South Korea developed comparable models and award schemes in 1989 and 1990, respectively (Mann *et al.*, 2011a). Singapore, Japan, and Thailand launched their excellence award in 1994, 1996 and 2001, respectively, with all of these awards based on the Baldrige Criteria. Most of the middle-east countries developed their excellence awards based on EFQM Excellence Model such as (Dubai Quality Award) in the United Arab Emirates, and Jordan Quality Award is commonly known as (King Abdullah II Award for Excellence (KAIIAE)) in the country of Jordan.

Adebanjo (2001) indicates that around the mid-1990s, there was a change in terms of "quality" and "TQM" to organizational (or business) excellence. Also, they have previously called "Quality or TQM Models," which renamed as business excellence models (BEMs). The renaming was to differentiate business excellence, which was now clearly defined through assessment models, from the "old TQM", which had become ambiguous and lacked clarity because it had a philosophy, core values, and concepts, but there were a number of different interpretations and methods of implementation (Mann *et al.*, 2011; Grigg and Mann, 2008). Researchers (e.g., Escrig-Tena *et al.*, 2019; Black and Revere, 2006) states that the lack of understanding and interpretation of TQM caused by a high number of TQM failures. Therefore, different countries redesigned their award to be more aligned with the business excellence model. For instance, in 1996, Japan recreated their Quality Award based on the Baldrige Criteria. The Republic of China Award redesigned to more aligned with the MBNQA in 2001.

There is no uniform definition of business excellence. The concept of business excellence in organizations has undergone repeated changes over the last two decades (Sternad and Schmid, 2019; Hermal and Pujol, 2003). A shared aim among different concepts of business excellence is to measure of how good the organization is, and by which means it can improve its current position to cope with a competitive environment, and therefore achieving their business goals and objectives. The first definition of business excellence given by Dahlgaard *et al*. (1998, p. 190) as 'the overall way of working that results in balanced stakeholder satisfaction so increasing the probability of long term success as a business'. Table 2.7 listed relevant definitions of business excellence, where this can be evidenced.

Business excellence (or organizational excellence) (Bagheri and Najmi, 2019; Mann *et al*., 2011; Adebanjo, 2001) considered as one of the most crucial management concepts as well as a critical objective for today's business organizations. It supports organizations to achieve a strategic competitive advantage by offering superior kinds of services to others (Antony and Bhattacharyya, 2010). Excellence determines the ability of organizations to achieve superior quality and performance as compared by rivals (Jaeger, 2018; Doeleman *et al*., 2012). Business excellence also means "excellence in strategies, business practices, and stakeholder-related performance results that have been validated by assessments using proven business excellence models" (Adebanjo and Mann, 2008a, p.1). Moreover, Business excellence as the overall organizational direction towards the exploitation of appropriate opportunities using effective strategic planning that founded on a shared organizational vision supported by the

clarity of purpose and adequacy of the available resources to achieve high levels of performance (Burkhart, 1993). Kanji presented business excellence as ‘a means of measuring customers,’ employees’ and shareholders’ satisfaction simultaneously within an organization to obtain a comprehensive evaluation of the organization performance’ (Kanji, 2002; Escrig-Tena *et al.*, 2019).

The European Foundation of the Quality Management views business excellence as a best practice in organizational management to achieve satisfactory results for an organization. It is founded on basic principles such as leadership vision, inspiration and integrity continuous learning, adding value for customers, innovation and creativity, a focus on the customer, sustaining outstanding results, development of human resources, social responsibility, management through facts and processes, and development of partnership, as reported in (EFQM, 2010, Bagheri and Najmi, 2019). Moreover, the European foundation of the quality management views excellent organizations as those that attain and keep exceptional levels of performance that meet or exceeds the expectations of its stakeholders (EFQM, 2013). Accordingly, an excellent organization will consider all organizational aspects to support managers reach a better position comparing with its competitors (Sternad and Schmid, 2019).

Excellence organizations are distinguished by their ability to assemble their strengths to achieve development in all organizational aspects. These organizations seek to define the current level of development and define the gap between this level and the desired level, by addressing all the technical difficulties and other difficulties that delay the implementation of this evolution. Kim *et al*. (2010) refer that business excellence means attaining the highest level of excellence, which makes the organization suitable and competitive at a global level.

The idea of business excellence established on the organizational ability to develop the supporting powers for excellence in the organization, which based on the organizations’ ability to achieve immediate change to help to achieve and maintain a competitive position. These powers may include human resources, organizational culture, organizational structure, strategy, the growing sense of quality, and the ability to employ technology in the organizational processes effectively (Mohammad *et al.*, 2011).

Table 2.7: Key definitions of business excellence

Definition	Source (s)
'The overall way of working which results in balanced stakeholder satisfaction so increasing the probability of long term success as a business'.	Edgeman and Dahlgaard (1998, p. 190)
'Outstanding practice in managing the organisation and as a best practice in organisational management to achieve satisfactory results for an organization.'	Sternad and Schmid (2019, p 21)
"Excellence in strategies, business practices, and stakeholder related performance results that have been validated by assessments using proven business excellence models"	Adebanjo and Mann (2008a, p.1)
"a means of measuring customer's, employer's, and shareholder's (stakeholders) satisfaction simultaneously within an organization in order to obtain a comprehensive evaluation of the organizational performance."	Kanji (2002, p. 1115)
'Excellence in strategies, business practices, and stakeholder-related performance results that have been validated by assessments using proven business excellence models.'	Mohammad *et al*. (2011, p. 1214)
'Business Excellence is the overall way of working that result in balanced stakeholder (customers, employees, society, stakeholders) satisfaction, so increasing the probability of long term success as a business.'	Dahlgaard-Park (2011, p. 510)

Source: The Researcher

However, this research defines business excellence as the ability of an organization to attain and sustain superior levels of performance which meet or exceed the expectations of all their stakeholders and outperform its competitors. Also, it involves enforcing outstanding organizational practices and ensures successful integration among all organizational components, including leadership, human resources, organizational strategy, organizational culture, organizational structure, and organizational processes. Consequently, the current research applied the business excellence enablers as an intermediary variable between strategic alignment and organizational performance, which illustrated in the subsequent sections.

2.7.2 Business excellence models

Business excellence defined as "excellence in strategies, business practices, and stakeholder-related performance results that have been validated by assessments using proven business excellence models" (Adebanjo and Mann, 2008a.p.1). Besides the growing concept of business excellence, different models created to operationalize and provide a structured implementation process of excellence that can be used by several organizations (Ringrose,

2013). Business excellence models were established by different bodies which have also supported organizations in the implementation and developing excellence awards programs to celebrate their achievements (Jaeger, 2018; Kassem *et al.*, 2019). Organizations that have adopted business excellence models have usually done so by using initiatives, tools, practices, and techniques to achieve the desired results (Adebanjo, 2001). Organizations are getting more engaged in integrating business excellence practices in their operations to gain prestige as leaders in their respective areas.

The most common business excellence models are the EFQM model in Europe and the Malcolm Baldrige model in the United States MBNQA model (Mohammad *et al*., 2011). Business excellence models were created using a set of core values and principles that assist in promoting high business performance. The core values and principles of excellence are similar between the various existing models. Table 2.8 compares the core values and principles of the two most popular business excellence models (Baldrige Criteria for Performance Excellence and EFQM Excellence Model).

Table 2.8 Key principles of the EFQM and the Baldrige Business Excellence Model

EFQM Business Excellence Model (EFQM model)	**Baldrige Business Excellence Model** (MBNQA model)
Creating a sustainable future	Visionary leadership
Adding value for customers	Customer-driven excellence
Developing Organisational capability	Organisational and personal learning
Managing with agility	Valuing workforce members and partners
Succeeding through the talent of people	Agility
Harnessing creativity and innovation	Focus on the future
Sustaining outstanding results	Managing for innovation
Leading with vision, inspiration and integrity	Management by fact
	Societal responsibility
	Focus on results and creating value
	Systems perspective

Sources: EFQM (2013)

Each business excellence model has its own set of criteria based on fundamental principles and core values, and these criteria are used to assess organizations in terms of their level of excellence. Also, organizations which score high when assessed against a business excellence model are considered to be a business excellence organization as they have values and principles of business excellence (Mann *et al.*, 2011a). Many countries around the world offer different levels of business excellence award based on an organization's business excellence score. Generally, organizations that score over 600 of 1000 points on the BEMs are

considered to be “world-class” and eligible for the most prestigious award (Mann and Grigg, 2004).

Mohammad *et al.*, (2011) indicated that EFQM Excellence Model applied in different countries covering two continents, Europe (e.g., Italy, Austria, Northern Ireland, Sweden, and Portugal) and Asia (e.g., India, Turkey, and United Arab Emirates). While, the Baldrige Excellence model used in countries on four continents, including Northern America (USA), Asia (Hong Kong, Indonesia, Philippines, Thailand, and Sri Lanka), Oceania (New Zealand), and Europe (Sweden). Moreover, many countries are also using their national model, which most of these models are based on the EFQM Excellence Model and/ or Baldrige Excellence Model. Although numerous organisations have participated in the business excellence award programmes, the primary purpose of using the business excellence should be embodied in improving the organisational performance rather than merely receiving the award (Dahlgaard-Park and Dahlgaard, 2007). According to Mohammad and Mann (2010), as of 2010, 86 countries are considered to have a Business Excellence Award, with a thought of directing their nation’s organisations “toward higher standards of business performance and better operational results”. Of these 86, 40 of these awards are based on the EFQM model in its entirety or an adapted version of it (Tickle *et al.*, 2016), 27 are based on the Baldrige Criteria for Performance Excellence in its entirety or a tailored version of it, 18 have their unique models and one utilises multiple models or the models used are unknown (Mann *et al*., 2011).

However, organizations are assessed based on their level of business excellence' deployment using the criteria of business excellence in term of how their organization managed and what results achieved. Figure 2.6 presents the enablers and results of the EFQM business excellence model. More than 59 percent of business excellence models around the globe and 80 percent in Europe are founded on the EFQM Excellence Model (Sternad and Schmid, 2019; Doeleman *et al*., 2014). Various researchers have found that the EFQM model is more universally applicable and can be implemented in organizations regardless of size or industry (Kassim *e al.*, 2019).

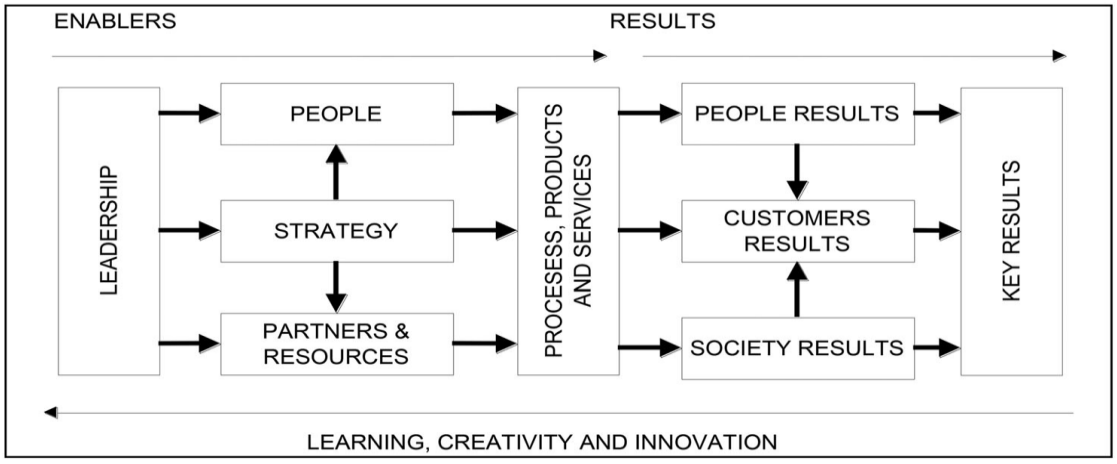


Figure 2.6 EFQM model

Source: EFQM (2010).

The EFQM Excellence Model was created in 1991 by the European Foundation for Quality Management (EFQM) as a framework to assess organizations for the European Quality Award that aims to develop an awareness of the significance of quality in the global market (Evans and Lindsay, 2005). EFQM brings together more than 700 members existing in many countries around the world (Bou-Llusar *et al.*, 2009). The objective of the EFQM model is to support organizations to achieve business excellence through continuous improvement and deployment of processes (Boulter *et al.*, 2013). This model based on the assumption that is improving operational processes leads to improvement and superiority of performance (Bagheri and Najmi, 2019; Heras-Saizarbitoria *et al.*, 2012; Doeleman *et al.*, 2014). The EFQM Model uses nine criteria covering enablers and results. The enabler criteria are concerned with what organizations should do and how to do it, and the results criteria are concerned with achievements gained by the organization relating to their customers, their employees, society and other key results with reference to general objectives. (EFQM, 2013). The meaning of each criterion is summarized in Table 2.9.

Table 2.9 The EFQM Excellence Model criteria

Criterion	Definition
Leadership	Excellent leaders develop and facilitate the achievement of the mission and vision. They develop organizational values and systems required for sustainable success and implement these via their actions and behaviours
Policy and strategy	Excellent organizations implement their mission and vision by developing a stakeholder focused strategy that takes account of the market and sector in which it operates. Policies, plans, objectives, and processes are developed and deployed to deliver strategy

People	Excellent organizations manage, develop, and release the full potential of their people at an individual, team-based, and organizational level. They promote fairness and equality and involve and empower their people
Partnerships and resources	Excellent organizations plan to manage external partnerships, suppliers and internal resources in order to support policy and strategy and the effective operation of processes
Processes	Excellent organizations design, manage and improve processes in order to fully satisfy, and generate increasing value for, customers and other stakeholders
Customer results	Excellent organizations comprehensively measure and achieve outstanding results with respect to their customers
People results	Excellent organisations comprehensively measure and achieve outstanding results with respect to their people
Society results	Excellent organizations comprehensively measure and achieve outstanding results with respect to society
Key performance results	Excellent organisations comprehensively measure and achieve outstanding results with respect to the key element of their policy and strategy

Source: EFQM (2013)

The model's important assumption is that excellent performance achieved through five enablers (leadership, people, process, partnership and resources, and policy and strategy). Based on the premise, the model divided into two parts (i.e., enabler and results). The five enablers include:

Leadership: The EFQM model highlights the role of top management in developing and delivering the future of the organizations, and setting values and general philosophy for the organization (EFQM, 2013). For example, leaders should be a role model of morals and principles and stimulating trust, and flexible to improve the continued success of their organizations (EFQM, 2013). Also, top management aims to adopt and implement the concept of "Excellence" by ensuring financial, moral, and personal support (Santos-Vijande and Alvarez-Gonzalez, 2007). Also, excellent organizations embed within their culture an ethical mindset, clear values and the highest standards for organizational behavior, all of which enable them to strive for economic, social and ecological sustainability' (EFQM, 2010a). Excellence in leadership facilitate the training the employees, ensures their competence and recognizes the employees' performance, as well as enhances the communication and participation of the whole workforce in organizations, besides, establishing a collaboration system with customers and suppliers (Sadeh *et al.*, 2013).

Strategy: demonstrate how the strategy and supporting policies are developed, reviewed, and updated, and how it involves stakeholders when developing a strategy to ensure economic, societal, and ecological sustainability. Moreover, excellent organizations implement their mission and vision by developing a stakeholder focused strategy that takes account of the market and sector in which it operates. Policies, plans, goals, and processes are developed and deployed to deliver strategy (EFQM, 2013). Also, strategy describes the way organization implements its vision and mission statements and how stakeholders participate in developing a strategy (EFQM, 2013). The organization should illustrate the use of right policies, processes, and objectives to achieve its strategy.

People: the proper selection, salary, and professional development of the workforce are necessary activities that involve setting up professional development plans (Fotopoulos and Psomas, 2010). Furthermore, the excellent organization must achieve the commitment and involvement of the whole workforce as well as empower them for their participation in decision making and improvement activities (Tutuncu and Kucukusta, 2007). Organizations should be able to build a suitable organizational culture that encourages the achievement of organizational and personal objectives. Excellent organizations manage and develop the competences of employees at the individual, team-based, and organizational level. They promote justice and fairness and involve and empower their people. Besides, it includes developing employees' knowledge and capabilities and aligning, involving, and motivating people; also, it promotes awareness regarding the environment and health, and safety (EFQM, 2013). The people enabler explains that organizations should be able to build a suitable organizational culture that enhances the achievement of the organization and personal objectives (EFQM, 2013). Organizations should manage, develop, and release the full potential of their people at an individual, team-based, and organizational level (Kassem *et al.*, 2019).

Partnership and resources: partnerships or other types of the organization's collaborations, as well as the economic-financial resources, infrastructures (i.e. Buildings, equipment, materials, and natural resource) and other intangible resources, such as technology, information and knowledge, must be administered in a sustainable manner (Yousefie *et al.*, 2011). Excellent organizations seek to manage external partnerships, suppliers, and internal resources to support policy and strategy and ensure processes effectiveness (EFQM, 2013).

Process: Excellent organizations design, manage and improve processes, products, and services in order to fully satisfy, and to add increasing value for clients and other stakeholders (EFQM, 2013). There is a need to design products and services based on customers' needs and maintain close contact with them, also and focus on team-working with as many employees (Gomez et al., 2017).

EFQM Excellence Model is a non-prescriptive framework which analyze the relationships between what organizations do and the results that it can attain. The model's principal target is to enhance the organizations' ability to achieving business excellence through continuous improvement, learning, innovation, and the deploying of the critical processes. Also, organizations must not recognize them as mere assessment tools (Farris *et al*., 2011). Therefore, EFQM is used in research to analyze a broad set of issues related to management and business results. However, to achieve excellent results, it is indispensable to consider all the business excellence' enablers as facilitating agents or critical factors to attain excellence results (Calvo-Mora *et al*., 2014).

Furthermore, these enablers do not act perfectly if they are implemented in an isolated manner. This model supports managers to identify the critical aspect to improve for achieving excellence and can used in any organization (EFQM, 2013). However, although a stream of research examined the underlying linkages in the EFQM Excellence Model, these researches reviewed do not fully capture the complexity of this framework (Bou-Llusar *et al*., 2005). However, only a few recent researches do not analyze each relationship separately, but most research evaluates the impact of factor "enabler excellence" and in performance in a holistic way (Kafetzopoiulo *et al.,* 2018).

In organizations, the EFQM model is widely used in different ways: 1. as a tool for self-assessment; 2. as a way to benchmark with other organizations; 3. a guide to identify areas for improvement; 4. as the basis for a common vocabulary and a way of thinking; and 4. as a structure for the organization's management system (EFQM, 2013). However, regardless whatever the way it used for, the EFQM has become an increasingly established and popular among European organisations as a diagnostic tool (George et al., 2003). In addition, since it's as general framework with high degree of flexibility, the EFQM has, over the past few years, extended its popularity beyond Europe, making its framework the basis of National Quality Awards in many countries worldwide (Sharma and Talwar, 2007) including Jordan

(Rawabdeh, 2008). This research adopts EFQM enablers as a guide to identify areas for improvement as well as intermediary variables to enhance the relationship between sustainable strategic alignment and performance.

The four results criteria of the EFQM model are customer results, people results, society results and business results. These resulting criteria cover both tangible and intangible performance (e.g. employees' capability, strong relationship with customers). Based on EFQM excellence model, organizations can assess performance based on tangible and intangible-oriented indicators, measure their performance periodically, and develop relevant enablers. Section 2.9.1 reviews the results criteria in more details.

2.7.3 Information Technology (IT), business excellence and organizational performance

The main aim of developing the EFQM excellence model was to reach out a representation of TQM theory which is implementable in almost all types of organisations. Quality management (later known as business excellence) has taken a great interest from researchers since the 1990s, however very little attention has been paid to the contribution of information systems (IS) and technology (IT) to quality management practices (named later business excellence enablers) (McAdam *et al.*, 2019; Sadeh *et al.*, 2013). Different countries and quality foundations have focused on the need to effectively use information systems in quality management in organisations (Tang and Duan, 2006). Information systems and IT supports organisations to share information with partners and reinforce the mutual trust between partners (Hemsworth *et al.*, 2008).

Consequently, Forza (1995a) developed a theory (i.e. IS-QM theory) on the role of information systems, including information flows and information technology (IT), within quality management (see Figure 2.7). The theory involves three concepts: (1) Quality management practices (later were become equal to business excellence enablers) (2) Quality information systems (includes information flows and ITs) (3) Quality performance (later known excellence results). In particular, ITs and information flows benefit the components of TQM (Business excellence enablers), Information flows include information transfer and feedback among several levels in an organisation (Zeng *et al.*, 2007) whereas IT includes the computer based information system (Sanchez-Rodriguez *et al.*, 2006). However, many organizational tasks in modern and complicated environment cannot be completed without supportive effect of IT and a lot of improvement procedures cannot be performed without necessary information and data.

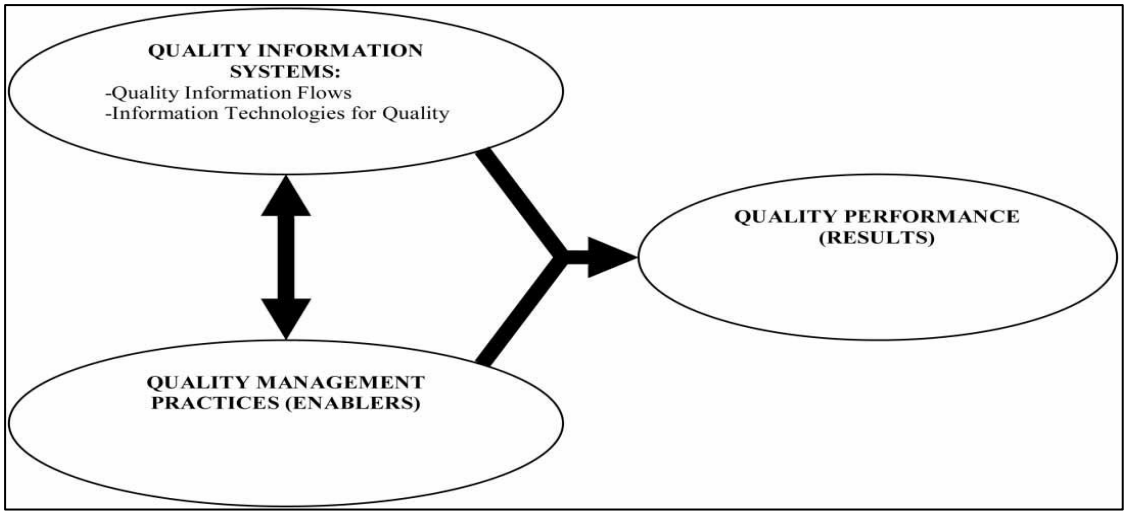


Figure 2.7 Framework of (IS-QM) theory

Source: Forza (1995a)

One of the most important current challenges of organisations is achieving organisational stability and seeking towards improvement and excellence. Researchers (e.g. Escrig-Tena *et al.*, 2019; Sadeh *et al.*, 2013; Rookhandeh and Ahmadi, 2016) argued that achieving organizational sustainability requires moving towards excellence and continuous improvement and achieving business excellence results in the survival and stability of organisations. One of the significant factors in achieving business excellence is applying information systems (IS) and information technology (IT) in organisations.

Some researchers studied the roles of information systems on excellence model. Rookhandeh and Ahmadi (2016) examined the relationship between applying IT and achieving business excellence in the state banks of the city of Marivan. The results showed that there is a significant and positive relationship between applying IT and achieving business excellence. For example, IT support achieving excellence in leadership since technologies such as (information database, decision support systems (DSS), control systems, organization's website, the organization's intranet, electronic data exchange) facilitates the planning process in organisations. Moreover, they argued that industries which had greater access to IT were more successful in implementing business excellence models. Therefore, they recommended that the organizations must give priority to using information technology in order to attain business excellence and stay ahead of the competition between organisations. Moreover, Sadeh *et al.* (2013) in their study on 228 Iranian manufacturing firms, they improved the EFQM excellence model through integrating the model with quality information systems. They investigated the relationships between the dimensions of information systems, including

information flows and information technology (IT), and the criteria of the EFQM model. Results indicated to the supportive effects of information flows and IT on different dimensions of the EFQM excellence model. They found that the dimensions of information systems (IT and information flows) benefit excellence criteria and in turn enhance the performance. In particular, information system had positive impacts on excellence in process, policy and strategy, partnership and resources, people. For example, the computer aided design (CAD) technologies which are necessary for process design to enhance the rapid response to customers' needs and achieves greater innovation. The role of the IT impact on business excellence is explained in details in the following section.

Sohn *et al.* (2007) in their study on the assessment of national funding on the Rand D programme of SMEs in Korea. They found that information systems had positive effects on the excellence in policy and strategy, people and processes. Likewise, Badri *et al.* (2006) in their study in the higher education institution in United Arab Emirates, they examined the causal relationships of between excellence criteria through the dimensions of MBNQA model, they also concluded that information systems has a positive effect on excellence in strategy and policy, people and processes. In addition, Flynn and Saladin (2001) tested the causal relationships of excellence dimensions in MBNQA model of the manufacturing firms in US. They found that information systems affects significantly on excellence in policy and strategy, people and processes. Meyer and Collier (2001) tested the causal relationships among the criteria of MBNQA model in American hospitals. Likewise, Wilson and Collier (2000) examined the assumptions of the theory and the relationship among the criteria of MBNQA model. They found that information systems criterion has positive influence on the excellence in strategy, people and processes. Dewhurst *et al.* (2003) in their study on 14 firms based in Spain, they tested the relationships between Information Technology (IT) and the TQM enablers. They found that Information Technology (IT) is an effective enabler in the TQM dimensions, where each of which will have an effect on company performance. In addition, the use of IT also has a direct impact on organizational performance. Ismail *et al*., (2015) in their study on 118 Malaysian higher education institutions using a questionnaire survey. They referred to the importance of information systems in EFQM excellence model improving the quality in higher education institutions within the model. Dimensions of information systems (IT and information flows) benefit excellence dimensions where it have positive effects on policy and strategy; and partnership and resources. However, information systems do not have positive effect on people and processes.

Despite of the supportive role of information systems in quality management and its effect on company performance, this construct has not been included in any quality management model (Sadeh *et al*., 2013, Ismail *et al*, 2015). The reason behind this gap probably occurs because quality models, such as EFQM, MBNQA was founded in early 1990s, when the contributory impact of information systems on quality management dimensions had not yet been investigated. Due to the competitive business environment, organizations have become in need to effective application of information systems in all business units. Researchers (for example, Sadeh *et al.*, 2013; Lobo *et al*., 2019) referred to the lack of an integrated framework in the current literature that illustrates the direct impact of the information systems on quality or business excellence enablers. In addition, regardless of the quality system, large organisations usually have a separate division, e.g. IT department or information system department, to support other departments in their tasks, thus, based on above discussion, aligning both IT and business department is supposed to be important to enhance the business excellence and in turn achieve superior performance results.

Limited researches had investigated in the supportive effects of information systems on some quality dimensions in an incomplete ways. Sadeh *et al.* (2013) stated that to achieve a successful application of the EFQM model, as a quality model, dimensions of the information systems should be recognised as the supportive mechanism and should be integrated with the model.

Regarding the relationship between business excellence and organizational performance, some scholars focus on the need for large organizations to integrate their IT with their business excellence practices in order to survive in their highly competitive business environments (Ismail *et al.*, 2015). Furthermore, some researchers argue that strategic alignment can yield positive influence for organizations if they consider IT as a strategic component, rather than a support tool for the organization's operations (Pollalis, 2003). For example, Bou-Llusar *et al.* (2009) in their study on 446 Spanish companies by means of a structured questionnaire studied the relationship between business excellence enablers (sometimes called dimensions) and organizational performance. They found a causal relationship between the business excellence enablers and performance results, where these enablers must be implemented together to have an effective influence on the performance results.

Some research present that business excellence enablers have a positive impact on the organization's performance results, although the specific role of the business excellence enablers is not analysed in a complete manner (Calvo-Mora *et al.*, 2014) in all of them. Calvo-Mora *et al.* (2014) reported that when organization seek to improve their key results (financial-economic results, and results which linked to innovation and technology or processes improvement) it is indispensable to focus on achieving excellence in leadership and management, partnership and resources, employees , process and improvement, policy and strategy toward a culture of excellence. In addition, different indicators are used to measure business excellence results. In particular, the strategic results (i.e. economic and financial results) or the operational results (e.g. Related to process performance, intellectual capital, and technology) are difficult to measure and link to the business excellence' enablers. This is because, in some situation, the subjective measures of results whose impacts are visible in the long term or those in which the external factors which may bear an influence have nothing to do with quality (Ooi *et al.*, 2012).

In particular, regarding the relationship between business excellence enablers and performance, Researchers (e.g. Prajogo, 2005) found that excellent organizations must design, manage and improve their processes to fulfil their customers' and other stakeholders' need and then improve its operational and economic results (Kaynak, 2003). In the same time, scholars concentrate on the need for organizations to integrate their IT with their business excellence to achieve competitive advantages and to therefore enhance organizational performance

2.8 Organisational performance

Since 1990s strategic alignment has been considered as a main concern of business community (Luftman, 2000), as it not only enhance the organizations' ability to obtain the advanced benefits from IT investment (Broadbent and Kitzis, 2005; Tallon, 2007) but also enhances the organizational performance. However, it is commonly agreed that there is no single measure of performance could entirely considered all aspects of performance (Snow and Hrebiniak, 1980). However, although organizational performance has been assessed through several measurement frameworks, there is no universal guideline concerning the appropriate choice to measure performance.

In general, researchers have used both 'hard' and 'soft' measures to assess organizational performance. 'Hard' performance measurement which is also called 'traditional performance

measures' are based on management accounting systems (i.e., financial outcomes such as return on assets (ROA), return on sales (ROS), market share, and other financial ratios). These 'objective' criteria include sales growth (Pearce *et al.*, 1987), return on assets (ROA), return on sales (ROS) (Pearce *et al.*, 1987), and stock price performance (Ansoff *et al.*, 1970). For example, profit measures such as ROA and ROS are ratios used to evaluate the organization's operational efficiency; growth measures such as sales growth describe how to open an organization to new markets (Brews and Tucci, 2004).

On the other hand, 'soft' measures of performance include process innovation, learning, and customer satisfaction (Subramanian and Nilakanta, 1996). While objective measurements depend upon profit and financial data, subjective measurements rely on managerial assessments. These 'subjective' measurements include respondent ranking in comparison to the organization's overall industry (Brews and Hunt, 1999), or respondent perceptions of their organization's existing profitability, quality and social reactions (Hart and Banbury, 1994). In particular, Chan *et al*. (1997) stated that strategic alignment was a better predictor of organizational performance when measured by using subjective measures like market growth, product-service innovation, profitability, and company reputation.

2.8.1 Performance measurement

Over the past decades, a rapid increase in global competition caused by technological change and product variety has uncovered the role of continuous performance improvement as a strategic and competitive requirement in numerous organizations around the world. These days, in order for organizations to maintain and improve their competitive advantages, performance measures are widely used to evaluate, control, and improve the business process (Ghalayini and Noble, 1996). However, recent researches found that traditional performance measures, based on management accounting systems, are inappropriate. Many limitations cited in the literature (Medori and Steeple, 2000). For example, Ghalayini and Nobel (1996) referred that the traditional performance measures are based on traditional cost management systems; use lagging metrics; are not incorporated into strategy; are difficult to implement in practice and tend to be inflexible and fragmented; contradict accepted continuous improvement thinking, and neglect customer requirements. They also identified some limitations related to traditional manufacturing management and its strong focuses on increasing productivity and profits, reducing cost which in turn diminish the interest to enhance quality, reliabilities and delivery, and establishing short lead time, flexible capacity and efficient capital deployment. In addition, lack of availability and reliability of financial or

accounting information, also they could be manipulated by owners and management (Miller, 1987). However, these measures are inflexible and fragmented and difficult to perform in practice, it contradicts with continuous improvement principles, and neglect customer requirements. Nevertheless, researchers cannot ignore the significance of the objective-secondary data due to their permit replication of the analysis.

As a result of the limitation off traditional performance measures the characteristics of emerging (non-traditional) performance measures have been discussed in the literature (Dixon, 1990). These characteristics are mainly related to company strategy and primarily based on non-financial measures. As a result, several integrated and multi-dimensional performance measurement systems have been developed since a revolution in performance measurement at the late 1980s (Ghalayini and Nobel, 1996).

The new performance measurement systems are classified into measures which emphasize self-assessments such as Deming prize (Japan and Asia), the Baldridge Award (USA), , the European Foundation for Quality Management Award using the EFQM Excellence Model (Europe); and measures which designed to help managers measure and improve business process, e.g. Capability Maturity Metrics (Crosby, 1979), the performance Pyramid (McNair et al., 1990), the Performance Prism (Neely et al., 2001) and the balanced scorecard framework (Kaplan and Norton, 1992).

Each of the Balanced Scorecard and the EFQM Excellence Model are comprehensive frameworks, and have received wide publicity and recently been adopted by many organizations worldwide (Medori and Steeple, 2000; Wongrassamee *et al.*, 2003). Those integrated performance models or frameworks have been a determined attempt to link performance metrics more closely to a firm's strategy and long term vision.

Research has presented a continuous debate on organisational performance measurements (Scherbaum *et al*., 2006). Organisational performance measures have been criticised for their limited perspective, where the majority of existing strategic alignment research focused on only a few subjective measures of organisational performance (Chan *et al.*, 2006). In addition, an apparent bias has been also criticized while assessing the impact of strategic alignment on financial indicators (Walters *et al*., 2013) such as sales growth and profitability (Croteau and Bergeron, 2001), and on the organisation's goals, satisfaction and perceived effectiveness (Chan and Reich, 2007).

Performance measurements are varying between one organisation and another. This is because those measurement systems are directly linked to organizations' strategies, since strategies generally being unique to each individual organization. There is, however, a common approach to performance measurement system design, which is using the non-financial performance measures. Significance interest has been given to the use of non-financial performance measures, which have originated due to some problems of using only financial measures in organizations, and the effects of global competition and world class manufacturing. A growing number of improvement models are available and there is a need to adopt an approach that will achieve the most return on investment.

Performance improvement is high on the agenda of many organizations around the world and with the increasing number of improvement models now available care has to be taken to adopt an approach that will produce the most attractive return on investment (Wongrassamee *et al.,* 2003). However, two widely known and well-publicized improvement models: Kaplan and Norton's Balanced Scorecard and the EFQM Excellence Model were evaluated to select the most suitable performance measurement model for this research. In addition, it is difficult to find a perfect match between a firm and a performance measurement framework and that future research should focus on how to implement strategic performance frameworks effectively in specific types of organization.

The balanced scorecard is one of the most popular of performance measurement frameworks; it was developed by Kaplan and Norton (1992). Balanced scorecard is a framework includes a set of financial and non-financial measures to help organizations in implementing its key success factors, in which an organization's mission and strategic objective can be translated into a set of performance measures. They argued that organizations usually relied on merely financial measures, which are insufficient to capture the overall success factors in organizations (Geanuracos and Meiklejohn, 1993). Thus, organizational performance should include strategic success factors. They have specified and integrated four perspectives of performance, which are: financial goals, internal business, customer perspective, innovation, and learning. The four perspectives of performance added strategic non-financial performance measures, which provide a more balanced view of the organisational performance. They argued that by adopting the four perspectives, all members in an organization will understand its strategic priorities and implement these priorities correctly. However, the balanced scorecard provides feedback on the internal processes and external outcomes for continuous improvement of the strategic performance of organizations.

Although this framework was accepted and has been used widely, research has shown several limitations. For example, Atkinson *et al.* (1997) referred that the Balanced Scorecard model was incomplete because it fails to adequately focus on the contributions that employees and suppliers make to support the organization achieve its goals, fail to highlight the role of the community in defining the environment within which the organization operates, it also fail in identify performance measures to evaluate stakeholders' contributions. Fitzgerald *et al.* (1991) stated that balanced scorecard measure does not capture many of the dimensions such as the competitiveness dimension, human resources, supplier performance, service quality, customer, environmental (Lingle and Schiemann, 1996). However, although it provides multiple measures and overcoming the limitations of single measures, but it does not adequately capture different dimensions of performance which in turn limit the overall comprehensiveness of the balanced scorecard. In addition, there is no obvious provision for very long-term measures and it needs further empirical validation.

The EFQM excellence model is a non-prescriptive framework that establishes nine criteria, which any organisation can use to assess the progress towards excellence. At present, EFQM excellence model is now the most widely used organisational framework in Europe (Calvo-Mora *et al*., 2015; Eskildsen and Dahlgaard, 2000) and has become the basis for the majority of national and regional Quality Awards such as King Abdullah II Award for Excellence (KAIIAE) in the country of Jordan (Rawabdeh, 2008). These nine criteria are divided between enablers and results as presented in Figure 2.9. The enabler criteria cover what an organisation does, and includes (leadership, people, policy strategy, partnership and resources, and processes). The results criteria cover what an organisation achieves, and includes (people results, customer results, society results and key performance results).

This framework measures the organisational performance in four criteria: people results, customer results, impact on society results and key business results. The previous performance management models have given a unique perspective on performance but it should be seen from multiple perspectives. Therefore the previous frameworks were not competent enough to address all areas of performance within an organisation. EFQM Excellence model is based on a holistic approach and involves multiple perspectives to assess the organisational performance more accurately. Furthermore, by including measures that reflect people, customer, society, and key performance results (i.e. economic and financial results, and non-economic results measures), this approach is considered to be more comprehensive than previous frameworks. This multi-dimensional framework reflects all of

the aspects of performance that can influence the performance of an organisation including each level of the organisation.

Customer results: Excellent organizations achieve and maintain outstanding results that meet or exceed customers' needs and expectations (EFQM, 2013). If companies want to achieve excellent customer results, they need to have positive results in two key areas. The first is related to customer perceptions, and is often referred to as customer satisfaction. The second is customer results criterion which involves setting internal performance indicators and measures. Companies should monitor those to be able to predict their influence on customer satisfaction and to assess the implementation process for customer-related strategies (Gómez *et al.,* 2016).

Employees results: Excellent organisations comprehensively measure and achieve outstanding results that meet or go beyond their employees' needs and expectations (EFQM, 2013). If companies want to achieve excellent employee results, they need to have positive results in two main areas. The first is related to employee perceptions and is usually referred to as employee satisfaction. Like customer results, employee results require internal performance indicators and measures, which must be monitored to assess their influence on employee satisfaction and examine the implementation of employee-related strategies (Gómez *et al.,* 2016).

Society results: Excellent organisations comprehensively measure and achieve outstanding results with respect to society. This area focuses on contribution to society in general and corporate social responsibility (CSR) in particular. These have become important issues in many countries. CSR is usually used to determine the effects of the company's business activities on society, and to highlight its environmental and social contributions. CSR tends to concentrate on the company's efforts to achieve environmental, economic and social sustainability (Jenkins, 2009). As a definition, CSR is the company's commitment to contribute to sustainable economic growth through establishing ways of working with public communities, ultimately to improve the quality of life (Gómez *et al.,* 2016).

Business results: Excellent organisations comprehensively measure and achieve outstanding results with respect to the key element of their policy and strategy. The traditional approach to measure organizational performance is based on a mixture of criteria such as the profitability of the company; quality of products may be measured at company, core process,

or departmental level (Bou-Llusar *et al.,* 2003). Business results are divided into financial and non-financial results. Organizations should consider both in different situations, depending on the nature of their business and their structure.

2.8.2 The measure of organisational performance in this research

Owing to the different limitations of existing performance measurement models as presented in the discussion earlier, and based on the discussion on EFQM excellence model which was explained in Business Excellence section, European Foundation for Quality Management (EFQM) has been selected, as it is suitable framework for measuring performance in public and private organisation because of its multidimensional view on measuring organisation performance. Despite the Balanced Scorecard (Marr and Schiuma, 2003) is considered as the most common framework, its limitations induced the researcher to avoid it, instead selecting the more holistic multiple dimensions performance framework i.e. European Foundation for Quality Management (EFQM), which provides a comprehensive approach enabling an organisation to consider all possible aspects of how it is operated, rather than just focusing on internal processes. The EFQM excellence model has been discussed further in the following chapter since this research will build on previous research to fill the literature gaps by measuring the level of alignment and linking it to multiple performance criteria (Chan and Reich, 2007). A survey questionnaire, built on EFQM - adopted from EFQM (2013), was used to measure the organisational performance in organizations in Jordan (Appendix B).

Several researchers such as Calvo-Mora *et al*. (2013), Irefin *et al*. (2011), Bou-Llusar *et al.* (2009) had analysed the main research's conducted by (e.g. Black and Porter (1996) or Samson and Terziovski (1999), on the relationship between soft and hard factors of TQM (which is later known business excellence enablers) and some measures of results. Therefore, based on their analysis, they found that there is an important difference regarding the measures of results applied such as customer satisfaction, return on investment, market share, employees' morale, productivity, quality output, financial solidity, profits, etc. the measures of the results are objective and subjective. In particular, objective measures such as those attained directly from the accounts. While the subjective measures, stemming from the managers' perceptions related to particular results. In general, the business excellence' effects measured by three types of results (Bou-Llusar *et al.,* 2009), quality results, operational results, and strategic results (i.e., economic-financial).

The EFQM excellence model offers an operative framework for effective excellence in a different type of organization. This is because it comprises general principles and core values which support the implementation of enablers and the results that we must expect from the business excellence model's correct implementation. Furthermore, it covers a series of oriented elements that organizations can use as a reference regarding the context in which they perform their activities and in concert with their needs (Yousefie *et al.*, 2011).

The enablers and results (criteria) that the model proposes to illustrate the indicative elements of the degree of progression that an organization pursues to achieve excellence. These criteria classified in five enablers (what organizations should do and how to do it) and the four remaining enablers concerned with achievements gained by the organization, relating to their customers, their employees, society and other key results (EFQM, 2013). The model's logic is that achieving excellent results directly related to the leadership capacity, the quality of strategy and policy, management of people, resources, and the processes.

Regarding the results, the EFQM model set that excellent organizations must measure the degree of effectiveness and efficiency, which achieved in several areas. These results cover performance both in economic and financial and operational terms, in addition, the perceptions and the influence that the organization has regarding its main stakeholders (people, customers, society or owners) as shown in Figure 2.2 (Calvo-Mora *et al.*, 2015).

Specifically, the key performance results in the EFQM Excellence Model are those that make it possible to obtain the strategic results and planned yield, as well as the operational results in different areas (Calvo-Mora *et al.*, 2013). More specifically, the strategic key results of the economic-financial type (sales volume, share or dividend prices, gross margins, share profits, profits before interests and taxes or operating margin), as well as those of a non-economic nature are analysed (market share, time of launching new products, success indices, process performance) which show the success achieved by the implementation of the strategy.

The key economic–financial indicators (treasury, depreciation, maintenance costs, credit qualification) and non-economic indicators (performance of processes, partners and suppliers, external resources and alliances, buildings, equipment and materials, technology, information, and knowledge) which the organization uses to measure its operational efficiency. The impact on key performance results has not been analyzed very much (Calvo-Mora *et al.*, 2015). However, in the presented research, we concentrate on the analysis of criterion 9, which refer to the key performance results.

2.8.3 Strategic alignment and organizational performance

An extensive research on alignment has been undertaken since the 1990s (Sabherwal et al., 2019). This section evaluates existing empirical evidence of the relationship between strategic IT-business alignment and performance. In particular, it criticizes current alignment perspective, characterization of alignment, measurement approach, performance indicators, the impact of alignment on performance in most influential research in alignment to justify the reasons behind reinvestigating such relationship.

Given the increasingly strategic importance of IT investment in organizations most researches that followed have focused on the alignment of IT strategy with business strategy and examined the performance impacts of the strategic alignment such as (Al-Adwan, 2014; Luftman *et al.*, 2017; Chan *et al.*, 1997; Weiss and Thorogood, 2011). Some empirical evidence has investigated the associations between strategic IT-business alignment and IT payoffs. Some researchers have concluded that strategic IT-business alignment is related to firm performance (Chan *et al.*, 1997; Cragg *et al.*, 2002), IT-business value (Sabherwal and Chan, 2001; Tallon, 2007), IS effectiveness (Chan *et al.*, 1997), and competitive advantage (Kearns and Lederer, 2001). Table 2.10 show that some literature supports a positive impact of alignment on organizational performance but also suggests a complicated relationship between the two constructs.

However, different observations have resulted from this critical evaluation of prior researches as summarised in Table 2.10. First, researches adopted different ways to conceptualize IT alignment, second, different measurement approach of alignment, and third, several ways to investigate its performance implications, and therefore, the literature has generated mixed findings over the last three decades.

Table 2.10 Influential studies that investigate the relationship between alignment and organizational performance

Author	**Alignment perspective**	**Particulars of Alignment**	**Measurement approach**	**Performance indicators**	**Impact of alignment on performance**
Sabherwal and Chan (2001)	Firm-level	The level of fit between business strategy and IS strategy	Moderation; matching	Self-reported, mix of absolute and relative to competitors: financial performance ROA; profit;	Significant and positive impact of alignment on all firms, except those under the defender strategy

				technology/innovation development; market share; revenue growth	
Croteau and Raymond (2004)	Firm-level	The fit between IT competencies and business competencies	Covariation	Self-reported data, relative to competitors: Growth: market share gains; sales growth; customer satisfaction ;Profitability: return on investment; satisfaction with return on investment; satisfaction with return on sales; net profit; financial liquidity	Significant and positive
Chan *et al* (1997)	Firm-level	The level of fit between business strategy and IS strategy	Moderation; matching	Market growth; financial performance; product-service innovation; firm reputation	Significant and positive impact of alignment on performance when the moderation approach is applied; nonsignificant when the matching approach is applied.
Oh and Pinsonneault (2007)	Process level	The level of fit or integration between IT and business strategy	Moderation	Profitability; Revenue; cost control	Significant and positive impact alignment on performance
Palmer and Markus (2000)	Firm-level	The correlation between business strategy and IT strategy	Matching	sales growth; sales per employee; stock turns; Profitability	Nonsignificant impact on alignment on performance
Tallon (2010)	Process level	The level of fit or integration	Moderation	Archival data, absolute data: Return on	Nonsignificant impact of alignment on

		between IT and business strategy		assets; Profit margin	performance if all small and large banks are considered; Nonsignificant impact for large Banks; Significant and positive impact for small banks
Yayla and Hu (2012)	Firm-level	The level of fit between IT strategy and business strategy	Direct measures	Net income, Return on investment (ROI); Financial performance	Significant positive impact of alignment on financial performance and ROI;
Schniederjans and Cao (2009)	The link between Organizational infrastructure and processes and IS infrastructure and processes	Direct measures	Customer satisfaction, Process performance, suppliers management, Non-financial measures	The link between Organizational infrastructure and processes and IS infrastructure and processes	Significant impact of alignment on business performance, moderated by Managers' tenure
Tallon and Pinsonneault (2011)	Process level	The extent of fit between IT and business strategy	Moderation	Return on assets; Net margin; Net income to assets ratio	Nonsignificant impact on performance
Weiss and Thorogood, (2011)	Process level	The link between Organizational infrastructure and processes and IS infrastructure and processes	Direct measures	Customer satisfaction, Process performance, suppliers management, Non-financial measures	Significant impact on business performance. also, Managers' tenure is found to moderate this relationship
Chan *et al*, 2006	Process level	The link between Organizational infrastructure and processes and IS infrastructure and processes	Direct measures	reputation, ROI student demand, student quality)	Significant and positive impact of alignment on firm performance. Significant and positive impact on performance in academic institution.
Wu *et al.* (2015)	Firm-level	The degree of congruence between	Degree symmetric Fit (adaptation	Self-reported data: Customer	Significant and positive

		realized business strategy and realized IT strategy	of Matching)	perspective (quality of products/services); customer satisfaction. Financial returns: ROI,ROA, ROE Operational excellence: productivity; customer service; production cycle time	
Tallon (2012)	Process level	The extent of fit between IT and business strategy	Profile deviation	Business process: supplier relations; production and operations; product and service enhancement; sales and marketing support;	Significant positive effect on IT business value for each business process
Gerow *et al.* (2014a)	Process level	The link between Organizational infrastructure and processes and IS infrastructure and processes	Direct measures	Return on sales; sales growth; ROI; Net profit; Financial liquidity	Significant and positive impact on performance
Tallon (2008)	Process level	The extent to which the firm's IT application portfolio converges with its business strategy	Moderation; profile deviation	Archival data, absolute: Return on assets; Net profit margin; Net income to assets ratio	Significant and positive of alignment on performance
Karahanna and Preston (2013)	Firm-level	The congruence between firm's IS strategy and business strategy	Direct measures	Self-reported, mix of absolute and relative to competitors: financial performance: Return on sales	Significant and positive of alignment on performance

Source: The Researcher

First, IT alignment conceptualized as a firm-level construct which captures the extent of fit or congruence between IT and business strategy. This construct is also known as strategic integration or intellectual alignment in prior literature (Henderson and Venkatraman, 1993; Gerow *et al.,* 2015). It also considers strategy as a holistic organizational level (i.e., organizational unit-level) phenomenon. Researches such as (Yayla and Hu 2012; Byrd *et al.,* 2006) used this conceptualization to investigate the alignment between IT and business strategy in organizations and between the IT and business strategy of market-facing organizational units (e.g., Chan *et al.,* 1997; McLaren *et al.,* 2011).

However, the literature has also used a process-level perspective to conceptualize IT alignment. This conceptualization captures the alignment between IT and the primary business processes that execute the business strategy (Tallon, 2007). It is similar to Henderson and Venkatraman's (1993) notion of operational integration as it focuses on the links between IT and business processes. Both operational integration and process-level IT alignment emphasize the internal coherence between business processes and the IT function. They are not the same, notably because operational integration – which is also referred to as operational alignment (Gerow *et al.,* 2015) – captures the link between IT infrastructure and business infrastructure in addition to the links between IT and business processes.

Second, IT alignment measured both directly and indirectly. Direct measurements of alignment are based on Likert-type measurement scales (Yayla and Hu, 2012; Gerow *et al.,* 2015). Regarding the indirect measurements, Venkatraman (1989) was the first who attempts to develop indirect measures of fit by proposing frameworks to operationalize the strategic fit using six fit approaches include: moderation, mediation, and profile deviation as criterion-specific approaches, and matching, covariation, and gestalts. Most of these perspectives have been used a lot by researchers to measure or assess alignment between IT and business (Cragg *et al.,* 2002; Tallon, 2008; Tallon and Pinsonneault, 2011). A moderation approach based on the interaction between IT and strategy variables, and a profile deviation score based on the absolute distance between actual alignment and an ideal alignment profile (Chan *et al.,* 1997; Coltman *et al.,* 2015). The matching approach focuses on whether IT and business strategy have a shared goal and can be used to generate a binary alignment score, in which case a firm is either aligned or misaligned (Palmer and Markus, 2000). On the other hand, profile deviation and moderation assess the extent of alignment. Profile deviation is calculated as the absolute distance from an ideal alignment profile, while a moderation score calculated by multiplying the scores of the IT and strategy variables (Sabherwal and Chan,

2001; Tallon, 2007). However, using multiple measures of fit in the same case of measures of IT and business strategy might lead to different or conflicting contradictory findings. For instance, Cragg *et al.* (2002) found a positive effect of alignment on business performance when using a moderation measure but then failed to reveal a complementary result when matching was used instead. Chan *et al*. (1997) report similar results. While, Tallon (2007) found that profile deviation and moderation-based measures of IT alignment at the process level yielded consistent results in terms of their ability to predict perceived IT business value across a range of primary processes.

Direct measure or sometimes called single measure is an alternative to indirect measures of alignment. Several characteristics of direct measure summarised as follows: 1) Direct measure is built upon separate (single-respondent single measurement) of strategy and IT. 2) using a measurement scales (Likert-type scales) to directly capture the respondent's perception of the state of alignment (Preston and Karahanna, 2009; Yayla and Hu, 2012; Gerow *et al*., 2015) between IT and business strategies in organization, and in terms of shared knowledge and understanding between business and IT executives as to the role of IT in the organization (Preston and Karahanna, 2009) 3. Considering Henderson and Venkatraman (1993) dimensions which include (intellectual, operational, cross-functional) in the SAM model during ascertain alignment. However, direct measures of alignment considered as a suitable and robust way for testing theories about the antecedents (Preston and Karahanna, 2009) and outcomes of alignment (Yayla and Hu, 2012). For example, Preston and Karahanna (2009) find that shared understanding about the role of IT in the organization affects IT alignment. Lastly, in terms of direct measures, Bradley *et al*. (2012) find that IT alignment has a positive and direct effect on firm agility, while Yayla and Hu (2012) and Gerow *et al*. (2014) find that greater alignment enhances firm performance. Third, the literature has used many different performance indicators to investigate the relationship between alignment and performance. past researches have used both self-reported and archival data to measure performance. Some of these researches investigate performance relative to competitors while others capture indicators of absolute performance.

Fourth, the literature has generated mixed findings. Although some researches adopted a firm-level conceptualization of IT alignment report a nonsignificant impact of alignment on performance most studies find a significant positive impact (Sabherwal *et al*., 2019; Yayla and Hu, 2012; Sabherwal and Chan, 2001; Oh and Pinsonneault, 2007; Gerow *et al.*, 2015; Luftman *et al.*, 2017). On the other hand, research adopting a process level conceptualization

is more inconsistent in its results of the impact of alignment on organizational performance. For instance, Tallon (2007) founds a significant impact of process-level IT alignment on performance, while Tallon and Pinsonneault (2011) found no significant impact. Also, in his study of the effects of alignment on the performance of firms in the banking industry, Tallon (2010) found no significant impact of process-level IT alignment on the performance of large banks.

In an early study, Sabherwal and Kirs (1994) reported that organizations pay a high amount of their budgets on developing IT capabilities that offer strategic advantages to organizations. They also investigated the alignment between organizations' critical success factors and their IT capabilities and found a positive impact of the alignment on performance. Likewise, Chan *et al.* (1997) investigated the alignment between strategic orientations of business units and existing portfolio of IS application and found that the strategic alignment has positive impacts on both innovation and market growth, and negative impacts on reputation and financial performance. Based on the firm typology provided by Miles and Snow (1978), Sabherwal and Chan (2001) identified an ideal IT strategy for each of the business strategies. They also found that strategic alignment has a positive impact on business performance. Also, they referred to the importance of processes by which alignment established in organizations needs to be better understood. Thus, the factors that affect strategic alignment were examined to have a better understanding of the process that causes the strategic alignment before examining its impact on organizational performance. Cragg *et al.* (2002) in their study on the impact of strategic alignment on the performance in a small firm, they found that firms with higher levels of alignment perform better than those with lower levels of alignment.

Tallon and Pinsonneault (2011) examined the relationship between alignment and organizational performance using agility as a mediator under conditions such as IT infrastructure flexibility and environmental volatility. They found a positive and significant relation between alignment and agility, and between agility and organizational performance; however, their study does not provide a direct effect on organizational performance. El-Mekawy *et al.* (2012) referred to the potential link between Business IT alignments with organizations, in their case study in two organizations, reported a clear impact of business-IT alignment on IT security components.

The literature has generated mixed findings on the relationship between strategic IT-business alignments on organizational performance, as reviewed in Table 1. Although some studies

found a non-significant impact of alignment on performance most studies find a significant positive impact (e.g., Tallon, 2012; Oh and Pinsonneault, 2007; Yayla and Hu, 2012; Gerow *et al.*, 2015; Wu *et al.*, 2015). For example, Tallon (2008) report a significant effect of IT alignment on performance, but Tallon and Pinsonnault (2011) find no significant impact. Also, Tallon (2010), in his research of the effects of alignment on the performance of firms in the banking industry, finds no significant impact of IT alignment on the performance of large banks.

A meta-analysis by Gerow *et al.* (2015) found that IT alignment positively linked to performance outcomes such as productivity, customer benefit, and financial performance. However, Gerow *et al.* (2015) call for additional research on the impact of alignment and performance outcomes since some of their conclusions based on a small number of empirical studies. This suggests that a greater understanding of how these conceptualizations differ and how they compare when explaining performance might help explain inconsistent results in IT alignment research.

Accordingly, researches indicated that findings from prior studies are inconsistent, as well as contradictions believed to be because to the inflexible alignment plan and investment in different types of IT that have prevented the organization's ability to change (Chan *et al.*, 2006). Therefore, the need for investigating the link between strategic alignment and organizational performance is realized, which has become one of the objectives of the research described in this research.

However, based on the mixed findings of the linkage between IT spending and organisational performance, some researchers in the MIS research considers strategic IT-business alignment as a construct which support organizations to enhance the positive effect of IT investment on organizational performance (e.g. Henderson and Venkatraman, 1993; Luftmanet al., 1993; Luftman and Brier, 1999; Luftman, 2000; Kearns and Lederer, 2001; Sabherwal and Chan, 2001;; Chan et al., 2006; Chan and Reich, 2007).

In summary, much research investigates the relationship between strategic alignment and subjective firm performance. Some of the results were found to be positive (e.g. Sabherwal and Kirs, 1994; Chan et al., 1997; Kearns and Lederer, 2000; Cragg et al., 2002; Kefi and Kalika, 2005; Byrd et al., 2006), while others showed mixed results (e.g., Bergeron et al., 2001; Sabherwal and Chan, 2001; Croteau and Bergeron, 2001; Bergeron *et al.*, 2004; Chan *et al.*, 2006). Furthermore, few kinds of research examine the relationship between strategic

alignment and objective accounting/market firm performance (e.g. Palmer and Markus, 2000). However, these mixed finding on the relationship between strategic alignment and performance need further examination in a different research context.

2.9 Research gap

First, extant studies have predominantly focused on the antecedents which contribute to the strategic alignment based on the end state perspective, whereas only a few studies have reported the antecedent factors of sustainable strategic IT-business alignment based on the process perspective. Therefore, this research evaluates the most influential antecedents of sustainable strategic alignment and investigates the impact of some selected antecedents which contributes in sustaining strategic alignment. However, very few factors were found to affect alignment over time (for details, see Section 2.7.1). This research seeks to address this gap by examining the impact of two of the most influential factors (i.e., shared domain knowledge, strategic IT flexibility) on sustaining strategic alignment.

Second, strategic alignment is difficult to attain if there is unpredictable nature of the world of business in the era of globalization (Chan and Reich ,2007b), which needs repeated changes in strategy to reflect changing conditions. In other words, strategic alignment can have difficulty in adjusting to new business environment when the business environment changes. Ward and Peppard (2002) stated that once a strategy is established and a strategy process founded, the strategy should become an evolving process and strategic plans should be modified regularly, based on environmental changes. However, conventional strategic alignment does not focus on such issues and treats strategic alignment as a static end-state, rather than a dynamic process. Most of the research considered strategic alignment as a static or end state. This means conventional strategic alignment can be difficult to achieve in practice and rapidly changing environments. Therefore, some scholars (Luftmn, 2004; Vessey and Ward, 2013; Baker *et al*., 2009) present the sustainable strategic alignment which considers strategic alignment as a dynamic process rather than a conventional static strategic alignment. This research tried to address this gap by conceptualizing IT-business alignment as a dynamic perspective rather than that static end state.

Third, the literature has generated mixed findings on the relationship between strategic IT-business alignments on organizational performance. Although some studies found a non-significant impact of alignment on performance, most studies find a significant positive impact (e.g., Yayla and Hu, 2012; Gerow *et al.*, 2015; Wu *et al.*, 2015). This research tried to

address this gap by investigating the impact of sustainable strategic on organizational performance.

Fourth, there is elusive link and mixed results on the direct relationship between strategic alignment and organizational performance which call for additional research into intermediate variables in which strategic alignment may influence organizational performance (e.,g. Chan and Reich, 2007; Tallon and Pinsonneault, 2011; Swahney and Nambisan, 2007). Scholars (e.g., Aladaileh, 2017; Sadeh *et al.,* 2013; Ismail *et al.,* 2015; Sánchez-Rodríguez, 2006) highlighted that business excellence enablers could be important mediators between IT and performance in which they achieve excellent results and therefore increase organizational performance; this research provides several relationships between excellence enablers (i.e., leadership, process, employees, partnership and resources, and policy and strategy) and organizational performance. This research tried to address this gap by investigates the mediating effect of business excellence enablers on the relationship between sustainable strategic alignment on organizational performance.

Fifth, regarding the gab in theory, there is lack of theory-based empirical research which highlights both the impact of the strategic alignment on organizational performance and the factors influencing it (Burn and Szeto, 2000; Kummer and Schmiedel, 2016). There is a comparative lack of researches that provide practical and actionable insights and guidelines to help practitioners achieve and sustain strategic alignment. In strategic management literature, the contingency theory was the most common foundation of strategic alignment researches, but do not provide abundantly, comprehensive theoretical explanations of the dynamic contexts and processes by which organizations achieve and sustain strategic alignment in changing environments (Baker *et al.,* 2011; Chan and Reich, 2007). Many strategic alignment researches (e.g. Levy and Powell, 2000) considered alignment as a static nature and criticised for lack of theoretical support to the issue of alignment, which are built on the theories, such as and contingency theory and resource-based views of the firm, which are static, giving rise to misalignment within dynamic contexts. However, these bases are not seen as providing comprehensive theoretical supports of the mechanisms and processes by which organizations develop and sustain strategic alignment (Chan and Reich, 2007). This research tried to address this gap by incorporating both Resource-based-view (RBV) Theory and dynamic capability theory (DCT) as abasis for the presented framework.

In recent years, Well-established theories such as the dynamic capabilities framework are considered as new, robust theoretical foundations for strategic alignment research to build on, particularly in dynamic contexts. This theory applied in sustainable strategic alignment literature and provide holistic theoretical support for sustainable strategic alignment research (e.g., Luftman *et al.*, 2017); Chen *et al.*, 2008; Baker *et al.*, 2009, 2011). This research adopts the RBV theory besides the dynamic perspective that can enhance the organizations' ability to achieve and sustain strategic alignment. Therefore, stronger theoretical support is necessary for the concept of strategic alignment, as well as to explain how it impacts organizational performance (Baker *et al.*, 2011).

Finally, regarding the connection between IT, business excellence and performance. Although of the supportive role of information systems in quality management and its effect on company performance, this construct has not been included in any quality management model (Sadeh *et al*., 2013, Ismail *et al*, 2015). The reason behind this gap probably occurs because quality models, such as EFQM, MBNQA was founded in the early 1990s, when the contributory impact of information systems on quality management dimensions had not investigated. Also, due to the competitive business environment, organizations have become in need to practical application of information systems in all business units. Researchers (for example, Sadeh *et al.*, 2013; Lobo *et al*., 2019) referred to the lack of an integrated framework in the current literature that illustrates the direct impact of the IS/ IT on quality or business excellence enablers. In addition, regardless of the quality system, large organisations usually have a separate division, e.g. IT department or information system department, to support other departments in their tasks, thus, based on above discussion, aligning both IT and business department is supposed to be important to enhance the business excellence and in turn achieve superior performance results. In addition, limited researches had investigated in the supportive effects of IS on some quality dimensions in an incomplete way. Sadeh *et al.* (2013) stated that to achieve a successful application of the EFQM model, as a quality model, dimensions of the information systems should be recognized as the supportive mechanism and should be integrated with the model.

2.10 Conclusion

The current chapter provided an overview of the areas on which this research study's proposed framework is based. It covered the area of sustainable strategic IT-business antecedent factors, concepts, models, and dimensions. The chapter also provided definitions and enablers of business excellence (namely process, leadership, employees, policy and strategy, and partnership and resources). Concerning the literature review, there is a need for studies on the inclusive relationship on strategic alignment and performance. In addition, this research established the role of business excellence enablers as fundamental mediators in the relationship between sustainable strategic alignment and performance. To address this gap, this research, therefore, aims to investigate the impact of antecedent factors on alignment, and the impact of sustainable strategic alignment on performance as mediated by business excellence enablers in Jordan.

Studies on business excellence enablers and the practical applications of these enablers discussed at some length. Empirical researchers have previously demonstrated how sustainable strategic alignment enhances performance. Then, the chapter progressed to discuss the business excellence enablers and its impact on performance in the Jordanian firms because, particularly in Jordan, there has been no adequate examination of the relationship between sustainable strategic alignment and performance.

Consistent with the literature reviewed within this chapter, the next chapter concentrates on developing the theoretical framework. It presents the construct measures for that research framework and states the study's related hypotheses.

CHAPTER 3: THEORETICAL FRAMEWORK

3.1 Introduction

In the previous chapter, a critical analysis of the relevant literature on sustainable strategic IT-business alignment was provided, highlighting several current gaps and identifying the gaps that the present research addresses. This chapter explains the development of the theoretical framework concerning sustainable strategic alignment and organizational performance through business excellence enablers by integrating Resource-based view (RBV) Theory and dynamic capability (DCT) Theory. This chapter is divided into four sections. Section 3.2 presents the derivation of the theoretical framework, Section 3.3 presents the theoretical framework, Section 3.4 presents the framework-related theories. Section 3.5 presents the hypotheses development. Finally, Section 3.6 illustrates conclusions.

3.2 Derivation of the Theoretical Framework

This section presents the derivation of the framework through the evaluation of the literature (Chapter 2), evaluation of existing models and frameworks (Section 2.6) and the formulation of the literature gap (Section 2.8). This section discusses the concepts and controversies around core aspects of strategic IT-business alignment-performance link and therefore, the derivation of testable hypotheses (Section 3.5). The presented Framework initially inspired by existing models and frameworks of IT-business alignment and supported by contributions of alignment research in the last three decades. Literature indicated that many organizations struggle to implement and sustain strategic IT-business alignment effectively on the long term (Peppard and Breu, 2003), since it meets the requirements of some aspects of IT-business alignment but present a significant insufficiency in others and this lead to fail in developing a strategic approach in considering alignment.

Strategic Alignment Maturity model SAMM by Luftaman *et al.* (2004) considered IT-business alignment as a dynamic and continuous process of activities within multiple dimensions, which jointly results in enhancing IT-business alignment. Past literature considered alignment as a single state with a more evaluative or summative approach, but SAMM has more formative and holistic construct of alignment that relates to a bundle of dimensions that together result in enhanced alignment. These dimensions were called as alignment maturity factors and classified as the following: 1. Communications; 2. Value Analytics; 3. IT Governance; 4. Partnership; 5. Dynamic IT Scope; and 6. Business and IT

Skills Development. Both IT and business functions can enhance the strategic alignment based on the strategic effect of each of these maturity factors along with a set of activities (management practices) for each factor in enhancing IT-business alignment. This research measured strategic IT-business alignment as a first-order construct based on indicators selected from the management practices embeds in SAMM model.

The argument behind selecting the strategic alignment model (SAMM) by Luftman (2004) as a foundation of the present research are, first, current IT-business alignment assessments are either remained at the theoretical conceptualization level and most of the researches cannot be generalized on different organizations (El-Masri *et al.,* 2015; Gutierrez *et al*., 2008). Different researches such as Hussin *et al. (*2002), Sabherwal and Chan (2001), Maes *et al.* (2000), Chan *et al.* (2006) attempted to asses IT-business alignment by considering some alignment related factors, but their assessments lacked practical implementation. On the other hand, the SAMM model is a practical model for analysing the maturity, (sometimes called sustainably), of IT-business alignment using management practices that embed in six maturity factors (governance, scope and architecture, partnership, communication, value, and skills). Theses factors cover different levels of maturity (initial, committed process, established focused, improved and optimized process) and each level has a combination of maturity factors with its related management practices (see Section 2.6.2). However, there is no doubt that SAMM model was primarily based on strategic alignment model (SAM) of Henderson and Venkatraman (1993) which is considered as a basis of alignment research and covers aspects of value creation which thereafter considered a supporting point for implementing SAMM model.

Second, researches such as (Gutierrez and Serrano, 2009; Khanfar and Zualkernan, 2010; Belfo and Sousa 2003; Luftman *et al*., 2017; Sledgianowski *et al*., 2006) investigated and validated Luftman's SAMM model as reliable pragmatic tool to improve alignment and until now still generating research interests (El-Masri *et al.,* 2015). Similarly, (Peppar *et al.,* 2014) referred that SAMM model is considered as a well-established model and a reliable model for assessing alignment (Gutierrez *et al*., 2009).

Researchers have a growing interest in strategic alignment to provide empirical evidence of its impact on enhancing organizations in the current competitive environment (Bergeron *et al.,* 2004; Sabherwal and Chan 2001). Different studies asserted that the concept of strategic

alignment anchored around central issues. Firstly, organizational performance relies on aligning both IT and business structures and capabilities to enhance the practical realization of strategic decisions within organizations (Sadeh *et al.*, 2013). Secondly, the process of adaptation in the changeable business environment, which enables strategic alignment to happen is more complicated than already past literature believed (Peppard and Breu 2003; Hirschheim and Sabherwal 2001). Third, strategic IT-business alignment is considered as a dynamic process, where both business and IT strategies can interact and affect each other interchangeably (Hung *et al.*, 2010; Chen *et al.*, 2010). Therefore, strategic IT-business alignment develops over time within adaptive, dynamic, and self-purposeful practices (Mithas *et al.*, 2011). Despite the importance of alignment as a process of dynamic capability, there is a still a mass need to demonstrate how to achieve, sustain or maintain the process of strategic IT-business alignment over time and its effect on performance. However, until now, there is little empirical researches have been conducted to investigate its antecedents and outcomes of sustainable strategic alignment (Tallon and Pinsonneault, 2011).

Regardless whether organizations achieve better strategic IT-business alignment via enhancing the communication, shared knowledge, plans between IT and executives (Reich and Benbasat, 2000); CEO commitment to IT, IT sophistication and external IT expertise (Hussin *et al.*, 2002); strategic orientation (Yalya and Hu 2012); these areas not necessarily ensure increased organizational performance. Thus, the elusive link and mixed findings regarding the relationships between sustainable strategic alignment antecedent factors, strategic alignment, and organizational performance call for more in-depth research into intermediate variables that convert strategic alignment into increased organizational performance (e.g. Yalya and Hu, 2012; Al-Adaileh, 2017; Tanriverdi, 2005; Tanriverdi and Venkatraman, 2005; Tallon and Pinsonneault, 2011; Celuch *et al.*, 2007; Mithas *et al.*, 2011). Therefore, based on highlighted gabs in chapter 2, this chapter focuses on some important intermediary (mediating) variables in bridging the gap between sustinable strategic IT-business alignment and organizational performance.

Rookhandeh and Ahmadi (2016) examined the relationship between applying IT and achieving business excellence in the state banks of the city of Marivan. The results showed that there is a significant and positive relationship between applying IT and achieving business excellence. They also argued that industries which had greater access to IT were more successful in implementing business excellence models. Therefore, they recommended

that organizations must develop their use of IT in administrative processes in order to develop business excellence.

Zegardy and Ismaili (2008) found that Iranian firms which had wide access to IT were more successful in achieving business excellence model and achieving higher rates in this model. Notwithstanding, Al-Faouri *et al*. (2009) found that there is a significant relationship between IT- business-related factors (i.e., senior executive support for IT, IT involvement in strategy development, IT understanding of the business, business/IT partnership, well prioritized IT projects, IT demonstrated leadership and strategic IT-business alignment enablement. The role of IT in attaining high levels of performance can be justified based on its contribution in making effective and informed decisions to support the vision and mission of the organization which impacts the strategic aims of the organization. Therefore, this contribution, call for a high level of alignment between IT applications and strategy from the one hand and the organizational corporate, business, and functional strategies which as one could argue is the foundation for acquisition and sustaining strategic competitive advantage which is not easily imitated by competitors.

The current changing business environment is forcing organizations to think about their organizational structures and processes to achieve business excellence and effectiveness (Bou-Llusar *et al.,* 2009). Qawasmeh *et al*. (2013) investigated the impact of organizational culture on business excellence; he confirmed a significant positive relationship between overall organizational culture and the level of business excellence which involve management excellence, managers' excellence, structure excellence, and strategy excellence.

The interrelationships between the sustainable strategic IT-business alignment and business excellence have not been investigated in a comprehensive manner, which in turn require more in-depth investigations of such relationship. We argue that most of the available studies tend to focus on the traditional concept of organizational performance, which better seen as a consequence of excellence. In particular, this research argues the use of several enablers of business excellence based on European Foundation for Quality Management (EFQM) model as a comprehensive measurement tool for the real added value of excellence in organizations because the added value cannot be achieved without considering the whole aspect of an organization including leadership people, policy and strategy, partnership and resources, and processes.

This will be, as this research argues, as a justified replacement of the partial view of certain aspect including performance, competitive advantage, strategic advantage that was the focus of the previous studies, suggesting that learnable and mature and sustainable organization might become more competence and yet distinctive by moving from the traditional performance to more excellence-led performance. Therefore, based on the above discussion and considering the lack of the research within this research particular context, this research developed a theoretical framework, which involves the impact of antecedent factors on sustainable strategic alignment, the impact of sustainable strategic alignment on performance through the mediation of business excellence enablers.

The purpose of this research is to develop a framework based on well-known models to investigate the impact of antecedent factors on sustainable strategic alignment, and the impact of sustainable strategic alignment on performance through the mediation of business excellence enablers. We believe that the existence of such sustainable strategic alignment framework allows for a better understanding of the nature and significance of implementing strategic alignment in theory and practice and its effect on the organizations in realizing the value of IT investment. The framework of sustainable strategic IT-business alignment and organizational performance presented in the next section and it is based on Strategic alignment Maturity Model SAMM , and EFQM model.

3.3 The framework of Strategic IT-business alignment and organizational performance via business excellence

The proposed theoretical framework establishes the relationship between sustainable strategic alignment antecedent factors (i.e., shared domain knowledge; strategic IT flexibility), strategic alignment, business excellence enablers (i.e., leadership, process, employees, partnership and resources, and policy and strategy), and organizational performance (see Figure 3.1). The model suggests that sustainable strategic alignment antecedent factors have a positive impact on sustainable strategic alignment. Moreover, the framework predicts that business excellence enablers enhance the effect of strategic alignment on organizational performance. More specifically, the framework examines the mediating effect of business excellence enablers on the relationship between sustainable strategic alignment and organizational performance. Finally, the model posits a positive relationship between business excellence enablers and organizational performance. Table 3.1 summaries the hypotheses developed in this research.

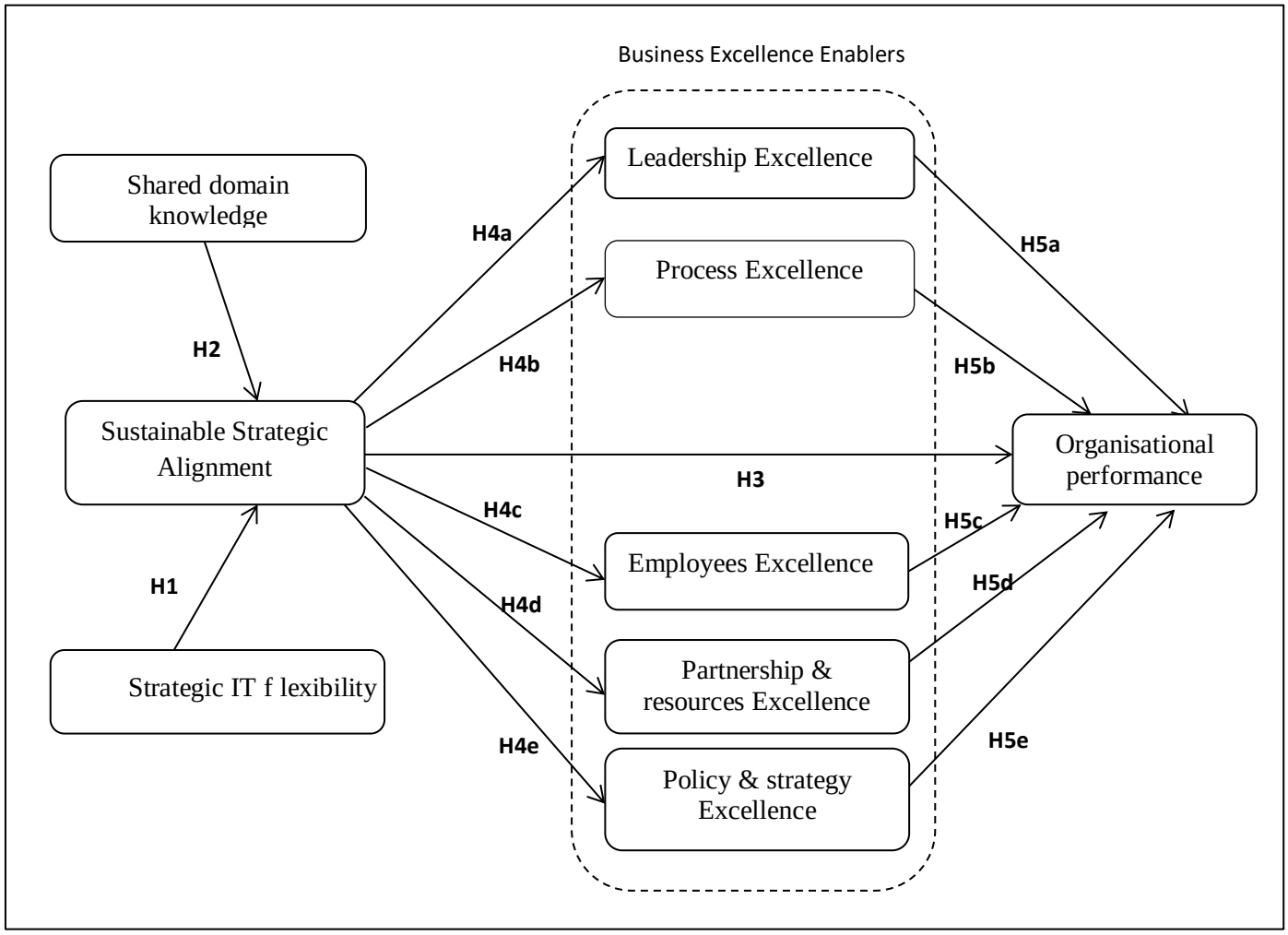


Figure 3.1 The framework of Strategic IT-business alignment and organizational performance via business excellence

Source: The Researcher

Table 3.1 List of the research hypotheses

No.	Hypothesis
H1	Strategic IT flexibility positively affects sustainable strategic alignment.
H2	The higher the shared knowledge between business and IT executives, the greater is the alignment geared towards sustainability.
H3	The extent of sustainable strategic alignment between IT and business strategy is positively related to organizational performance.
H4a	The organization that has a sustainable strategic alignment between IT and business strategies will leverage the leadership excellence
H4b	The organization that has a sustainable strategic alignment between IT and business will leverage the process excellence
H4c	The organization that has a sustainable strategic alignment between IT and business will leverage the employees' excellence

H4d	The organization that has a sustainable strategic alignment between IT and business will leverage the partnership and resources excellence
H4e	The organization that has a sustainable strategic alignment between IT and business will leverage the excellence Policy and strategy excellence
H5a	Leadership excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance
H5b	Processes excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance
H5c	Employees' excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance
H5d	Partnership and resources excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance
H5e	Policy and strategy excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance

Source: The Researcher

Based on the extensive literature review in chapter 2, the following table (Table 3.2) summarizes the constructs outlined above in the theoretical framework. However, the following subsections present hypotheses development.

Table 3.2 Definitions of the theoretical framework's constructs

Construct	Definition	Facets	References
Shared Domain Knowledge	"The ability of IT and business executives to understand, to participate within others input processes, and to respect the contributions and challenges of each other at a deep level (Reich and Benbasat, 2000, p. 86).	Business managers understand the work environment of IT, Business managers appreciate the accomplishments of IT, IT managers appreciate the accomplishments of the business functions, IT managers understand the work environment of business functions.	Chan *et al.* (2006); Reich and Benbasat, (2000); Baker *et al*. (2011)
Stratgic IT flexibility	"the ability to easily and readily diffuse or support a wide variety of hardware, software, technologies, data, core applications, skills and competencies, commitments, and values within the technical physical base and the human component of the existing IT infrastructure" Byrd and Turner (2000, p. 172)	Respond to changes in businesses, Customize an application to suit a specific business, React to new applications launched by competitors, Introduce new applications in response to changes in competitors' businesses	Tian *et al.* (2010); Tallon and Pinsonneault (2011

Sustainable strategic alignment	Sustainable strategic alignment as a continuously dynamic process can sustain an organization's performance over time and provide direction and flexibility to enable it to respond to new opportunities within dynamic business environment (Luftman and Zadeh, 2011).	Formal assessment and review of IT investments; Strategic business planning is done with IT participation; IT standards are performed across functional business units; IT understands the business environment; Business understands the IT environment; Organizational learning; using balanced metrics to measure the contributions of IT and business; Continuous improvement for IT and Business;	Masri *et al.*, 2015; Luftman *et al.*, 2017, Luftman, 2004
Leadership excellence	Excellent leaders develop and facilitate the achievement of the mission and vision. They develop organisational values and systems required for sustainable success and implement these via their actions and behaviours	Developing mission, vision, values; Developing, implementing; Interact with customers, partners and representatives of society; Reinforcing a culture of excellence with the organization's people	Sadeh *et al.* (2013), Calvo-Mora *et al.* (2005), Bou-Llusar *et al.* (2009), Sadeh *et al.* (2013), and Vijande and Gonzalez (2007).
Process excellence	Excellent organisations design, manage and improve processes in order to fully satisfy, and generate increasing value for, customers and other stakeholders	Processes are improved to generate optimum value for customers and stakeholders, Products and Services are developed based on customer needs and expectations; Products and Services are effectively produced and delivered to meet customer needs, Processes in organization are systematically designed and managed	Tickle *et al.* (2016), Sadeh *et al.*(2013, *Bou-Llusar et al. (2009), Vijande and Gonzalez (2007).*
Employees Excellence	Excellent organisations manage, develop and release the full potential of their people at an individual, team-based and organisational level. They promote fairness and equality and involve and empower their people	Employees resources are planned, managed and improved; Employee's competencies are developed and sustained; Employees are empowered in improvement activities; Effective communication with employees	Sadeh *et al.* (2013), Calvo-Mora *et al.* (2005), Bou-Llusar *et al.* (2009), Vijande and Gonzalez (2007).

Partnership and resources Excellence	Excellent organisations plan to manage external partnerships, suppliers and internal resources in order to support policy and strategy and the effective operation of processes	Internal and external partnerships are based on mutual trust and sustainable benefits, Finances resources are managed to secure sustained success, Managing assetsin a sustainable way, Improve operational efficiency by efficient use of technology	Mohammad *et al*. (2011), Bou-Llusar *et al.* (2009), Sadeh *et al.* (2013), Vijande and Gonzalez (2007).
Policy and strategy Excellence	Excellent organisations implement their mission and vision by developing a stakeholder focused strategy that takes account of the market and sector in which it operates. Policies, plans, objectives and processes are developed and deployed to deliver strategy	Considering present and future needs of stakeholders, Information from all organization's processes is analysed when strategy is defined, Policy and Strategy are developed, reviewed and updated, Policy and Strategy are deployed by a framework of key processes	Calvo-mora et al., (2014, 2015); Bou-Llusar *et al.* (2009), Sadeh *et al.* (2013), Vijande and Gonzalez (2007).
Organisational performance	key performance results in the EFQM Excellence Model are those that make it possible to obtain the strategic results and planned yield, as well as the operational results in different areas (Calvo-Mora *et al.*, 2012)	Key performance results: Economic–financial: market share, profit level; sales volume. Non-economic: productivity of processes, flexibility in business process, process efficiency; supplier management.	Calvo-mora *et al.*, (2014, 2015), Bou-Llusar *et al.* (2009), Sadeh *et al.* (2013), and Vijande and Gonzalez (2007).

Source: The Researcher

3.4 Theoretical foundations

The presented research based on two well-established theoretical perspectives to address the research questions, namely: Dynamic Capability Theory, Resource-based view Theory. The following subsections provide an overview of, and the rationale for, adopting these theoretical foundations.

3.4.1 Resource-Based View (RBV) theory

The resource-based view (RBV) is a basic theory for achieving a competitive advantage for an organization (Barney, 1991). The RBV was developed by Barney (1991) as a strategic tool to facilitate understanding of the source of a firm's competitive advantage. RBV founded on

three key concepts: firm resources, competitive advantage, and sustained competitive advantage. The essence of the theory is that IT can be a source of sustained competitive advantage, as long as IT enables the firm to create a resource that is of valuable, rare, inimitable and non-substitutable (VRIN) (Barney 1991). Rivard *et al.* (2006) indicated that firm asset impacted on firm performance based on in resource-based view theory. Furthermore, The RBV has been extensively applied in IS research to identify IT resources leading to improved organizational performance (Ravichandran and Lertwongsatien 2002). For example, Ravichandran and Lertwongsatien (2002) found the relationship between IS support for core competencies and firm performance through invested resources in developing IT system for operating in business. There are many studies use strategic IT alignment by linking many theories such as resource-based view, core competency, competitive advantage and organization performance. Most of studies link strategic IT alignment with firm performance (Oh and Pinsonneault, 2007; Leidner *et al*., 2010) while Kearn and Lederer (2003) and Chen *et al.,* (2010) link strategic IT alignment with competitive advantage. Park *et al*. (2017) applied the resource based view to conceptualize internal and external IT governance and suggested three alignment types between approaches to governance and evaluate their effect on organizational performance and found a hierarchy-based alignment structure supports the operational efficiency of firms.

A Resource-Based View classifies resources to physical capital (property, plant, and equipment; access to resources), human capital (experience, judgment, relationships of individual managers and workers), and organizational capital (organizational structure, planning processes, controlling and coordinating systems) (Barney, 1991). Competing firms possess resources and capability which are valuable and rare and difficult to imitate or substituted and considered a potential source of competitive advantage (Barney, 1991; Eisenhardt and Martin, 2000), where competencies are created by combining resources (Grant, 1991). However, the RBV is a static theory of the organization, and while it is suitable for researches in stable environments, it is limited in its applicability to dynamic environments (Wetering *et al.*, 2018; Wade and Hulland, 2004). Therefore, the dynamic Capabilities Framework developed as an extension to the traditional, static interpretation of the RBV Theory.

The resource-based theory (RBT) of an organization focuses on attaining the sustainable competitive advantage via firm resources and has been considered as a reliable framework to analyze the association between IT and competitive advantage (Melville *et al*., 2004).

Nonetheless, researches referred to some limitation of traditional resource-based view as it does not provide mechanisms to achieve sustainable competitive advantages and also has a static perspective in selection resources within an organization (Mahoney and Pandian, 1992; Makadok, 2001). Therefore, the dynamic capabilities theory appeared to converge the survival in competitive advantages within the new changing business environment (Ludwig *et al.,* 2011).

This research prediction of the positive impact of shared domain knowledge between IT and business managers on contributing to strategic is consistent with the reasoning of RBV theory. In alignment research, the RBV has been applied to explain that shared domain knowledge between business and IT managers helps achieve strategic alignment, improve the quality of project planning, enhance communication and coordination of strategic plans between IT and non-IT leaders, reduce problems with IT projects, and improve organizational performance (Chan *et al.,* 2006). The RBV has also been used to explain how the strategy of an organization impacts its productive interactions with other organizations (Alaceva and Rusu (2015).

This research prediction of the positive impact of Business Excellence on performance is consistent with the reasoning of RBV theory. "Tena *et al*. (2001) considered the Resource-based-view of the firm to offer a useful theoretical base to grasp the impacts of business excellence on performance. The key argument is that business excellence can contribute to the improvement of performance by supporting the development of assets that are 'specific, produce socially complex relationships are steeped in the history and culture of the company and generate tacit knowledge' (Tena *et al.,* 2001, p. 934). These matched to the conditions, which, regarding the resource-based view, allow a sustained competitive advantage (Barney, 1991). Das and Teng (2000) held a similar view noting that Business Excellence research reflects the RBV."

However, due to the limitations of RBV Theory, the Dynamic Capability (DCT) Theory was developed by Teece *et al.* (1997) as an extension of the RBV to understand how a firm creates and sustains a competitive advantage in dynamic and turbulence environments. The DCT has proven to be a valuable theory in IS (ElSawy and Pavlou, 2008).

3.4.2 Dynamic Capabilities Theory (DCT)

The perspective of dynamic capabilities has been repeatedly mentioned and applied in sustainable strategic alignment research. Teece *et al*. (1997 p. 516) first defined dynamic capabilities as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments." The idiom "dynamic" means that organizations must continually monitor and renew functional competencies to cope with rapidly changing competitive context, and the term 'capabilities' emphasize the importance of management in developing and maintaining those functional competencies. For instance, Baker *et al*. (2011) indicated that strategic alignment research can be viewed through the lens of the dynamic capabilities framework and proposed that the framework can be considered as a basis for future research in the field of strategic alignment. Similarly, Hiekkanen *et al.* (2012) assert the contribution of the dynamic capability perspective in IT-business alignment research, especially, in the current complex, technology, and strategic context. Researchers such as McCardle *et al.* (2019) and Chen *et al*. (2008) reported that dynamic capabilities perspective could help to understand the way organizations develop IT and align IT with business strategy in dynamic contexts. However, researchers argued that the perspective could support the strategic alignment research approach the alignment process with a dynamic rather than a mechanistic view.

Dynamic capability is an extension of the Resource-Based View of the firm and was developed partially in response to a limitation of the Resource-Based View (RBV) of the organization (Peteraf *et al.,* 2013). Dynamic capability theory focuses on the strength and competency of resource reconfiguration (Teece *et al.*, 1997), and is mainly concerned with processes by which organizations not only change their resources and routines but their products and services in order to survive in changing environments (Eisenhardt and Martin, 2000; Teece *et al.,* 1997). The Dynamic Capabilities Framework founded on the view that an organization can be described as a set of interrelated operational and administrative routines that develop according to performance feedback (Baker *et al.,* 2009).

Since the Resource-Based View overlooks that organization's capabilities can change and developed over time and surrounding circumstances (Teece *et al.,* 1997), the dynamic capabilities perspective was developed in response to this limitation of a Resource-Based View (Teece *et al.,* 1997; Wade and Hulland, 2004), which is about the various sets of resources and capabilities that organizations acquire (Wernerfelt, 1984; 1995). Unlike the RBV, a dynamic capabilities perspective focuses on adapting, integrating, and reconfiguring

skills, resources, and capabilities (Teece *et al.*, 1997). In particular, the perspective of dynamic capabilities focuses more on the significance of managerial capability in changing environments rather than on a firm's resources.

In the IS/IT field, a dynamic capabilities perspective is considered as a theoretical base for researchers to perform further researches. In earlier IS researches focused on the way that IT or IS impact and benefit organizational performance based on a relatively static view (Ravichandran and Lertwongsatien, 2002). In recent years, an increasing number of IS/IT research considered that IT capabilities can change and develop over time in response to the changes in the environment and organizational learning; and their effects on organizations also change accordingly (e.g., Baker *et al*., 2011, Wetering *et al.,* 2018; Chen *et al*., 2014; Fawcett *et al*., 2011). Researchers such as Kim *et al.* (2011); Chen *et al*. (2010) relied on dynamic capabilities perspective to comprehend how IT/IS capabilities affects positively on organizational financial. They considered IT capabilities as the potential to transform IT resources into business value in dynamic contexts. While, Fawcett *et al.* (2011) considered IT as an enabler of supply chain collaboration in a dynamic capabilities perspective, where applying apply dynamic capabilities perspective lead IT/IS the ability to be transformed into a dynamic capability which can assist in achieving superior organisational performance in changing environments.

This research is consistent with the reasoning of DCT Theory because this research considers strategic IT-business alignment as a process which encourages researchers and practitioners to assess the interactions of the IT department with the business as a whole to see how interactions and linkages between the two facilitate the co-evolution of IT strategy and business strategy (Luftman *et al*., 2017; Agarwal and Sambamurthy, 2002). Based on DCT, many researchers apply dynamic capabilities perspective on strategic alignment between businesses and IT (e.g., Wade and Hulland, 2004; Luftman *et al.,* 2015; Baker *et al.,* 2009; 2011). Dynamic capabilities enable an organization to adjust its IT strategy and resources to maintain and sustain competitive advantage (Baker *et al.,* 2009). Without such enduring dynamic capabilities, the competitive advantage could erode quickly. Therefore, proven organizational capabilities, potentially consist the capability of aligning IT strategy with business strategy, are valuable because competitive advantage can be built from them

In addition, this research prediction of the positive impact of strategic IT flexibility on contributing to strategic is consistent with the reasoning of TCE theory. Based on DCT, by

establishing IT flexibility in the firm, all technology components can communicate with all other components inside and outside of the organizational environment and share any data and applications across any technology component (Jorfi and Najjar, 2017). Therefore, the rapid response to desired changes will be possible in the firm; therefore, the strategic alignment will be increased. However, Dynamic capabilities theory (DCT) emerged as a leading framework in the process of value creation for organizations. Its key concept complements the premise of the Resource-Based View of the organization and is treated a significant theoretical and management framework in modern information systems research (Watering *et al.,* 2019).

The theory of dynamic capabilities which was defined by Teece *et al.* (1997) as a set of learned and dynamic processes and activities that enable a company to produce a particular outcome where the dynamic capabilities is a set of unique capabilities in organizations that are unlike ordinary capabilities and difficult to imitate. Leonard-Barton (1992) argued that dynamic capabilities as the organization's ability to integrate, establish, and reconfigure internal and external competences to cope as well as address the fast changes in business environments and address external pressure. Also, dynamic capabilities present the organization's capability to obtain innovative forms and new opportunities for competitive advantage within path dependencies and considering market positions and current orientations (Leonard-Barton, 1992, Teece *et al.,* 1997). Helfat *et al.* (2007) referred that dynamic capabilities mean the organization's ability to change its operations and improve resources, which similar to the notion of operational capabilities that concerned with operations stream in the organization.

3.5 Hypotheses development

The relationships set out in the theoretical framework are developed in four sections. The first section develops the relationships between some selected factors with sustainable strategic alignment (Shared Domain Knowledge and strategic IT flexibility). The second section presents the direct linkage between sustainable strategic alignment and organizational performance. The third section develops the proposed relationships between sustainable strategic alignment and business excellence enablers (leadership, process, employees, partnership and resources, and policy and strategy). The final section establishes the proposed mediating (intermediary) effects of the business excellence enablers on the relationship between sustainable strategic alignment and organizational performance.

3.5.1. Factors enhancing sustainable Strategic Alignment

This section provides several hypotheses related to the link between selected factors and *sustainable* strategic alignment (Shared Domain Knowledge and strategic IT flexibility).

3.5.1.1 Strategic IT flexibility

This research proposed that strategic IT flexibility is one of the dynamic capabilities to achieve sustainable strategic alignment based on the dynamic capabilities perspective. Strategic IT flexibility refers to the organization's capability to react to several IT demands, as well as, enable businesses to align with IT easily and instantly in order to survive in rapidly dynamic environments (Jorfi *et al.*, 2011; Tallon and Pinsonneault, 2011). Therefore IT infrastructure flexibility is considered as a strategic response capability (Tallon and Pinsonneault, 2011). Also, in line with Teece *et al.* (1997), Chung *et al.* (2003. p. 18) they confirm that if IT infrastructures desired to be able to facilitate organizational responses in the dynamic environments, the IT strategy must be tightly aligned with the organizational strategy. This close alignment means that IT infrastructures must also be flexible. A few researchers such as (Chung *et al*., 2003; Jorfi *et al.*, 2011; Tallon and Kraemer, 2003, Isal *et al.*, 2016; Tallon, 2007), studied the impact of IT infrastructure flexibility on strategic alignment. Tallon and Kraemer (2003) mentioned that both IT infrastructure flexibility and strategic alignment are vital to predict future business value. A few and fragmented researches conducted on this subject, and there is a need for more examination (Jorfi *et al.*, 2011). Therefore, this research proposes that:

H1. Strategic IT flexibility positively affects sustainable strategic alignment.

3.5.1.2 Shared domain knowledge between business and IT executives

Shared domain knowledge between the business and IT executive occurs when both managers are learning to understand each other, from each other. Maharaj and Brown (2015) defined shared domain knowledge as a mutual understanding and appreciation between IT and business managers for the IT and processes that impact their mutual performance. Since business and IT, executives are knowledgeable about the business and IT issues, they are more likely to develop shared understanding and vision and in turn improve the connection between business objectives and actions (Reich and Benbasat, 2000). Chan *et al*. (2006) demonstrated that qualified IT managers become more conscious of current and new business opportunities and are more likely to be consulted in the decision-making process and participating in developing the business strategy. Also, IT-knowledgeable business managers are likely to formulate business strategy in tandem with IT strategy and to engage more fully

in providing better support for IT and consequently improves alignment (Preston and Karahanna, 2009). Charoensuk *et al*. (2014) found that higher levels of shared knowledge between IT and business personnel meant increased IT performance and greater investment in IT.

In line with these arguments, Reich and Benbasat (2000, p. 86) defined shared domain knowledge as "the ability of IT and business executives, at a deep level, to understand and be able to participate in the other's key processes and to respect each other's unique contribution and challenges," to achieve short-term and long-term alignment. A lack of shared knowledge between business and IT is argued to be one of the main challenges to achieving alignment (Chan and Reich 2007). As explained in Chapter 2 (Section 2.5), Reich and Benbasat (2000) found that the four factors affected short-term alignment but only shared domain knowledge influenced long-term alignment. Likewise, some researchers such as Chan *et al*. (2006); Khan and Zedan, and Baker *et al.* (2011) argued that sharing mutual knowledge between business and IT executives not only enhances shared understanding, but also improves a common vision and therefore confirm that shared domain knowledge was an antecedent to long-term alignment. Most previous studies consider strategic alignment as a static nature rather than a process of dynamic capability. Therefore, the challenge for this research was to find out if shared domain knowledge is a factor that enhances the sustainable strategic alignment.

This research corresponds to the previous research (Reich and Benbasat, 2000; Chan *et al*., 2006; Baker and Jones, 2008, 2011) in the argument that shared knowledge is a factor enhances sustained strategic alignment. This type of shared knowledge must exist to achieve effective communication and connections between business and IT executives. When communication between IT and business executives created, and connections between IT and business planning established, they do not suddenly dissolve or evaporate (Schlosser *et al.*, 2015; Baker and Jones, 2008, p 18). Therefore, this research argues that these links between business and IT executives endure and become a dynamic capability that can be deployed for ongoing strategic planning. To investigate the impact shared domain knowledge on the sustainable strategic alignment in public organisations, and in line with dynamic capability theory, this research proposes that:

H2. The higher the shared knowledge between business and IT executives, the greater is the alignment geared towards sustainability.

3.5.2 Direct linkage between sustainable strategic alignment and organizational performance

Although of differences in approaches and conceptualizations of alignment, the empirical evidence indicates, with few exceptions, a significant and positive relationship between strategic alignment and organizational performance. Alignment has been reported to improve performance in general (Aladwan, 2014; Avison *et al.,* 2004; Sabherwal et al., 2019; Cragg *et al*., 2002; Parisi, 2013; Schwarz *et al.,* 2010; Bergeron *et al*., 2004; Chan *et al.*, 1997; Croteau *et al*., 2001; Kearns and Sabherwal 2007) and in critical areas such as market growth, financial performance, innovation, and reputation (Chan *et al*. 1997), growth and income (Croteau and Bergeron 2001), and cost control (Oh and Pinsonneault 2007). Charoensuk *et al.* (2014) considered organizational performance in terms of these non-financial aspects that IT's non-financial, which include, for example, improving work effectiveness, cost savings, competitiveness, and shortening customer waiting time. However, Tallon (2007) also that the alignment within the firm varies based on differences in strategic focus, and therefore, alignment is rarely the same in any two firms. Researchers (e.g., Tai *et al*., 2019; Chan and Reich, 2007; Tallon and Pinsonneault, 2011; Nambisan and Swahney, 2007) referred that there are elusive link and mixed results on the direct relationship between strategic alignment and organizational performance which call for additional research. Similarly, Santa *et al.* (2010) found that organizations seeking for improvements in operational performance through adoption of technological innovations need to align with operational strategies of the firm which is in the same line with (McCardle *et al.,* 2019). Impact of operational effectiveness and technological innovation effectiveness are linked directly and significantly to enhanced operational performance. The literature has generated mixed findings. Although some studies employing a firm-level conceptualization of IT alignment report a nonsignificant effect of alignment on performance, most studies find a significant positive effect (Sabherwal and Chan, 2001; Oh and Pinsonneault, 2007; Yayla and Hu, 2012; Gerow *et al.,* 2014a; Wu *et al.,* 2015). In contrast, research employing a process level conceptualization is more inconsistent in its findings of the effect of alignment on performance. For example, Tallon (2007) finds a significant effect of process-level IT alignment on performance, but Tallon and Pinsonneault (2011) find no significant effect. Also, in his study of the effects of alignment on the performance of firms in the banking industry, Tallon (2010) finds no significant effect of process-level IT alignment on the performance of large banks. Regardless of mixed finding in prior researches, the argument

remains, as previously noted in the literature, that strategic alignment is positively associated with firm performance. This suggests the following hypothesis:

H3. The extent of sustainable strategic alignment between IT and business strategy is positively related to organizational performance.

The previous sections provide several hypotheses on factors which could lead to sustainable strategic alignment and develops a further hypothesis on the impact of sustainable strategic alignment on organizational performance. The following section proceeds to investigate several impacts of intermediary variables on organizational performance.

3.5.3 The intermediary factors hypotheses

The elusive link and mixed results on the direct relationship between strategic alignment and organizational performance call for further research into intermediate variables in which sustainable strategic alignment may affect organizational performance. Researchers suggested that business excellence enablers could be critical mediators in increasing organizational performance. Therefore, this section provides several hypotheses related to the linkage between five intermediary variables and sustainable strategic alignment.

The theoretical framework incorporates a mediating effect of business excellence enablers (i.e., leadership, process, employees, strategy, partnership and resources) on the relationship between sustainable strategic alignment and organizational performance. In other words, the framework posits that business excellence supports and hence generates an efficient implementation of strategic alignment. More specifically, the ability of strategic alignment to increase organizational performance is affected by the level of business excellence. This line of reasoning is consistent with researches which link IT/IS with business excellence and organizational performance. However, the extant literature on such relationship is limited (Lobo *et al.*, 2019; McAdam *et al*., 2019). This research suggests that business excellence enablers provide a more holistic mechanism and in enhancing the relationship between strategic alignment and business performance.

Business excellence enablers include leadership excellence which concerns developing mission, vision, values, ethics and establishing an organizational system, and establishing a systematic approach to better exploit the tangible assets which are available in databases, library collections, or files. Also, policy and strategy excellence considers the present and future needs of stakeholders, developing and updating the strategy. In addition, employees

excellence considers managing employees' resources and competences. Moreover, partnership and resources focus on mutual trust with internal and external partnership and continuous improvement of assets towards provide benefits for the organization and its strategic aims. Finally, process excellence focuses on improving processes based on exploiting the opportunities and meet the needs (Bou-Llusar *et al.*, 2009). Hence, business excellence plays a vital part in enhancing performance in organizations. In addition, by coupling with strategic alignment, business excellence can lead to increased organizational performance.

Furthermore, the role of IT in business excellence in organizations becomes a focal point, because technologies, for example, intranet, groupware systems enhance the leaders' ability to communicate with their employees, while computer-aided design (CAD) uses in designing process based on customers' needs (Sadeh *et al.*, 2013). Moreover, most organizations emphasized that enablers of business excellence are available within the organization, but finding and leveraging such dimensions is problematic (Bou-Llusar *et al.*, 2009). As such, Mann *et al*., (2011) defined business excellence as a concept which measures how good the organization is, and by which means it can improve its current position to cope with the competitive environment and help compete with others.

Further, Sadeh *et al.* (2013), who identified the role of IT in supporting business excellence, in their study on 228 Iranian manufacturing firms, they improved the EFQM excellence model through integrating the model and quality information systems (see Figure 3.2). They investigated the relationships between the dimensions of information systems, including information flows and information technology (IT), and the criteria of the EFQM model. Results indicated to the supportive effects of information flows and IT on different dimensions of the EFQM model. In other words, this study showed that dimensions of information systems (IT and information flows) benefit the dimensions of excellence. In particular, leadership had positive impacts on information systems; information system had positive impacts on policy and strategy, partnership and resources, people, and processes. However, studying such relationships creates valuable information for managers to be benefited from information systems in their excellence management program. Although of the supportive role of information systems in quality management and excellence, this concept has not been included well in business excellence model.

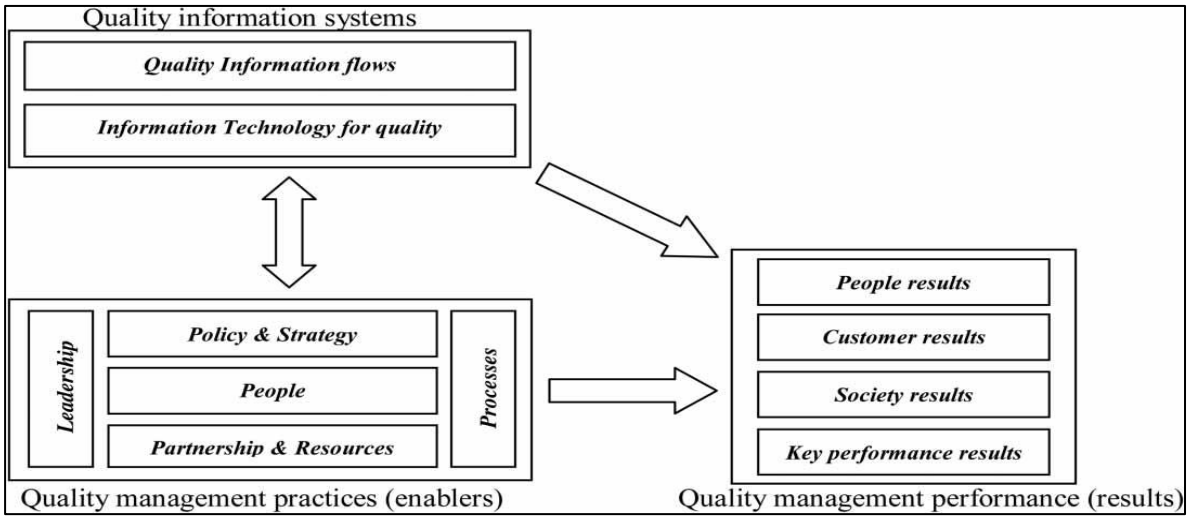


Figure 3.2 Integrating the EFQM model and quality information systems

Source: Sadeh *et al.* (2013)

Okland and Tanner (2008) argued that organizations that implement business excellence for achieving higher performance need to focus on excellence enablers. Hence, the role of IT is one of enhancing and sharing excellence, and notably promoting effective re-use of business excellence aspects. Rookhandeh and Ahmadi (2016) examined the relationship between applying IT and achieving business excellence in the state banks of the city of Marivan. The results indicated that there is a significant and positive relationship between applying IT and achieving business excellence. Moreover, they argued that industries which had greater access to IT were more successful in implementing business excellence models. Therefore, they recommended that organizations must give priority to using information technology in order to attain business excellence and stay ahead of the competition between organizations.

Given the causal link between business excellence and organizational performance (Bou-Llusar *et al.*, 2009; Calvo-Mora *et al.*, 2005), researchers have argued for examining the intermediary role performed by business excellence between IT-strategic management and organizational performance based on some indication from few researchers (e.g., Al-Adaileh, 2017). Business excellence contributes to an organization's performance by improving process efficiency and enhancing product quality, productivity, market share (Bou-Llusar *et al.*, 2009), also contributes to organizations outperforming competition and the achievement of competitive advantage (Vijande and Gonzalez, 2007). Yet there is a research void concerning the relationship between IT, business excellence, and organizational performance.

Tanriverdi (2005) empirically tested the impact of IT relatedness (including IT infrastructure, IT strategy-making processes, IT vendor management processes, and IT-human resources management processes) on organizational performance. IT infrastructure components include hardware, software, and communications technologies which are applicable across most industries. Once researchers focused on the importance of strategic alignment for enhancing the organizational performance (Henderson and Venkatraman, 1993; Luftman, 2004; Vessey and Ward, 2013), then corresponding business strategies are necessitated corresponding to IT strategies, therefore, using a common IT strategy-making process provides a strategic direction for the IT decisions on the business departments(Tanriverdi, 2006). In addition, the common IT strategy-making process employs procedures that reflect the experience within organizations regarding IT strategic issues such as alignment between IT and business strategies. Also, IT-human resources management processes could be carried out cross-business departments when IT staff understand the needs, goals, share common values, which result in synergies within the organizations (Tanriverdi, 2005).

Sadeh *et al.* (2013) tested 228 Iranian manufacturing firms using a structured questionnaire. They found supportive effects of dimensions of information systems on business excellence, which itself enhanced the organizational performance. Therefore, it is shown that dimensions of information systems, (including information flows and information technology); had significant indirect effects on organizational performance through the mediation of business excellence enablers. Hence, it can be seen that organizations that incorporate IT and IS into their IT strategies are more likely to increase their performance.

Researchers (for example, McAdam *et al.*, 2019; Sadeh *et al.*, 2013; Lobo *et al.*, 2019) referred to the lack of an integrated framework in the current literature that illustrates the direct impact of the information systems on quality or business excellence enablers. Also, regardless of the quality system, large organizations usually have a separate division, e.g., IT department or information system department, to support other departments in their tasks, thus, based on the above discussion, aligning both IT and business department is supposed to be essential to enhance the business excellence. Limited researches had investigated in the supportive effects of information systems on some quality dimensions in an incomplete way. Sadeh *et al.* (2013) stated that to achieve a successful application of the EFQM model, as a quality model, the dimensions of the information systems should be recognized as the supportive mechanism and should be integrated with the model. Ismail *et al.* 2015 emphasized that very little theoretical work occurs studying the relationships between IT,

business excellence, and organizational performance. The growing literature on the contribution of IT in firms suggests that there is limited researches had investigated the supportive effects of information systems and IT on excellence enablers and were performed in incomplete ways (Sadeh *et al.,* 2013). Therefore, the current research proposes several relationships (i.e., H4a-H4e).

Some researchers also argued that an organization that adopts business excellence principles could produce a sustainable competitive advantage and improve organizational performance. For example, Calvo-Mora *et al.* (2015) in their study on 116 private Spanish firms cover various sectors (e.g. services, manufacturing industry, consultancy firms, education, transport, chemical companies, information technologies, energy, and mines). They found that business excellence enablers that correspond to TQM factors (management and human resources, strategic management of partnerships and resources and processes management) build a management system that has a significant effect on key performance results. Moreover, (Fotopoulos and Psomas, 2010) in their study in 370 Greek organizations , found that factors (i.e., quality practices of the top management, employee involvement in the quality management system, customer focus, process and data quality management and quality tools and techniques implementation) significantly influence the organizations' performance regarding their internal activities, customers, market share and the natural and social environment.

Moreover, some researchers (e.g., Calvo-Mora *et al.*, 2013; Sadeh *et al.*, 2013) contend that very little theoretical work undertaken regarding the relationships between business excellence enablers and organizational performance. Therefore, the current research argues that for organizations seeking strategic alignment between IT and business, business excellence enablers will help them to do so and consequently enhancing organizational performance. In particular, excellence in leadership will help them to (e.g., generate and communicate a strategic statement, ensuring of respectability and effectiveness of implemented structure and process management. Excellence in the process will help them (e.g., ensure that all activities are controlled, to the prescribed requirements). Employees' excellence will help them (e.g., match of recruited people with the organization’s values and needs). Excellence in partnership and resources will help them (e.g., allocation and use of financial resources reflecting and supporting strategic goals). Finally, policy and strategy will help to (e.g., use the internal and external data inputs to develop strategy and business. Therefore, the existences of business excellence enablers are proposed to be as intermediary

variables to enhance the relationship between strategic IT-business alignment and organizational performance. However, this has led to the final five hypotheses (i.e., H5a-H5e).

3.5.3.1 The mediating effect of leadership excellence

In strategic IT-business alignment, strategic business planning is done through shared participation from IT and business, common understanding of IT's and business' environments, business conducts a formal assessment and review of IT investments, There is a base for organizational learning through such as intranet, meetings, email (Luftman and Kempaiah 2008; Kappelman *et al*., 2013). The growing literature on the contribution of IT in firms suggests that there is limited researches had investigated the supportive effects of information systems and IT on excellence enablers and were performed in incomplete ways (Sadeh *et al.,* 2013). In a study of the role of IT in leadership, Dewhurst *et al. (*2003) stated that IT could be used to support the leadership role of senior management; to facilitate the dissemination of excellence values and principles; and manage information on quality, which in turn facilitates business excellence application and consequently promotes the benefits of excellence. This outcome was recently also observed by Victor *et al.* (2005) who found that IT enhance the leaders' ability to communicate with their employees the right vision and mission towards quality, moreover, employees can do their work virtually anywhere and anytime that IT allows. Rookhandeh and Ahmadi (2016) recommended the organizations to develop their using of IT in business departments. They stated that IT support achieving excellence in leadership since technologies such as (information database, control systems, organization's website, the organization's intranet, electronic data exchange) enhances the communication with partners or customers, and facilitate disseminating the mission and vision and the culture of excellence between different business departments in organizations. Moreover, IT provides top management with the adequate information needed and establishes robust databases for supporting the decisions of the organization and therefore achieves excellence in leadership. For example, IT allows managers to be familiar with decision support systems such as (DSS), data analysis techniques, and decision-making techniques. Also, it facilitates the planning process in organizations; managers can use computer-assisted planning systems CAPP, enterprise resource planning ERP, and software and technologies of human resource management. More recently, in what appears to be the first dedicated exanimation of strategic alignment and business excellence, Al-Adaileh, (2017) found that strategic alignment between IT and business (i.e., harmony between corporate strategy and IT

strategy, mutual understanding, common strategic planning, etc.) enhance the excellence in leadership. Leadership excellence involves developing mission, vision values, and ethics, ensuring that organizational system is developed, implemented and improved for sustainable success, interacting with customers, partners and representative of society, reinforcing a culture of excellence with the organization's people (Hamatteh *et al.,* 2003). Based on the positive impact of IT on leadership excellence, this research suggests that aligning IT and business strategies together will have a further positive impact on leadership excellence. However, due to limited empirical studies, and in line with (IS-QM) theory, this research proposes that:

H4a. The organization that has a sustainable strategic alignment between IT and business strategies will leverage leadership excellence.

In this research, it is also posited that leadership excellence is likely to strengthen the relationship between strategic IT-business alignment and organizational performance. Some researchers argued that an organization that has excellence in leadership can produce a sustainable competitive advantage and improve organizational performance. For example, For example, Calvo-Mora *et al.* (2014) stated that leadership management is a significant enabler presents a major impact on the overall performance of the organisation. It has a crucial role in promoting organizations towards continuous improvement which allows attaining better performance results. Likewise, Fotopoulos and Psomas (2010) consider leadership as the key driver of business excellence, which ensures establishing the strategic directions as well as building a system that facilitates a greater organisational result. In addition, different practices of leadership such as reinforcing a culture of excellence, employees training and their involvement in making decisions are fundamental in achieving improvement in the organisational results (Rahman and Bullock 2005; Gadenne and Sharma 2009). Dubey and Gunasekaran (2015) found that visionary leadership (i.e. Establish quality policies, objectives and to provide resources, problem-oriented training and to support improvement) has an effect on firm performance, which is also consistent with Taylor and Taylor 2013) who found that when managers share common beliefs about the future direction of their organization, ensure reviewing the performance measures, motivating employees toward change, all have significant impact on performance. Based on these arguments, this research posits that:

H5a. Leadership excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance in such a fashion that the positive effect of sustainable strategic IT-business alignment on organizational performance is stronger (i.e enhanced) when there is a higher level of excellence in leadership.

3.5.3.2 The mediating effect of process excellence

In strategic IT-business alignment, IT and business have a shared and continuous improvement practices; IT function react quickly to organization's changing business needs, effective programs to attract IT professionals with technical and business skills (Luftman and Kempaiah 2008; Kappelman *et al.,* 2013). All business departments have to be aligned to participate in the design process and work together to achieve a design that satisfies the needs of the customer, based on the technical, technological and cost constraints of the organization. Furthermore, researchers such as Rookhandeh and Ahmadi (2016) referred to the role of IT in developing process excellence, they recommended state banks to use updated information technologies to generate optimum value for customers and stakeholders such as bill exchange, inventory control systems, payroll systems, information database, accounting systems. Likewise, Sadeh *et al.,* (2013) proved the contributory effect of IT on processes, where IT enhance the organizations' ability in collecting data, monitoring and analyzing processes, and reporting improvements through several technologies. In other words, adopting IT tools process instead of the traditional techniques can decrease the error in operations, enhance data control (Wu and Gu, 2009). Thus, without performing measurement, evaluations, and data analysis based on IT, there is no continuous process improvement. For instance, computer-aided design (CAD) technologies are IT tools that are necessary for process design which enhance the rapid response to customers' needs and achieves greater innovation. Also, IT ensures the maintenance of machines via the use of automated systems which detect and diagnosis of errors (Sanchez-Rodriguez *et al*., 2006). The effective design and development process of new product and services requires information from several departments (production, marketing, and R&D) and therefore IT can help in effective and rapid transmission of the required information and provide alternatives solution. In addition, IT can increase the speed of processes and improve the level of quality of products (Dewhurst *et al*., 2003). The finding also corroborates with the first dedicated examination of strategic alignment and business excellence, Al-Adaileh, (2017) who found that strategic IT-business alignment enhances process excellence. However, based on the positive impact of IT on process excellence, this research suggests that aligning IT and business strategies together

will have a further positive impact on process excellence. However, due to limited empirical studies, this research proposes that:

H4b. The organization that has a sustainable strategic alignment between IT and business will leverage the process excellence

In this research, it also posited that process excellence is likely to strengthen the relationship between strategic IT-business alignment and organizational performance. This proposition is based on the fact that an organization that adopts excellence in leadership can produce a sustainable competitive advantage and improve organizational performance. Early studies showed that processes management and improvement is a vital factor of quality management systems (QMS) when considering its importance in a well-functioning QMS and its positive impact on key performance results (Flynn *et al.*, 1995; Saraph *et al.*, 1989; Black and Porter, 1996; Powell, 1995). Similarly, (Sadeh *et al.*, 2013) found that identifying, understanding and administering the interrelated processes as a system contributes in achieving the organization's effectiveness and efficiency in an efforts to achieve its aims. In this same, Calvo-Mora *et al*. (2013) stated that organizations work more effectively in achieving aims and attaining better results if all their related activities systematically developed, managed and improved through processes and thus had better performance than firms that did not. In addition, to compete between rivals in the markets, organizations must focus on preventing the mistakes and commits to manage the key processes in efforts to accomplish the customers' specifications to obtain excellent results (Murat *et al.*, 2004). In a study on the industrial sector, Fotopoulos and Psomas (2010) stated that processes management include developing a set of activities such as the monitoring and improvement all the design and manufacturing stages, the preventive maintenance of teams, the statistical control of processes, as well as the reduction of inspection or variability in the processes. Thus, these activities are positively related to productivity or economic efficiency (Wilson and Collier, 2000). Furthermore, Prajogo (2005) referred to the importance of managing processes in the services sector; processes management is related to service provision and the managing of the relationships with the customers. In addition, comparing the service provision with expectations is considered an important factor of customers to determine their satisfaction level. Excellence in processes implies managing the product design, control and continuous improvement, organizational services and processes that are developed based on customer needs and expectations and other stakeholders, the prevention of mistakes, the reduction of the cycle times and innovation (Sila and Ebrahimpour, 2003). Kaynak (2003) excellence in

processes has a direct impact on the economic-financial and operational results of any organizations. Based on these arguments, this research posits that:

H5b. Processes excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance in such a fashion that the positive effect of sustainable strategic IT-business alignment on organizational performance is stronger (enhanced) when there is a higher level of excellence in processes.

3.5.3.3 The mediating effect of employees' excellence

In strategic IT-business alignment, IT and business work together for enhancing an innovative entrepreneurial environment for employees, providing programs to attract IT professionals with technical and business experience, and also change readiness programs at the corporate level (Luftman and Kempaiah 2008; Kappelman *et al.,* 2013). People management has to be directed by the principles of training, motivating, empowerment of workers and teamwork, and good communication. Suitable plans of personnel recruitment and training need to be implemented and employees need the necessary skills to involve in the improvement process (Sanchez-Rodriguez *et al*., 2006). Furthermore, IT can support human resource practices to benefits organisations which include training, evaluation, and employee recognition (Sanchez-Rodriguez *et al*., 2006). It also facilitates teamwork and ensures effective communications among employees and top management (Dewhurst *et al*., 2003). For example, employees and job applicants can easily use the inventory systems to apply for the job online and track their status via the Internet and Intranet. Applicants can apply for the job online and track their status. Moreover, IT provides various training technologies over the web systems which are more useful than traditional tools (Sadeh *et al.,* 2013). Other common uses of IT in the area of people management is that managers can evaluate the performance of staff by using expert systems, and also provide a feedback to staff about their performance (Mejma *et al.,* 2005). IT contribute in reducing the number of supervisory layers, increases the span of control, helps organisations to deliver information to their employees and therefore gives employees a greater sense of control (Jabnoun and Sahraoui, 2004). These benefits of IT support employees to involved in improvement programme and organisational practices (Rookhandeh and Ahmadi, 2016). More recently, Al-Adaileh, (2017) found that strategic alignment between IT and business strategic alignment between IT and business enhance the excellence in process in term of ensuring the coordination between business departments, business support for the IT in the company). Based on the positive impact of IT on employees' excellence, this research suggests that

aligning IT and business strategies together will have further positive impact on employees' excellence. However, due to limited empirical studies, this research proposes that:

H4c. The organization that has a sustainable strategic alignment between IT and business will leverage the employees' excellence

In this research, it also posited that employees' excellence is likely to strengthen the relationship between strategic IT-business alignment and organizational performance. This proposition is based on the fact that an organization that seeks excellence in employees' can produce a sustainable competitive advantage and improve organizational performance. Employees' (people) management directly impacts the implementation of strategic organizational aims and operations (Bonavia and Marin-Garcia, 2011) in efforts to improve organizational efficiency (Psomas *et al*., 2018). Also, it also focuses on the development of human resources activities, developing an organizational culture that enhances innovation, and sustaining the competitive strategy of the organization and therefore improving organizational performance (Ali *et al.,* 2017). In term of the EFQM model, several human resource management policies fall under the people criterion for excellent organizations. In this regard, human resource practices should be considered when adopting a business excellence philosophy inside organizations (Martínez-Jurado *et al*., 2013). In the same vein, Matthies-Baraibar *et al.* (2014) reported that organizations which adopt EFQM model, should motivate or train their employees, and involve them in the improvement processes since the people criterion positively enhance the organizational performance. Dubey and Gunasegaram (2015) found that effective management of human resource practices such as (employees' participation in meetings and workshops, facilitating a Flexible work system and Effective communication, recognizing and motivating employees) is a positive and significant determinant to enhance organizational performance. In the same vein, Wiengarten *et al.* (2013), Dubey and Gunasekaran (2015), and Taylor and Taylor (2013) confirmed the positive impact of employees management in organizations in term of encouraging employee involvement, shared beliefs, shared assumptions. Based on these arguments, this research posits that:

H5c. Employees' excellence mediates the relationship between sustainable strategic IT-business alignment and organizational performance in such a fashion that the positive effect of sustainable strategic IT-business alignment on organizational performance is stronger (enhanced) when there is a higher level of excellence in employees.

3.5.3.4 The mediating effect of partnership and resources excellence

In strategic IT-business alignment, IT and business work together for enhancing an innovative entrepreneurial environment for employees, providing programs to attract IT professionals with technical and business experience, and also change readiness programs at the corporate level (Luftman and Kempaiah 2008; Kappelman *et al*., 2013). Excellent organizations seek to manage external partnerships, relationships with suppliers, and internal resources to support policy and strategy and ensure processes effectiveness (EFQM, 2013). Researchers reported the supportive impact of IT on partnership and resources. Sadeh *et al*. (2013) reported that organizations should support two-way communication with their suppliers by using IT tools. For example, electronic data (EDI) is used to place orders, provide product specifications, design details, as well as confirmation of invoices and paying for suppliers and also at IT helped in the process of supplier evaluation (Dewhurst *et al*., 2003). Likewise, using IT enable organizations to benefit from the inventory systems of their suppliers and also access their production scheduling systems (Sanchez-Rodriguez *et al*., 2006). Moreover, organizations can benefit from IT tools in managing their physical and financial resources, especially warehouse systems, and therefore take the right decision in their purchasing and shipment. IT tools such as the Internet facilitates the organization's ability to search for new sources of suppliers. IT supports organizations in sharing their information with their suppliers and increase the richness of information shared, and enhances the trust between buyers and suppliers (Hemsworth *et al.*, 2008). More recently, Al-Adaileh, (2017) found that strategic alignment between IT and strategic business alignment between IT and business enhance the structural excellence which includes the managing the relationships with of internal and external partnership and resources. Based on the positive impact of IT on partnership and resources excellence, this research suggests that aligning IT and business strategies together will have a further positive impact on partnership and resources excellence. However, due to limited empirical studies, this research proposes that:

H4d. The organization that has a sustainable strategic alignment between IT and business will leverage the partnership and resources excellence

In this research, it posited that excellence in partnership and resources is likely to strengthen the relationship between strategic IT-business alignment and organizational performance. Schroeder (2001), in an early study, identify that supplier quality management does significantly improve a company’s cost efficiency. Wiengarten *et al*. (2013) reported that cooperation with suppliers involves practices such as involving JIT deliveries and

involvement in product/process design improvements which influence positively on operational performance (e.g., market share, reducing production cycle time, and Customer delivery commitments met). Similarly, Dubey and Gunasekaran (2015) found that the relationship with partners and resources or commonly known as external and internal (i.e., resources) partners is found to be the strongest positive determinant of organizational performance in both financial (ROI, EBIDTA) and non-financial terms (quality of goods, overstocks, and defect control). Excellence in Partnership and Resources involves the extent to which an organization plans and manages its external partnerships and internal resources to develop long-term objectives in order to support its strategy and the efficient running of its processes., through practices such as ensure regular communication, evaluating progress and adapting with changing conditions. Also, Calvo-Mora *et al.* (2015) referred that managing external alliances includes managing economic resources, the buildings, equipment, and materials, information and knowledge) where these activities contribute in reinforcing excellence from the first stages of manufacturing products until delivering value for the end customers. These practices affect positively on key performance results (financial-economic, associated with innovation and technology or processes improvement). Based on these arguments, this research posits that:

H5d. Partnership and resources excellence mediates the relationship between sustainable strategic IT-business alignment and organizational performance in such a fashion that the positive effect of sustainable strategic IT-business alignment on organizational performance is stronger (enhanced) when there is a higher level of excellence in Partnership and resources.

3.5.3.5 The mediating effect of policy and strategy excellence

In strategic IT-business alignment, IT systems as enablers and drivers for business strategy, IT infrastructure are evolving with business, strategic planning is done with business and IT participation, IT function responds quickly to the organization's changing business needs (Luftman and Kempaiah 2008; Kappelman *et al.*, 2013). The excellent organization focuses on continuous developing, reviewing and updating of the strategy and its supporting policies since it articulates how the organization implements its vision and mission statements, and how it involves stakeholders when developing a strategy. Moreover, excellent organizations implement their mission and vision by developing a stakeholder focused strategy that takes account of the current market and sector (EFQM, 2013). Researchers reported the supportive impact of IT on the excellence of policy and strategy excellence. Ismail *et al.* (2015) organizations must establish appropriate policy and strategy where the information system has a crucial role in supporting such policy and strategy. Rookhandeh and Ahmadi (2016)

found that there is a direct, positive, and significant relationship between applying information technology in support decision making dimension and achieving organizational excellence. The role of IT in enhancing strategy and policy involves enhancing the managers' ability to deal with decision support systems such, and data analysis techniques and decision-making techniques of information technology in an efforts to formulate strategies and its related policies based on real, valid information. Besides, given a significant relationship between using information technology in strategic planning and achieving organisational excellence, it is suggested that organizations give priority to information technology. In particular, using computer-assisted planning systems CAPP, enterprise resource planning ERP, and software and technologies of human resource management can be used to achieve better planning in the organisation. Similarly, Zárraga-Rodríguez and Alvarez (2013) found that IT supports strategy and policy where organization employs IT in predicting possible outcomes of decisions before deciding through predicting indicator values as well as support for competitive and technology surveillance. IT enhance the excellence in strategy and policy through facilitating, sharing and exchanging information to automate the location of documents (Sohen *et al.,* 2007). Based on the positive impact of IT on partnership and resources excellence, this research suggests that aligning IT and business strategies together will have a further positive impact on strategy and policy excellence. However, due to limited empirical studies, this research proposes that:

H4e. The organization that has a sustainable strategic alignment between IT and business will leverage the excellence in partnership and resources excellence

In this research, it also posited that policy and strategy excellence is likely to strengthen the relationship between strategic IT-business alignment and organizational performance. Some researchers argued that an organization that has excellence in leadership could produce a sustainable competitive advantage and improve organizational performance. For example, Badri *et al*. (2006) found that strategic planning had a statistically significant causal impact on performance results. Policy and strategy which is also known “strategic planning” criterion examines the way the organization develops strategic objectives and action plans (i.e., strategy development process), how strategic objectives and action plans deployed (i.e., strategy deployment), and how progress is measured (i.e. performance projections) to keeping up with marketing changes and needs. Therefore achieve the superior organizational performance as reflected in stakeholder results, operational results, financial and market results, organizational effectiveness results, Governance, and social responsibility results. In

addition, Gorji and Siami (2011) found that policy, strategy in organizations involves developing a strategy and business plan based on internal and external data in the organization. Also, support strategic objectives and values by practical and acceptable policies and plans, and the allocation of required resources, which all have a meaningful relationship with hospital performance in term of (people results, performance results, society, customer results. Suareza *et al.* (2016) focused on the crucial role of policy and strategy dimension, or strategic planning in the success of excellence model systems. Organizations should be action-oriented to provide direction to management. Developing mission, vision, and business strategy should be consistence with stakeholder needs and expectations and the business environment in which the organization's activity performed. Besides, it is essential to establish a systematic approach for the monitoring and review of the strategy and the objectives to facilitate taking potential changes. All of these practices help in enhancing the results that the organization is strives to achieve in terms of customers, employees, society, and the key performance results of business (i.e., economic-financial, operational performance). Based on these arguments, this research posits that:

H5e. Policy and strategy excellence mediates the relationship between sustainable strategic IT-business alignment and organizational performance in such a fashion that the positive effect of sustainable strategic IT-business alignment on organizational performance is stronger (enhanced) when there is a higher level of excellence in policy and strategy

3.6 Conclusion

In this chapter, the research framework briefly presented the research hypotheses. This research justified the need to develop a theoretical framework of sustainable strategic alignment and performance using the mediation role business excellence. This chapter has drawn on RBV and dynamic capability theories to set the theoretical foundations for the proposed framework. The framework suggested a direct positive effect of antecedents' factors (shared domain knowledge between IT and business managers, and strategic IT flexibility) on strategic alignment. The framework posits a mediation effect of business excellence enablers on the relationship between strategic alignment and organizational performance which is also supported by the complement view of dynamic capability and RBV. Furthermore, strategic alignment was argued to have a direct positive effect on organizational performance. However, the methodological approach and procedures taken in this research described and justified in the following chapter.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

In the previous chapter, the theoretical framework with related hypotheses developed, representing the theory of this research. This chapter considers different research methodologies to identify the appropriate approach for the empirical analysis that should be adopted to test the theory developed in this research and achieve the overall aim of this thesis. However, identifying the suitable methodology requires an adequate understanding of the different research paradigms, approaches, strategies, and the methods available.

This chapter explains the methodology used to test the proposed framework. Section 4.2 begins with the discussion of the research's philosophical settings in social science and the rationale for adopting positivism. Section 4.3 highlights the research reasoning approaches and the rationale for following the deductive approach. Section 4.4 explains the cross-sectional and longitudinal research designs. Section 4.5 presents data collection methods. Section 4.6 discusses the research context. The chapter also presents the research target population in Section 4.7 and the sampling technique in Sections 4.8. The chapter discusses further the survey development and administration processes in Sections 4.10 and 4.11, respectively. Section 4.12 presents the measurement model. Section 4.13 presents data analysis techniques. Finally, the chapter ends by highlighting the ethical considerations that were considered through data collection and providing a summary in Sections 4.14 and 4.15, respectively.

4.2 Research paradigm

A research paradigm is a "set of interrelated assumptions about the social world which provides a philosophical and conceptual framework for the organized study of that world" (Filstead, 1979, p. 34). Therefore, the view of the world can be demonstrated from ontological, epistemological, and methodological assumptions (Saunders *et al.,* 2009). Ontology is concerned with the fundamental nature of reality and relations of being (Blaikie, 2010). In other words, what is the form and nature of reality, and what can be known about that reality? (Ponterotto, 2005), in addition, reflects the researcher's view in the understanding of the nature of reality (Saunders *et al.,* 2009). On the other hand, epistemology is concerned with the method of acquiring the reality or knowledge (Blumberg *et al.,* 2014). In other words, how the researcher might discover knowledge about the world and how they can know it (Ponterotto, 2005). Further, (Bryman and Bell, 2007, p.16) referred that "Epistemological issue concerns with the question of what or should be regarded as

acceptable knowledge in a discipline". Also, it reflects the researcher's view in understanding what comprises acceptable knowledge (Saunders *et al.*, 2015; Easterby-Smith *et al.*, 2008) and determine its sources and limits in the field of study (Eriksson and Kovalainen, 2008).

Indeed, the methodology involves how do we know the world or acquire knowledge of it? (Guba and Lincoln, 1994). However, as in other research fields, conducting MIS research is affected by research paradigms that guide the researcher in the philosophical assumptions about the inquiry and the selection of the appropriate method of data collection in the research (Denzin and Lincoln, 2000). Benton and Craib (2001) defined a paradigm as a framework of a shared scientific theory and shared common beliefs related to a particular scientific practice that is needful for science to come into existence.

The research paradigm considered as the philosophical positions and assumptions of a researcher which determine how research should be performed (Collis and Hussy, 2014). The two main philosophical positions (i.e. paradigms) in social science research that can guide a scientific investigation are interpretivism and positivism (Bryman and Bell, 2007). Adopting either of these two paradigms is argued to have a significant implication on the research approach and method selected for achieving the aim of a research study (Benton and Craib, 2001). The next section briefly presents the two paradigms, explains their underlying ontological and epistemological assumptions and provides the rationale for adopting the positivist paradigm to guide the current research.

4.2.1 Positivism vs interpretivism

Positivism, as presented in (Bryman and Bell, 2007, p.16), is "an epistemological position that advocates the application of the methods of the natural sciences to the study of social reality and beyond". Orlikowski and Baroudi (1991, p. 5) defined positivist studies as "premised on the existence of a priori fixed relationships within phenomena which are typically investigated with structured instrumentation". Table 4.1 presents the main features of Positivism paradigms. Positivism based on some basics. First, the purpose of positivism is to generate hypotheses that can be tested in a scientific and logical way (Bryman and Bell, 2007) based on the principle of deductivism. Second, positivism considers reality as an objective standpoint (value-free away) (Saunders *et al.*, 2009; Levin, 1988). Third, positivism may include aspects of both inductive and deductive approaches (Bryman and Bell, 2007). However, in the philosophy of social science, positivism is mainly linked with quantitative research. It frequently advocated that the positivist researcher will use a structured

methodology to produce replicability. Therefore, positivism emphasizes that a social phenomenon is measurable and linked with highly structured quantitative methods such as experiments and questionnaire surveys and based on the statistical analysis of quantitative research data (Collis and Hussy, 2014; Saunders *et al.,* 2009).

Table 4.1 The main features of the positivism and interpretivism paradigms

Positivistic paradigm	**Interpretivistic paradigm**
Most likely to produce quantitative data	Most likely to produce qualitative data
Employs large samples	Employs small samples
Focuses on hypotheses testing	Focuses on hypotheses and theory generation
Data is highly specific and precise	Data is rich and subjective
The location is artificial	The location is natural
Data reliability is high	Data reliability is low
Validity is low	Validity is high
Generalizes to population from sample	Generalizes from one setting to another

Source: Collis and Hussy (2009, P. 62)

On the other hand, interpretive studies assume that people create and associate their own subjective and intersubjective meanings when they interact with the world around them (Collis and Hussy, 2009). Interpretive researchers acknowledge the differences between subjects of the social and natural sciences, where studying them require the reliance on different logics of research to consider these differences (Blumberg *et al*., 2014; Bryman and Bell, 2007). Table 4.1 presents the main features of interpretivism paradigm. Interpretivist argues that statistical patterns or correlations are not understandable on their own and in turn need to uncover what meaning people give to the actions that lead to such patterns (Collis and Hussy, 2014). However, the interpretivists do not agree with the positivists in that research is value-free. Unlike the positivism, the process of developing knowledge and building theory begins with inducting ideas from observing and interpreting social constructions (Blumberg *et al.,* 2014). The interpretive approach is linked with un-structured qualitative methods, including participant observation studies, and in-depth-interviews (Saunders *et al*., 2009). As a result, interpretivism focuses more on understanding social phenomena by exploring the differences between people and objects of the natural sciences should be acknowledged and respected which requires social scientists to attain the subjective meaning of social actions (Saunders *et al*., 2009).

Further, Table 4.2 shows the assumptions of positivism and interpretivism paradigms based on ontological, epistemological assumptions as presented in Hudson and Ozanne (1988, P. 509).

Table 4.2 The assumptions of the positivist and interpretivist paradigm

Philosophical Assumption	Positivism	Interpretivism
Ontological Nature of reality	Objective, tangible single fragmentable divisible Deterministic reactive	Socially constructed Multiple holistic contextual Voluntaristic proactive
Nature of social beings **Axiological** Overriding goal	Explanation" via subsumption under general laws, prediction	"Understanding" based on Verstehen
Epistemological Knowledge generated	Nomothetic generated Time-free Context- independent	Idiographic Time-bound Context-dependent
View of causality Research relationship	Real cause exists Dualism, separation Privileged point of observation	Multiple, simultaneous shaping Interactive, cooperative No privileged point of observation

Source: Hudson and Ozanne (1988, P. 509)

The ontological assumption is considered to be a general theory about kinds of things or substances exists in the world, and is believed to be as one apart of a metaphysical system (Guba and Lincoln, 1988). It refers to a range of entities and relations recognized within a specific field of knowledge or scientific specialization (McCracken, 1988). Based on the ontological assumption, positivists argue that there is one true single social reality that exists independently of what humans perceive (Neuman, 2011), and thus it is identifiable and measurable through natural sciences principles (Bryman and Bell, 2015). The main aim of the positivistic investigation is to explain the reality by establishing systematic relationships of variables regarding a particular social reality and in turn, enables the prediction and control of that reality (Guba and Lincoln, 1988; Hudson and Ozanne, 1988).

On the other hand, interpretivists argue that there are multiple and constructed social realities rather than an externally singular reality (McCracken, 1988). Interpretivists refer that there are different meanings of reality (phenomenon) in the minds of participants based on a particular context (Ponterotto, 2005). The main aim of interpretive research is to grasp

behavior and reconstruct social reality (Guba and Lincoln, 1994). Therefore, it is fundamental for researchers to understand the shared meanings of the context in which it constructed.

The epistemological assumption is considered as a branch of philosophy that aims to discriminate true from false knowledge (Klein, 2004). Based on the epistemological assumption, positivists aims to identify time and context-free generalizations based on casual effects (Guba and Lincoln, 1994). Positivists believe that the researcher and the research participant are supposed to be independent of one another to avoid bias in studying the participant and phenomenon (Saunders *et al.,* 2015; Ponterotto, 2005) by focusing on a dualism and objectivism position (Guba and Lincoln, 1994).

On the other hand, interpretivist paradigm seeks to study a specific phenomenon in a specific time and context (Guba and Lincoln, 1994). Interpretivists focus on the transactional and subjectivist position as they argued that reality is socially and experientially constructed (Klein, 2004). Therefore, interpretive paradigm considers that researchers interact with the thing being researched, which is essential to observe the sophisticated experience of the participant (Saunders *et al.,* 2015).

4.2.2 The adoption of the positivism paradigm

The philosophical approach of a research method relies on its assumptions relating to the reasonable features of the world, including parts like the mind, matter, reason, and evidence for knowledge (Ponterotto, 2005). Therefore, the philosophical aspect of the research is critical for the process of investigation.

Section 4.2 reviewed the philosophical assumptions of the key schools of thought in social science: the positivist and interpretivist paradigms. The positivism paradigm was identified as the most suitable approach to guide the current research. Selecting positivism paradigm was fundamentally driven by the nature of the phenomenon being studied; also, it based on the researcher's ontological and epistemological assumptions.

The positivist paradigm is adopted as the research aims to explain and predict the impact of antecedent factors on sustainable strategic alignment. Moreover, the research seeks to examine the mediating impact of business excellence enablers (leadership, process, partnership and resources, employees and policy and strategy excellence) on the relationship between sustainable strategic alignment and organizational performance.

Based on ontological stance, the researcher, as a positivist, argues that the implementation of sustainable strategic IT-business alignment exists independently regardless of human awareness of its existence (Collis and Hussy, 2009); therefore, it is apprehendable, identifiable and measurable through the laws and principles of the natural sciences to predict the causal relationships between the variables defined in the theoretical framework. On the other hand, based on epistemological stance, the researcher argues that being separated from the participants in the current research will lead to reliable conclusions through reducing the bias that may appear directly from the participant and researcher's interactions as in the case of interpretivist approach (Collis and Hussey, 2014).

In the presented research, the positivist paradigm mainly adopted for various reasons. Firstly, in social science research, positivists claim objectivity, rationality, and the presence of a replicable term. With regards to the current research, these trends and features of positivists' research are essential to the main objectives that this thesis aims to achieve by assessing the managers' practice interventions. In this research, top managers' behaviors towards several sustainable strategic alignment antecedents are considered s (e.g. shared domain knowledge, and strategic IT flexibility), in terms of sustainable strategic alignment, business excellence enablers (Leadership excellence, process excellence, partnership and resources excellence, employees excellence, and policy and strategy excellence), and organizational performance; the researcher has reused a method applied by other researchers in different areas of the world, that meets the requirements of the term of replicable.

Research driven by the positivist position is a systematic and methodological process (Saunders *et al.*, 2009), which adopts various aspects such as rationality, prediction, objectivity, and control (Koch and Harrington, 1998). This appears to be proper for the current research, since this research seeks to assess several Jordanian senior managers' attitudes regarding the issue of sustainable strategic alignment, by conducting hypotheses testing which requires a quantitative technique to produce the data. Also, a large sample and different settings will be required to generalize the findings to all Jordanian organizations. This research needs to be systematic and based on a particular methodology to achieve its aim and objectives. Both terms of objectivity and control are fundamental in applying research for different reasons. To avoid prejudice by top business and IT senior managers on the area of sustainable strategic alignment, which based on their expectations; in order to have numerical data to be analyzed statistically without researcher interference; also to assess all participants by the same instrument and under the same conditions. Collis and Hussy

(2009), argues that epistemology depends on empirical results to help researchers to critically analyze the collected data (Guba and Lincoln, 1994).

Most of the scientific researches on the issue of strategic alignment adopted the positivist approach as the most suitable to apply. Several researchers (e.g., Gerow *et al.*, 2015; Chan and Reich, 2007) recommended this approach as it provides the chance to collect and measure numerical data. However, considering the aims of the current research, a positivist approach is considered to be more suitable. Besides, a positivist approach would provide an overall comparison of the results of this research with other past research. This would have been more difficult using the interpretative approach.

It seems that the positivist approach meets the aim and objectives of the current research, which performed in the country of Jordan for the first time. One of the most fundamental objectives is to create universal rules and policies to organize managers' orientations toward sustainable strategic alignment, business excellence enablers, which results in higher performance for public shareholding firms. This objective can be achieved using positivist inquiry. Neuman (2011) refers to the importance of the positivist approach in creating and building knowledge, which focuses on discovering universal laws by combining the parts of knowledge. For the purpose of creating such universal laws and rules, it is essential to collect a large amount of data from a representative sample, which has to represent Jordanian firms. Therefore, to achieve this purpose of creating universal laws and rules, it is essential to collect a large amount of data from a representative sample, which has to represent Jordanian public shareholding firms.

Based on the above arguments and taking into account the nature of the current research, the researcher believes that a positivist approach is the most suitable for this research. In particular, this research aims to investigate the antecedents factors that lead to sustainable strategic alignment, and to examine the relationships between sustainable strategic IT-business alignment and organizational performance through business excellence enablers, the researcher has adopted a positivist position as it enhances causal relationships among the variables in the theoretical framework of this research.

4.3 Research approaches (deductive vs. inductive)

After deciding the positivism as a suitable research paradigm to be adopted, the researcher seeks to choose the research approach to be used (Saunders *et al*., 2009). There are two main scientific approaches usually used by researchers to bridge the gap between assumptions and

conclusions (Bryman and Bell, 2007), namely the deductive approach and the inductive approach (Mantere and Ketokivi, 2013; Collis and Hussy, 2009). However, it is essential to select the most suitable research approach, as this will be in harmony with the data collection method, which in turn will have a direct impact on the findings of the research. Table 4.3 presents the key differences between the deductive and inductive reasoning approaches.

Table 4.3 The key differences between the deductive and inductive approaches

Deduction approach	Induction approach
Scientific principles	Gaining understanding of the meanings humans attach to events
Moving from theory to data	A close understanding of the research context
The need to explain causal relationships between variables	The collection of qualitative data
The collection of quantitative data	A more flexible structure to permit changes of research emphasis as the research progresses
The applications of controls to ensure validity of data	A realisation the researcher is part of the research process
The operationalisation of concepts to ensure clarity of definition	Less concern with the need to generalise
A highly structured approach	
Researcher independence of what is being researched	
The necessity to select samples of sufficient size in order to generalise conclusions	

Source: Saunders *et al*. (2009, p. 127)

4.3.1 The deductive approach

The deductive reasoning approach with its roots in the natural sciences was founded based on the contributions of deductive theory testing (Whewell, 1840; Popper, 1959), also, Hempel's (1965) formulation of the hypothetico-deductive method. In the deductive approach, a researcher begins with information known about specific phenomenon to develop the research hypotheses which will be subject to empirical examination during the research project (Bryman and Bell, 2015; Saunders *et al*., 2015). Based on the positivism paradigm, the researcher starts the scientific inquiry by developing a theory in the form of hypotheses that need to be verified using appropriate statistical analyses (Malhotra *et al.*, 2012 ;Collis and Hussy, 2009) which could lead to revise the theory (Bryman and Bell, 2015; Saunders *et al.*, 2015). However, the deductive research proceeds from the general to the specific (Collis and Hussy, 2009). The deductive approach includes a number of stages: (1) theory, (2)

hypothesis, (3) data collection, (4) findings, (5) hypotheses confirmed or rejected, and (6) revision of the theory. This approach presented in Figure 4.1. To sum up, the deductive approach is structured and searches for answers to the research questions, also, it is concerned with the generalization of the examined particulars and includes collecting data and developing a theory based on the data analysis (Blumberg *et al.,* 2014). This particular approach classified as quantitative research.

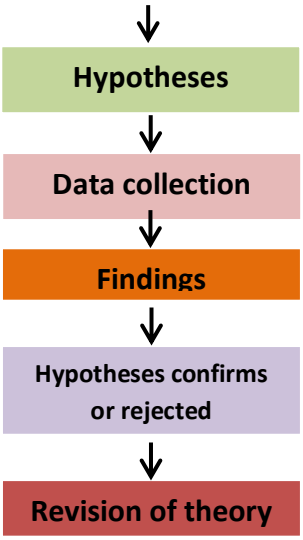


Figure 4-1 The six stages of the deductive approach

Source: Bryman and Bell (2007, P.11)

4.3.2 The inductive approach

The inductive reasoning approach is "an approach to developing (or confirming) a theory that begins with concrete empirical evidence and works toward more abstract concepts and theoretical relationships" (Neuman, 2011, p. 70). In contrast to the deductive approach formerly explained, a researcher adopting the inductive approach proceeds from real observations (data) on a specific phenomenon and uses his/her findings to generate theory (Blumberg *et al.,* 2014). Also, research adopting the inductive approach probably concerned with the context in which the phenomenon being investigated was developed (Collis and Hussy, 2009). However, the inductive approach follows the following sequence: observations/findings theory, which indicates moving from the particular to the general (Collis and Hussy, 2009). To sum up, the inductive approach is unstructured when searching for answers to the research questions, also is concerned with identifying the unknown particulars from its similarity with a body of known facts and developing a theory-based

hypotheses and designing a research strategy to investigate them. This particular approach is classified as qualitative research (Saunders *et al.,* 2012).

4.3.3 Rationale for adopting the deductive approach

Collis and Hussy (2009) emphasize the need for adopting a research approach that supports the achievement of the research aim and objectives. Based on the assessment of the characteristics of the deductive and inductive reasoning approaches and consistent with the positivist paradigm, this research adopted the deductive reasoning approach. This research develops a theoretical framework with associated hypotheses based on the existing literature aimed for explaining the different causal relationships among antecedent factors of sustainable strategic alignment, sustainable strategic alignment, business excellence enablers, and organizational performance to measure and provide empirical verification of their validity. All research's constructs were operationalised and the collection of data was carried out based on a structured approach independent of the researcher. Statistical data analysis was executed to verify the proposed relationships that led to a logical conclusion. Therefore, based on the nature of the current research, the deductive approach that focuses measurement and empirical examination of theories and relationships between variables appear more relevant than the inductive approach (Ketokivi and Mantere, 2010). Moreover, this approach supports three important goals of any empirical science, namely generalization, prediction and elimination any potential bias that may appear from direct researcher involvement in data collection (Saunders *et al.,* 2009), which all provide an significant reasons for adoption the deductive approach in this research.

4.4 Time horizon (cross-sectional vs longitudinal design)

An integral part of designing scientific research is deciding whether to perform cross-sectional or longitudinal research. In studies that are using the cross-sectional design, the process of collecting quantitative data on two or more variables from a given population's sample at a single point in time (Sekaran and Bogie, 2000). Hair *et al*. (2010, p154) define the cross-sectional research as a "sample survey in which chosen individuals are requested to respond to a set of structured and standardized questions concerning what they feel, think and do." On the other hand, the longitudinal design manages the collection of data at two or more points in time (Sekaran and Bogie, 2000; Bryman and Bell, 2015). Table 4.4 presents the preferable situations under which both cross-sectional and longitudinal.

Table 4.4 Guidelines for choosing a survey research approach

Guideline	**Cross-sectional survey design**	**Longitudinal survey design**
1. Nature of the key constructs	Concrete and externally oriented	Abstract and internally oriented
2. Likelihood of response biases	Low	High
3. Measurement format and scales	Heterogeneous	Homogeneous
4. Start and end dates	Unclear	Clear
5. Theoretical foundation	Well-developed	Nascent
6. Likelihood of intervening events	High	Low
7. Likelihood of alternative explanations	Low	High
8. Nature of the argument	Between subjects	Within-subjects

Source: Rindfleisch *et al.* (2008, p. 274)

Longitudinal studies are interested in studying a variable or group of subjects over a period of time (Collis and Hussy, 2009). This will enhance casual relationships inference and reducing common method variance. Also, it reveals any changes in the development of the relations under investigation (Saunders *et al*., 2009). However, several practical aspects limit its application in management research (Bryman and Bell, 2015). Firstly, multiple administration of the survey is very time and resource-consuming (Blumberg *et al*., 2014). Secondly, performing multiple data collection can cause social desirability and acquiescence biases (Rindfleisch *et al.,* 2008). Thirdly, data needed for the empirical investigation can be collected from knowledgeable staff in the organization which make the process of convincing such busy members to disclose information on the same variables more than one time is hard and in turn failure to reach adequate sample size for generalization the research finding (Malhotra *et al*., 2012). Finally, the use of longitudinal design is challenging due to the difficulty in determining the start and end dates of some phenomenon (Brayman and Bell, 2015).

Regarding the cross-sectional design and survey strategies, they are believed to be suitable for addressing the research problem and questions of the current research for different reasons. Firstly, the cross-sectional design needs less time and cost (Blumberg *et al*., 2014). Secondly, as outlined by Bryman and Bell (2007, P. 55), Cross-sectional designs "entail the collection of data on more than one case and at a single point in time in order to collect a

body of quantitative or quantifiable data in connection with two or more variables, which are then examined to detect patterns of associations". Therefore, this design is commonly associated with the survey strategy to collect a large quantity of data from a large population in a very economical way (Rindfleisch *et al.*, 2008). To sum up, adopting a combination of these two research strategies (i.e., cross-sectional design and survey strategies) allow for a large number of organizations to participate in this research and in turn assist in providing more generalizable findings (Blumberg *et al.*, 2014; Bryman and Bell, 2007).Also, respondents will provide the desired information for only one time and consequently prevent reducing the response rate (Bryman and Bell, 2007; Saunders *et al*., 2009).

4.5 Data collection methods

Data is classified into two types: secondary and primary. Secondary data is "the data already collected in some other context than the present study" (Robson, 2002, P. 552). It refers to that information has already been collected by, and readily available from other researchers or organizations (Bryman and Bell, 2015). There are different sources of secondary data such as periodicals, published literature, books, reports, company brochures, case studies, company web sites, governmental records, census data and the media (Saunders *et al.*, 2009; Sekaran and Bogie, 2000). On the other hand, primary data refer to information collected immediately from the original source on the aspects of interest for the research (Sekaran and Bogie, 2000). The main methods for collecting primary data are interview, observation and survey (Saunders *et al.*, 2012). Determining the most appropriate and efficient method is always dependent on the advantages and disadvantages of each method and the aim and objectives of the research.

4.5.1 Interview

The interview is one of the data collection methods in which interviewees are asked questions by the researcher to collect information on the issues of interest (Saunders *et al*., 2012). The interview method can have different types such as unstructured, semi-structured and structured interview which can be performed face-to-face, by telephone or video conferencing (Collis and Hussy, 2009; Sekaran and Bogie, 2000). In the unstructured interviews, the researcher has no prepared questions, but they develop during the interview, while the semi-structured interviews, there is set of questions to be asked, but further questions may arise through the interview to explain answers. However, the first two types are generally used to deeply explore specific phenomenon and build theory so that they are more pertinent to the inductive approach which is not adopted in this research (Saunders *et*

al., 2012). On the other hand, in the structured interviews, the interviewer has a set of pre-developed and closed questions to be asked to all selected respondents in the same manner (Collis and Hussy, 2014).

Several aspects prevent the effectiveness of interviews as a data collection method. Firstly, interviews are very time consuming and expensive (Sekaran and Bogie, 2000). Secondly, the interviewer bias based on the potential variability in the way interviews conducted, and questions are asked (Bryman and Bell, 2015; Sekaran and Bogie, 2000). However, this research intends to survey a large number of firms, this method is very costly in terms of time and financial resources and may not be convenient to respondents who have a busy daily schedule (Collis and Hussy, 2009).

4.5.2 Observations

Observation data collection method is a process of monitoring, recording, describing, analyzing and interpreting individual(s) actions and behaviors in a natural environment or a lab setting (Sekaran and Bogie, 2000). This process can be structured or unstructured. In structured or systematic observations, data collection is conducted using specific variables and according to a pre-defined schedule (Bryman and Bell, 2015) to ensure that each individual's action is systemically recorded to aggregate the action of all participating individuals in term of each type of action being observed. Unstructured observation, on the other hand, is conducted in an open and free manner and no pre-determined variables or objectives, in which the researcher tries to record all actions (Sekaran and Bogie, 2000). Although observations data collection method ensures direct access to research phenomena being studied, and high levels of flexibility in producing a record of phenomena to be analyzed later. Simultaneously, this method is disadvantaged with more extended time requirements, high levels of observer bias, and the impact of observer on primary data (Bryman and Bell, 2015).

4.5.3 Data collection method adopted (Survey)

Collis and Hussy, (2009, p.191) refer that a questionnaire is as "a list of carefully structured questions, chosen after considerable testing, to elicit reliable responses from a chosen sample". Survey has been selected as the data collection method in this research given the disadvantages related with interviews and observations methods discussed in the previous sections. Questionnaires cover large geographical scope with less cost than the other techniques. In addition, it provides participants further time to complete the questionnaire. However, since this research include data collection from large number of participants from

different economic sectors in the country of Jordan, therefore, this method is suitable for the presented research. The questionnaire can be administrated by post, telephone, face-to-face, online, and a mix of these techniques (Saunders *et al.*, 2012; Sekaran, 2000).

In particular, the self-administered questionnaire was found to be the most suitable method to collect data from the targeted population. A self-administered questionnaire defined as "a questionnaire that has been designed specifically to be completed by a respondent without the intervention of the researchers collecting the data. Traditionally the self-administered questionnaire has been distributed by mail or in person to large groups" (Lavrakes, 2008, p. 51). This method has been selected for several reasons. Firstly, researcher can introduce the research idea and clarify any doubts that the participants may have on any question immediately (Burns and Bush, 2002). Secondly, achieve higher response rate, as high as 100%, because the surveys are collected on the spot once they are done (Sekaran, 2000). Thirdly, this method is well known, economical in terms of time and cost. Fourthly, allow researchers to administer questionnaires to large numbers of firms using their addresses available in databases (Sekaran, 2003). On the other hand, one of the disadvantages of this method is related to the number of questions that can be included in the survey which have a direct impact on the response rate (Sekaran, 2000, Collis and Hussy, 2009; Saunders *et al.*, 2009). In addition, when targeted sample includes participants who have strong feelings regarding the survey questions (Collis and Hussy, 2009), which in turn, effects on the research findings. Despite its disadvantage, the self-administered questionnaire is selected the most suitable method based on the nature and overall aim of this research and its wide use in the academic literature.

To sum up, the theoretical framework illustrated in the previous chapter requires testing several research hypotheses to reach the finding for this research. Therefore, this testing necessitates collecting quantitative data and applies statistical analysis to test the research hypotheses even though there are different research strategies were accessible within the quantitative positivist research (Straub *et al*., 2005). Also, the presented research aims to investigate the associations between the main constructs (i.e., antecedent factors of sustainable strategic alignment, sustainable strategic alignment, business excellence enablers, and organizational performance) which requires gathering quantitative data from a large number of participants to attain a thorough understanding of the research problem. Therefore, based on the literature review discussed in Chapter 2, this research argued that the survey is

the most convenient and possible research strategies to be conducted. However, Table 4.5 summarizes the methodological choices adopted in this research.

Table 4-5: Summary of the methodological choices adopted in this research

Research paradigm	Positivism paradigm
Research appraoch	Deductive approach
Research strategy	Cross-sectional survey strategy
Data collection method	Self-administered questionnaire

4.6 Research context

The research context is a critical aspect for successful theory testing in quantitative studies (Anderson and Widener, 2007). Its importance stems from the need to ensure (i) appropriate unit of analysis; (ii) data is available for hypotheses testing; (iii) a large sample can be obtained for rigorous empirical analysis (Anderson and Widener, 2007). Bearing in mind these considerations, the research context of this research has been chosen to be the Hashemite Kingdom of Jordan (i.e Jordan) for several reasons.

First, Jordan was selected to carry out the data collection, as discussed in this chapter. Strategically positioned at the convergence of Europe, Asia, and Africa, Jordan is a small country; it is some 460 km north to south and 355 km in width, a total of about 92,000 sq km. In addition, Jordan is bordered by Syria to the north, Iraq to the northeast, Saudi Arabia to the east and south, and Palestine/Israel to the west. However, Jordan is heavily dependent on foreign subsidies and remittances from expatriates. During the last decade, Jordan's economy made steady progress through the implementation of comprehensive economic reforms and restructuring programs supervised by the International Monetary Fund and the World Bank. The main goal of restoring non-inflationary, sustainable growth has been accomplished.

Second, the positive economic performance in the years 2005, 2012, and 2016 reflects the ability of the Jordanian economy to withstand unfavourable shocks and to overcome negative impacts. Such impacts include the significant increase in the current account deficit due to the rise in international oil prices, and the decline in foreign grants. However, while pursuing economic reform and increased trade, Jordan's economy remains vulnerable to external factors such as regional unrest (i.e. the ongoing conflicts in the Middle East in neighbouring

countries). However, without peace in the region, Jordan's economic growth seems destined to stay below its potential. Nevertheless, Jordan was chosen, because of the lack of research in the area of MIS in Jordan, the readiness access to the parent and retail public companies, and as this may better serve my future career development, and open the gates to further research opportunities.

Third, this research is interested in testing a theoretical model at firm level in the Jordaniana public shareholding firms. The public shareholding firms consist of 4 sectors (i.e banks, insurance, service and industrial (manufacturing) secrors), which facilitates the identification of a suitable population and sample sufficient for data collection. Nevertheless, four sectors in Jordanian firms have been identified as the target population for this study, including banks, insurance, services, and industrial (i.e. manufacturing) firms. Furthermore, these sectors shared some common criteria, such as the presence of the use of information technology, and information systems to improve their competitive positions. The major contribution to Jordanian Gross Domestic Product (GDP) is by investing people's money and trading in stock options and derivatives; and the disclosure of data in their annual reports. And Finally, during the period of collecting the current research, the researcher was in Jordan. As a result, contacting the public shareholding firms within Jordan and administration of the self administered questionnaire instrument could be easier and saved time and financial resources.

4.7 Research population

A population defined as the universe of units from which the sample is to be chosen (Bryman and Bell, 2007). The population units may refer to people, nations, firms, or things of interest (Sekaran and Bogie, 2000). Given the research context specified above, the targeted population of this research includes all Jordanian public shareholding firms which includes banking, insurance, services, and industrial companies (>250 employees) that have a registered website, and which engage in business and IT activities and located in the country of Jordan. The rationale behind choosing large firms was that they have more experience in IT than smaller ones. In particular, there are thousands of registered firms considered as small and medium-sized firms. Thus, it is not appropriate to conduct a general survey of small and medium-sized firms, as many of these firms are slow in adopting and using IT/IS applications, if they harness them at all. In addition, sustainable strategic alignment is more likely to be apparent in more substantial organizations which have more organizational slack (i.e., resources); therefore, this qualifies IT and business managers to invest in aligning business with IT strategies.

The list of all firms in the population from which the sample selected represents the sampling frame (Bryman and Bell, 2015). The sample frame specified from the (ASE) Amman Stock Exchange (www.ase.com.jo), and the Jordanian Securities Depository Centre (www.sdc.com.jo), which included 320 firms from the four sectors as the most powerful public shareholding firms. However, 300 firms have been selected based on some criteria. The firms consist of 17 banks, 33 insurance companies, 173 services companies, and 77 industrial (i.e., manufacturing) companies. These criteria include choosing the types of firms which employ information technology (IT) and information systems (IS) in their operations to improve their competitive positions. Also, firms which contribute to Jordanian Gross Domestic Product (GDP) by investing people's money and trading in stock options and derivatives, and the disclosure of data in their annual reports to Amman Stock Exchange (www.ase.com.jo), and the Jordanian Securities Depository Centre since they represent governmental control for such firms in Jordan.

4.8 Research sampling and unit of analysis

Identifying a sample of a population is significant for almost all quantitative researches (Sekaran and Bogie, 2000). A sample is a segment of the population which selected for investigation (Collis and Hussy, 2009). The need to sample stems from the inability of researchers to survey the entire population due to budget, time, and access restrictions (Bryman and Bell, 2007). In addition, surveying the whole population can largely increase non-sampling error in way that exceed sampling errors of a sample which in turn reduce overall accuracy (Barnett, 2002; Sekaran and Bogie, 2000). There are usually two main types for sampling design (1) probability sampling and (2) non-probability sampling which are classified down into several techniques (Bryman and Bell, 2007).

In probability sampling, each element in the population has a known non-zero chance or fixed probability of being selected for the sample by using random selection (Bryman and Bell, 2007). The selection of research participants in probability sampling based on the fact that participants are a representation of the research population (i.e., wide generalisability) (Bryman and Bell, 2015). This design of sampling used when the sampling frame is specified and up to date, and when the research objective is to find conclusions or future forecasts (Collis and Hussy, 2009). Different methods used under probability sampling such as simple random, stratified random, systematic, and multi-stage cluster.

In the non-probability sampling, elements do not have a predetermined chance of being chosen as subjects (Blumberg *et al.*, 2014). The design of non-probability sampling depends on particular characteristics which inform the pre-selecting of the respondents in the research (Saunders *et al.*, 2009). The non-probability sampling is more likely when accessibility, specific criteria such as time restrictions, cost, and categories of the elements become more critical than generalisability (Bryman and Bell, 2015). The non-probability sampling consists of convenience sampling, judgemental, quota, and snowball sampling (Malhotra *et al.*, 2012).

Based on the previous evaluation of the comparative virtues of probability against non-probability sampling in term of their suitability to the current research, this research adopted the judgemental sampling where participants are chosen based on their expertise in the topic investigated. In more detail, because the key aim of this research is to develop and empirically validate a comprehensive framework involves investigating the impact of antecedent factors on sustainable strategic alignment, also, the effect of sustainable strategic alignment on firm performance through five business excellence enablers. Thus, it intended that practitioners capable of employing the framework in their investment decisions as well as understand, recognize, and estimate the resources required to realize the potential value of their IT investments. Therefore, these aims should be carried out by collecting data and information from respondents who have the experience and who are occupied positions in Jordanian public shareholding firms as policy makers. Therefore, judgemental sampling could be the best sample designs since there is a restricted population available which can supply the information needed (Bryman and Bell, 2014), the IT and business managers were targeted for the survey from the sample since they would offer the primary source of information about the research variables.

In addition, to ensure that this research uses a large and adequate sample to address the research questions in best manner. The Researcher selected this particular sample design and also the participants involved, based on the advice of the Financial Director of the Jordanian Ministry of Industry and Trade (www.mit.gov.jo), therefore, all IT and business managers which they already considered as policy makers within the Jordanian public sectors should be included as participants in the survey.

The unit of analysis in this research is Jordanian public shareholding firms. To achieve the research questions and hence the aim, this research sought the participation of large firms based in the country of Jordan. Using the Amman Stock Exchange (ASE) a database as a

sampling frame, a population of 320 firms distributed over four different sectors (i.e., banking, insurance, industry, and service) were identified. This research involves each of top IT and business managers from the 300 firms based on the aforementioned criteria (for more details, see Section 4.6) in Jordan to achieve the highest response rate.

To sum up, this research aims to develop and empirically test an integrated framework that includes different antecedents influencing sustainable strategic IT-business alignment and its effect on organizational performance. Thus practitioners should be able to use the framework during their investment decisions. Therefore, it is necessary to collect data from people who have the experience, and who are working in Jordanian public shareholding firms. Therefore, this research uses the judgemental sampling since there is a limited population available that can provide the information needed. In addition, business and IT managers were selected for the survey from the sample to provide the primary source of information about the research constructs. Furthermore, survey was selected as the data collection method given the limitations related to the observation and interview methods in relation to the overall aim of the current research. Data were analysed using structural equation modelling (SEM) using Amos software and Statistical Package for the Social Sciences (SPSS).

4.9 Adequacy of the sample size

Basically, the larger the sample size, the greater the representation of the population, which lead to more generalized findings. Luck and Rubin (1987) refer to the importance of a large sample in conducting more complex statistical analysis. In addition, the choice of sample size is affected by the population size, confidence needed in the data, margin of error that can be tolerated and types of statistical techniques (Saunders *et al.*, 2012). This research selected the structural equation modeling (SEM) for the statistical analysis. Krejcie and Morgan (1970) set up guidelines for sample size decision. Hair *et al.* (2014) referred that using the maximum likelihood estimation (MLE) approach in the structural equation modeling requires that sample size should range from 150 to 400 respondents to achieve acceptable results (Hair *et al.*, 2014). Also, sophisticated or complex framework in term of a large number of constructs used in the analysis requires more parameters analysis, and then a large sample size is needed (MacCallum *et al*., 1992). However, this research planned to make the sample size as large as the resources allowed to secure a representative sample as well as to make more generalizable results. This research participates all IT and business managers from the 300 firms with a total of 250 respondents. The sample was chosen from the eligible population who meet the

inclusion criteria (see Section 4.6). Different IT and business managers were selected to ensure that the sample population involved genders, all ages, and several sector specialties.

4.10 Questionnaire development

Designing the questionnaire is a critical aspect of the research process to achieve a satisfactory response rate along with reliable and valid information (Collis and Hussy, 2014; Bryman and Bell, 2007). The survey of this research developed in four steps. Firstly, a thorough literature review of strategic alignment antecedents and consequences was performed to choose and develop the suitable measurement model of the research constructs as illustrated in Section 4.11. Secondly, some of the measurement models adopted to fit the research context. Thirdly, critical recommendations should be taken into account to design a more user-friendly survey in term of layout, the format of the questions, covering letter (Bryman and Bell, 2007). Finally, the process of the evaluation conducted by IT and business experts and then piloting (pretesting) to examine the efficiency of the survey before surveying the full sample. Special care has been given to the design of the survey in this research, as illustrated in the following subsections.

4.10.1 Questionnaire design

The questionnaire organized into two parts. Part one provided instructions about how to answer the questions. It also contained questions related to respondent and organization general information (i.e. respondent's job experience, age, gender, business units, and industry sector). Part two included the research framework's constructs and was structured into five sections. Section A includes demographic and basic information. Section B includes questions related to antecedents' factor of sustainable strategic alignment. Section C involves questions relating to sustainable strategic alignment. Section D involves questions related to business excellence enablers. Finally, section E includes questions related to organizational performance. However, the final version of the survey is presented in Appendix B.

4.10.2 Question type and format

Questions in the survey can be either closed or open questions (Saunders *et al*., 2012). Moreover, most positivist researchers have relied largely on closed questions (Collis and Hussy, 2009). In this research, all the survey questions are closed-ended, rating (e.g. Likert-type questions) and categorical questions. The rationale for selecting the close-ended questions was based on different reasons. First, closed questions do not require much effort or thought from the participants as it provide a set of predetermined answers which helps to clarify the meaning of questions (Hair *et al.*, 2014). Secondly, closed-ended questions make

the questionnaire is easier and quicker to answer (Saunders *et al.,* 2012). Thirdly, the availability of the fixed scales in the close-ended questions helps to understand the meaning of questions and improve the comparability of answers (Bryman and Bell, 2015). Finally, it can increase the response rate given the length of the questionnaire (Saunders *et al.,* 2012; Bryman and Bell, 2015).

4.10.3 Questionnaire layout and questions order

Questionnaire layout is an important aspect in designing the survey for different reasons. Organized and well-presented questionnaire motivates participants to easily respond to the survey and in turn, increase the response rate (Saunders *et al.,* 2012). Also, simple layout reduces non-response rate and avoid response errors and then ensure a valid response (Saunders *et al.,* 2009; Dillman, 2007). To this end, the survey questions in this research are well arranged and distributed upon four pages including the cover letter which considered acceptable length within organization self-completion questionnaire as recommended by some researchers (e.g., Saunders *et al.,* 2012; Bryman and Bell, 2007).

Moreover, the flow and order of questions in the survey effect on the participant willingness to respond. Based on Funnel Approach proposed by Festinger and Katz (1966), this research began the questionnaire with general questions about respondents (e.g., age and experience) and organization (e.g., business unit and sector). Then switching to the specific questions regarding the implementation of sustainable strategic alignment antecedent factors, sustainable strategic alignment, business excellence enablers, and then organizational performance were positioned in an effort to facilitate the participation in the survey by answering on the easy questions first and then difficult one (Sekaran and Bogie, 2000; Bryman and Bell, 2007).

4.10.4 Covering letter

Developing a cover letter has been considered an essential part of survey administration as it enhances the response rate of the questionnaire (Frohlich, 2002). In this research, one cover letter was attached to each questionnaire survey and sent to each IT and business managers. This informative letter provide a clear information about the importance and objectives of the research, to clarify to respondents the importance of their participation, and ensuring the confidentiality of the information provided by them as suggested by (Hair *et al*., 2014) and referring that their responses would be destroyed after completing the data analysis stage. It also includes some instructions for answering the survey, contact details of the researcher if any clarification needed. A copy of the covering letter provided in Appendix B.

4.10.5 Questionnaire pre-testing process

Several scholars (e.g., Bryman and Bell, 2015 and Saunders *et al.,* 2012) stated that piloting or pretesting in research should be undertaken on a small scale to test the effectiveness of the questionnaire before starting the full operation. The importance of this process based on its expected advantages as the following. Firstly, reduce problems which might face respondents in term of the readability and the adequacy of instructions which affect their ability to answer the questionnaire (Bryman and Bell, 2015). Secondly, obtain suggestions on adding, deleting, or modifying questions to enhance the overall appearance of the survey. Finally, expect quantitative estimates in term of response rates and questions non-response.

Following the recommendation of Bryman and Bell (2007), the questionnaire of this research was tested by two academic in the UK, and two academic staff in Jordan which they have professional qualifications in management and IT. Moreover, the survey was assessed by two IT managers and three business managers as a sample of participants. The managers have considered appropriate people because of their professional expertise in different industrial sectors of the Jordanian public shareholding firms, and significant experience in management and IT fields. All participants in the pilot study were asked to fill in the questionnaire and provide constructive feedback on the general appearance, clarity, readability, validity of items, representativeness, and suitability of the items of the questionnaire.

However, valuable feedback was received from respondents in this research. This included different points about reposition some questions, enhance the layout and flow of questions and modifying the rating, wording, and length of other questions. All feedbacks received were seriously taken in a way that clarifies any vagueness of questions.

The revised version of the survey was administered a small group of respondents using a sample from the same population (Flynn et al., 1990). The sample was chosen after the main research sample has been selected. The respondent's addresses were obtained from ASE database. The survey and covering letter was sent to 30 participants of which 20 filled out the survey. The participants were asked to answer the questions and provide feedback on the general appearance, comprehension and readability of the questionnaire. The process helps in the inclusion a definition for sustainable strategic alignment and to modify the wording of a few questions. However, the questionnaire items have been largely tested previously in developed countries, therefore the pilot study attempted to consider any cultural differences emerged since the expectations of the participants in the developing country (i.e. Jordan)

might be different from a developed country. The final version of the questionnaire was presented in appendix B.

4.10.6 Questionnaire' Translation

Several researchers (e.g., Reynolds, 2000; Craig and Douglas, 2000) focus on the concept of translation equivalence in academic investigations. This concept means that the translated research instrument (e.g., survey) into another language should be comparable to the primary language, or in other words, it should carry the same meaning of the original language (Herk *et al.,* 2005; Craig and Douglas, 2000). In this research, the questionnaire was developed in the English language in the UK and was tested before the distribution by native English speakers to ensure that it was easy and clear to understand. However, since the sample population consists of native Arabic language speakers, it was important to translate the questionnaire into the Arabic language. Therefore, the method of direct translation was applied to obtain equivalent translation by using English as the primary language. The questionnaire was translated into Arabic in Jordan by one of the linguistic lecturers at the University of Mutah. Moreover, back translation from Arabic to English was applied to ensure the accuracy of structure, grammar, and use of words where the differences between the two languages were managed effectively. Finally, the questionnaires distributed to the sampled Jordanian organizations. The Arabic questionnaires had attached cover letters in Arabic translation. The two questionnaires (Arabic and English) presented in Appendices B.

4.11 Questionnaire administration

Baruch and Holtom (2008) refer that researches, which implemented at the organizational level for obtaining responses from top management representatives, might face lower response rate. Initially, 410 questionnaires sent to the pre-identified 300 Jordanian public shareholding companies. In addition, administering the questionnaires to the targeted participants began on 1 June 2018. Furthermore, to increase the response rate of the surveys, different actions have been considered before and during administration of the survey as follows: (1) the questionnaire accompanied with cover letter to explain the research objectives and to ensure the confidentiality of responses, since participants' understandings of the importance of their participation increase the probability of filling the survey (Bryman and Bell, 2015). (2) The survey printed in color in an attempt to increase in response rate (Rogelberg and Stanton, 2007). (3) The survey developed in an attractive layout and clear instructions were organized as it affects the response rate (Rogelberg and Stanton, 2007). (4) After sending the survey to IT and business managers and asking them to fill the survey, few

participants fill the survey directly, but most participants were unable to devote work time to fill the survey instantly. Therefore, Researcher decided to provide the managers with a blank questionnaire that would be collected from them on completion after a few days. (5) Different follow-up actions were undertaken after the despatch of the questionnaire to respondents to guarantee a higher response rate of the survey as recommended by Rogelberg and Stanton (2007). For instance, polite phone calls were used beginning two weeks after survey distribution to encourage remaining non-respondents to participate. In addition, after another two weeks friendly phone calls were also sent to the managers through their secretaries offices as a reminder to fill the surveys.

4.12 The measurement model

The proposed theoretical framework consists of antecedent factors of sustainable strategic alignment (shared domain knowledge, and strategic IT flexibility) as independent variables, business excellence enablers (i.e., leadership, process, employees, policy and strategy, and partnership and resource) as mediating variables, sustainable strategic alignment is independent and dependent variable and organizational performance as dependent variables. Selecting the measures of research variables is considered one of the most important decisions for researchers during research design. Much literature (e.g., Bryman and Bell, 2007) advocated the use of existing scales whenever possible to capture the research's constructs (variables). The rationality behind adopting the existing measures stems from several reasons. Firstly, the reliability and validity of existing measures have already demonstrated (Frohlich, 2002; Bryman and Bell, 2015). Secondly, adopting or adapting the prior measurements, let the researcher to verify the findings of previous researches, and to build knowledge based on the work of other researchers (Bryman and Bell, 2007). Finally, selecting existing measures with a history of reliability and validity will produce findings with more reliability (Sekaran and Bogie, 2000).

As a result, after a thorough systematic review of the existing literature, the measures used in this research have a history of reliability and were adopted or adapted from prior research in management and IT to cope with the current research aim and objectives. All the research constructs (variables) were measured using closed-end five-point Likert-scale items, with scales ranging from 1 (strongly disagree), to 5 (strongly agree). The scale of 1 represents the strongest negative attitude towards the statement, while the scale of 5 represents the most positive.

The specification of the research constructs is considered a critical issue during the measurement model development process. The specification of the research constructs specifies the direction of causality between measures and constructs and therefore decides whether to model the construct as formative or reflective. Section 4.11.1 briefly explains the main differences between formative and reflective constructs, their specification criteria and the consequences of measurement model misspecification

4.12.1 Formative vs. reflective construct

Anderson and Gerbing (1988) refer that the distinction between formative and reflective measures is critical since the proper specification of a measurement model is critical to allocate meaningful relationships in the structural model. The measurement model specifies the relationship between constructs and measures. Reflective and formative constructs can be distinguished based on different criteria. Firstly, the conceptual relationship between the constructs and its measures; which is known as the direction of causality (Bollen and Lennox, 1991). In the reflective construct, the effect of causality flows from the construct to the measures (Diamantopoulos and Winklhofer, 2001). Thus, any changes in the construct are expected to cause changes in the measures (Jarvis *et al*., 2003). In other words, reflective measures are observable manifestations or reflections of the construct. On the other hand, the formative construct assumes that the direction of causality stems from the measures to the construct (Bollen and Lennox, 199). Thus, any changes in the measures are expected to produce changes in the construct (Bollen 1989; Jarvis *et al.*, 2003).

The second criterion refers to the interchangeability of the measures (indicators) at the conceptual level. The reflective indicators are interchangeable as all shares the same theme, also are considered as equivalent manifestations of the same construct (Bollen and Lennox, 1991; Diamantopoulos and Winklhofer, 2001). This criterion allows researchers to measure the reflective construct by sampling a few related indicators underlying the domain of the construct (Nunnally and Bernstein, 1994). Thus, inclusion or exclusion of one or more indicators of the reflective indicators should not have a substantial impact on the conceptual domain of the construct (Jarvis *et al.*, 2003). In contrast, the formative indicators are not interchangeable and therefore, removing any of the formative indicators of a construct may change the conceptual domain of the construct (MacKenzie *et al*., 2005; Bollen and Lennox, 1991).

The third criterion refers to the covariance of the measures. Covariation among the formative indicators is not necessary since each formative measure capture unique aspects of the construct's domain (Bollen and Lennox, 1991). In contrast, all reflective measures are expected to be interchangeable manifestations of the same construct (Jarvis *et al.*, 2003).

The last criterion refers to the similarity of the nomological networks of the measures (MacKenzie *et al.*, 2005). The reflective measures share the same latent construct and are expected to have similar antecedents and consequences. In contrast, formative measures are not necessarily expected to have similar antecedents or consequences since it does not necessarily capture the same facets of the construct's domain (MacKenzie *et al*., 2005; Jarvis *et al*., 2003). Different practical guidelines exist to help researchers in assessing reflective and formative measurement models (e.g., Jarvis *et al.*, 2003; MacKenzie *et al.*, 2005). Table 4.6 presents a framework for assessing reflective and formative models in term of theoretical considerations.

When researchers do not accurately consider the directional relationship between measures and latent constructs, the measurement model misspecification occurs. Therefore, the reflective measures caused by the latent construct, while the formative measures caused the latent construct. The Measurement model misspecification exists when a formative construct is incorrectly specified as a reflective construct (Jarvis *et al*., 2003). The implications of measurement model misspecification affect current and future research in different ways as the following: (1) the improper use of the classical test techniques such as using factor analysis and assessment of internal consistency to evaluate the validity and reliability of formative constructs (Diamantopoulos and Winklhofer, 2001). (2) Misspecification issues within structural equation models cause serious consequences for the theoretical conclusions drawn from the model which in turn produce distorted conclusions concerning the hypothesised relationships (Jarvis *et al*. 2003). (3) Strictly bias the structural model parameter estimates and affect other relationships in the model (Law and Wong, 1999). However, the construct misspecification affects the results of the structural model analysis leading to Type I and II errors. The level of this serious effect varies based on the types of constructs being misspecified (MacKenzie *et al*., 2005). In other word, if the misspecified construct is an exogenous construct, this would inflate the structural parameter estimate and therefore increasing (Type I) and decreasing (Type II) error rates. In contrast, if the misspecified construct is an endogenous construct, this would deflate the structural parameter estimate,

then decreasing Type I and increasing Type II error rates (MacKenzie *et al*., 2005; Petter *et al.*, 2007).

Table 4.6 Framework for assessing reflective and formative models: theoretical considerations

Considerations	**Reflective model**	**Formative model**
Nature of construct	▪ Latent construct exists ▪ Latent construct exists independent of the measures used	▪ Latent construct is formed ▪ Latent construct is a combination of its indicators
Direction of causality between items and latent construct	▪ Causality from construct to items ▪ Variation in the construct causes variation in the item measures ▪ Variation in item measures does not cause variation in the construct	▪ Causality from items to construct ▪ Variation in the construct does not cause variation in the item measures ▪ Variation in item measures causes variation in the Construct
Characteristics of items used to measure the construct	▪ Items manifested by the construct ▪ Items share a common theme ▪ Items are interchangeable ▪ Adding or dropping an item does not change the conceptual domain of the construct	▪ Items define the construct ▪ Items need not share a common theme ▪ Items are not interchangeable ▪ Adding or dropping an item may change the ▪ The conceptual domain of the construct

Source: Jarvis *et al.* (2003; p. 203)

However, it is the researcher's responsibility to understand how constructs from the literature developed, identified, and validated. Therefore, after a critical evaluation of the literature review, this research contains nine reflective constructs as indicated in the theoretical framework. However, the measurements items of each construct provided in the following subsections.

4.12.2 Measures of the antecedent factors of sustainable alignment

Shared domain knowledge between IT and business is a first-order reflective construct. The respondents asked to indicate their opinion toward the extent to which IT and business executives can understand, participate within others input processes, and to respect the contributions and challenges of each other at a deep level in their firms from “strongly disagree=1” to “strongly agree=5”. Shared domain knowledge is measured using items based

on the work of Reich and Benbasat (2000) and Chan *et al.* (2006). The respondents were requested to indicate the extent to which business managers understand the work environment of IT, business managers appreciate the accomplishments of IT, IT managers appreciate the accomplishments of the business functions, and IT managers understand the work environment of business functions.

Strategic IT flexibility was measured by using items adapted from Tian *et al*. (2010). The participants were asked to indicate the extent to which their firms can easily and readily diffuse or support a wide variety of hardware, software, technologies, data, core applications, skills and competencies, commitments, and values within the technical, physical base and the human component of the existing IT infrastructure.

4.12.3 Measures of sustainable strategic alignment

Sustainable strategic IT-business alignment is a first-order reflective construct was measured on a 5-point Likert scale ranging from "Very low =1" to "Very high =5" using items adapted from Luftman *et al.* (2017, 2004). For example, the respondents were asked to indicate the extent to which IT and business understand each other, improving practices for IT and Business. These items represent a commonly agreed list for measuring sustainable strategic alignment among strategic alignment scholars (El-Masri *et al.,* 2015; Luftman *et al.,* 2017; Luftman, 2004).

4.12.4 Measures of business excellence enablers

In line with previous studies, all business excellence enablers (i.e., Leadership, process, employees, partnership and resources, policy and strategy) are first-order reflective constructs, and measured on a 5-point Likert scale ranging from "strongly disagree =1" to strongly agree=5". Leadership excellence was measured using items from Bou-Llusar *et al.* (2009) and Sadeh *et al.* (2013), which also used in previous studies (e.g., Vijande and Gonzalez 2007). The participants were asked to indicate if they developed mission, vision and a culture of in their firms, the management system is developed and continuously improved, and leaders interact with customers, partners and representatives of society. Also, process excellence was captured using items adapted from Bou-Llusar *et al*. (2009) and Sadeh *et al.* (2013) to indicate if processes are improved to generate optimum value for customers and stakeholders, developed, delivered based on customer needs, and systematically designed and managed. Also, employees excellence was captured using items adapted from Bou-Llusar *et al.* (2009) and Sadeh *et al.* (2013) to indicate if employees are planned and improved, employee's competencies developed and sustained, employees

empowered in improvement activities and if there is effective communication with employees. Furthermore, policy and strategy excellence was captured using items adapted from Bou-Llusar *et al.* (2009) and Sadeh *et al.* (2013) to indicate if their organizations analyzed the information from all organization's processes when strategy is defined, if policy and strategy are developed, reviewed and updated and if deployed by a framework of key processes. Finally, partnership and resources excellence was measured based on the work of Bou-Llusar *et al.* (2009), Sadeh *et al.* (2013), and Vijande and Gonzalez (2007). The participants were asked to indicate if the internal and external partnerships in their organizations are based on mutual trust and sustainable benefits, finances resources and are managed to secure sustained success and assets were managed sustainably.

4.12.5 Measures of organizational performance

Organizational performance is a first-order reflective construct was measured on a 5-point Likert scale ranging from "strongly disagree=1" to "strongly agree=5" using items adapted from Clvo-Mora *et al.* (2014), Bou-Llusar *et al.* (2009), and Vijande and Gonzalez (2007), in particular the dimension of "key performance results" has been selected to measure the organizational performance. As detailed in Section 2.10.3 In Chapter 2, the "key performance results" in the EFQM Excellence Model are those that make it possible to obtain the strategic results and planned yield, as well as the operational results in different areas (Calvo-Mora *et al.,* 2014). More specifically, the strategic key results of the economic-financial type (sales volume, share or dividend prices, gross margins, share profits, profits before interests and taxes or operating margin), as well as those of a non-economic nature are analyzed (market share, time of launching new products, success indices, process performance) which show the success achieved by the implementation of the strategy.

The key economic-financial indicators (treasury, depreciation, maintenance costs, credit qualification) and non-economic indicators (performance of processes, partners and suppliers, external resources and alliances, buildings, equipment and materials, technology, information, and knowledge) which the organization uses to measure its operational efficiency. The impact on a key performance results has not been analyzed very much (Calvo-Mora *et al.,* 2015). However, the presented research uses some items from the above measures of key performance results to reflect the performance (for more details see Table 3.2 in Chapter 3 which summarised the measures of research framework's constructs).

4.13 Data analysis techniques

Alongside the rigor desired in developing a theoretical framework, researchers have focused on selecting the rigorous methodologies and proper statistical analyses to verify and examine the proposed theoretical framework (Cooper and Schindler, 2001). This section briefly provides the data analysis stages used and their related statistical techniques. The data analysis process conducted in two phases. The first phase includes sample description, data screening, and evaluating the measurement model (i.e., reliability and validity), this stage employ SPSS version 20 since this statistical package provides most of the required and fundamental calculations. The later phase involves testing the structural model (i.e., hypotheses testing) using Structural Equation Model (SEM), with AMOS version 23, which has been considered one of the most important statistical techniques since it provides a high level of rigor required for theory development and testing (Hair *et al*., 2010). Chapters 5 provide in great detail the results and findings of this research.

4.13.1 Sample description

This research seeks the participation of selected public shareholding firms based in the country of Jordan. Therefore, to attain a better understanding of the sample, the descriptive analyses and frequencies were employed to present the raw data in an interpretable and understandable format. The analysis provides information on the respondents and their age, gender, and work experience. Moreover, the analysis provides information about the sectors which companies belong to.

4.13.2 Techniques for screening the data

In the data screening and cleaning stage, missing data identified and handled, outliers were detected and managed, and the assumptions of multivariate analysis (i.e., normality, linearity, multicollinearity) tested. In addition, missing Value Analysis (MVA) test was used, and the missing data replaced with the mean value of that variable obtained from valid responses (Pallant, 2013). Besides, the box-plot method was used to identify the outliers (Tabachnick and Fidell, 2014), and the original mean was compared with the 5% trimmed mean to determine if the outlier values have a considerable impact on the mean. Moreover, to test the assumptions of multivariate analysis, skewness and kurtosis were used to examine normality, in particular, skewness and kurtosis values within the range of ±2.58 were considered as an indication of normally distributed data (Hair *et al.,* 2014). In addition, linearity tested by using Pearson's correlation, since the correlation value of >0.4 among the variables was considered as evidence for the presence of linearity (Hair *et al.,* 2014a; Tabachnick and

Fidell, 2014). Finally, multicollinearity was tested by Variance Inflation Factor (VIF), where a value of VIF ≥ 0.5 was used as a threshold value (Tabachnick and Fidell, 2014).

4.13.3 Assessing the reflective measurement model (reliability and validity)

Reliability and validity were used to evaluate the quality of the reflective measurement model. Reliability means the assessment of the degree of consistency between multiple measurements of a construct, while validity refers to the degree to which a measurement accurately represents the construct (Hair *et al.*, 2014a). Reliability in terms of the degree of internal consistency between multiple constructs' measures was tested using Cronbach's α coefficient (Cronbach, 1951) and composite reliability (Werts *et al.*, 1974). Researchers (e.g., Nunnally, 1978; Hair *et al.*, 2014a) indicates that a Cronbach's α and composite reliability of 0.70 was considered as an acceptable level of internal consistency in confirmatory studies.

Three types of construct validity were measured and empirically tested, namely content validity, convergent validity, and discriminant validity (Hair *et al.*, 2010). Content validity was checked based on a thorough and systematic review of the related literature on the particular construct to a representative set of measures that reflect the construct (Cooper and Schindler, 2001). Then, the suggested survey assessed through academics and professionals in the field of strategic alignment and performance.

Convergent validity refers to the extent to which measures of a given construct share a high amount of variance in common (Hair *et al.*, 2010). Convergent validity was assessed using the standardised factor loadings of the measures and the Average Variance Extracted (AVE) of the construct (Hair *et al.*, 2010). A standardized loading value of 0.50 and ideally 0.70, also AVE of 0.50 indicates a convergent validity was considered as a signal of convergent validity (Hair *et al*., 2010).

Discriminant validity evaluates the level to which each construct is distinct from other constructs (Hair *et al.*, 2010). Discriminant validity was tested using Fornell and Larcker's (1981) criterion. A construct creates discriminant validity when its AVE value is higher than the square root of its bivariate correlation with any other construct (Fornell and Larcker, 1981). The next chapter presents in detail the empirical evaluation of the reliability and validity tests. However, the remaining discussion provides some initial background about the data analysis techniques conducted in this research (i.e., the Structural Equation Modelling method), and the choice of using AMOS software.

4.13.4 Structural Equation Modelling (SEM)

This research investigates the associations between strategic alignment IT-business antecedents, strategic IT-business alignment, business excellence enablers, and firm performance. These relationships were examined empirically using Structural Equation Modelling (SEM) techniques, using the Analysis of Moment Structures (AMOS) software version 23. SEM a statistical technique that uses a confirmatory (i.e., hypothesis testing) approach to the analysis of structural theory, bearing particular phenomena. Commonly, this theory includes causal processes which produce observations on multiple variables (Bentler, 1988).

In recent years, the popularity of SEM has grown enormously among social science researchers by its ability to address the limitation of the first generation statistical techniques such as multiple regression analysis, cluster analysis, canonical correlation and analysis of variance and logistics regression. Therefore, SEM deal with modeling of interactions, the sequence of structural equations, correlated independents, measurement errors of latent variables, multiple independent and dependent variables which are measured by multiple indicators. SEM has been largely used in confirmatory, not exploratory analysis, which is hard to conduct hypothesis testing (Byrne, 2001). Consequently, this research uses SEM to investigate multiple interrelationships between different variables at the same time.

A structural equation model consists of two types of models: a measurement model (known as confirmatory factor analysis) and the structural model (Hair *et al.*, 2010). Whereas the measurement model confirms the relationship between a set of measurement items and their respective construct based on particular theory, the structural model confirms the relationships between the constructs (latent variables or factors) as hypothesized in the model by specifying which construct directly or indirectly influence (i.e. cause) changes in other construct in the model (Hair *et al.*, 2010). Furthermore, the structural equation modeling process includes two sections: validating the measurement model and fitting the structural model. Validating the measurement model is done through confirmatory factor analysis, while the structural model is completed by path analysis of the specified construct (Hair *et al.*, 2010).

Since the proposed model established based on theory, all constructed in the model operationalized as a latent (unobservable) variable, which is measured by multiple indicators. After critically reviewing the literate, at least two or three indicators assigned for each

construct (latent variable) based on confirmatory factor analysis. In addition, based on a large representative sample, the validation of the measurement model (CFA) is completed through conducting the common factor analysis or principal axis factoring to identify the list of indicators and its corresponding constructs (latent variables). As a result, a number of models produced and compared to each other regarding the model fit. In particular, model fil means the degree to which covariances predicted by the model matched to the observed covariances in the data. Furthermore, a number of goodness-of-fit indices (Hair *et al*., 2014) are provided to judge if the model is consistent with the empirical data (for example, Chi square to (X^2) to the degree of freedom (Df), goodness of fit index (GFI), Tucker-Lewis Index (TLI), comparative fit index (CFI), and root mean square error of approximation RMSEA) were used in this research to examine the CFA and structural model, also to improve the mode fil. Furthermore, the proposed hypotheses were examined using the standardised estimate, critical ratio (t-value) and critical value (p-value) as presented in the next chapter.

4.13.5 Rationale for selecting the Structural Equation Model

SEM is a generic tool that integrates the characteristics of many first-generation statistical techniques such as factors analysis and regression analysis to assess the relationships among different constructs (Bagozzi and Yi, 2012; Hair *et al.,* 2014). SEM as a second-generation technique used for a number of reasons as the following.

(1) SEM refers to a hybrid model which allow for using multiple indicators to measure each variable (called latent variables or latent construct) to reduce the measurement errors (Hair *et al*., 2014) which in turn are linked together by different paths. (2) SEM has the capability of examining the various dependence relationships (e.g., causal relationships) between multiple constructs simultaneously (Hair *et al*., 2010) while the first generation statistical techniques test only a single relationship at a time. In other words, it provides instant analysis of a sequence of structural equations. (3) It is useful when a variable which is hypothesized as independent in one equation, becomes an independent variable in another equation within the same model (Hair *et al.,* 2010). Therefore, the research involves a combination of interrelated dependence relationships (Hair *et al.,* 2014). (4) It can be used to understand the direction of effect between researches constructs, and the amount of effect in which each construct can make to other constructs (Tabachnick and Fidell, 2014). (5) SEM can test the theory and hypotheses. In other words, it can instantaneously test the measurement properties and the theoretical associations of models (Hair *et al.,* 2014a). (6) SEM can represent unobserved variables in the hypothesized relationships and incorporating the potential measurement error

in the estimation process (Hair *et al*., 2010; Chin, 1998). (7) SEM allow for the existence of a mediating variable (indirect effects) between exogenous (independent) variables and endogenous (dependent) variables. In other words, it defines the cause-related effect of individual exogenous variables since it includes a set of direct and indirect effects. In this research, the direct effect is from the exogenous variables to the endogenous variable; this suggests the direct effect of the strategic alignment antecedents on strategic alignment and the direct effect of strategic alignment of business excellence. While the indirect effect comes from the exogenous variables towards the endogenous variable using mediating factors such as the indirect effects of strategic alignment and performance via the business excellence enablers as a mediating variable. (8) SEM provides an overall assessment of the fit of the suggested model by using different fit indices. Therefore, SEM has the ability to examine several models of fit to reach an overall model, which best presents the data that in turn, advances the theory's development.

Furthermore, SEM has the ability to assess the quality of the measurement model through confirmatory factor analysis (CFA) and the test of the structural model in one technique (Hair *et al.,* 2010). There are several programs of SEM include LISREL (Linear Structural Relationships); AMOS (Analysis of Moment Structures); and EQS (Equations). However, Amos was the better in some aspect than others since it includes preliminary analyses, model specification, parameter estimation, the goodness of fit indices. Also, the AMOS, developed by Arbuckle (1977) software has a user-friendly graphical interface and method of specifying structural models to present the hypothesized relationships among constructs in a given model. This research used AMOS Version 23 as a statistical package for conducting SEM. Hence, the results presented in a graphical format. AMOS is extensively used in the area of MIS and management studies for the structural equation models, which considered as a proper technique for this research. However, the details of the SEM analysis techniques presented in the next chapter.

4.14 Research ethical considerations

Commitment with ethical requirements in the whole process of the research development is critical to ensure that the final outcome and combined report properly signify the data and related situations (Hesse-Biber and Leavy, 2010). However, since the presented research has selected the survey as a data collection method and involved human participation, ethical consideration is essential (McPhail, 2000). Thus, ethics in the field of business researches refers to the set of behavioral principles and norms (Sekaran, 2003). Potential harm in social

science research can involve harm to respondent's development and career chances or (Diener and Grandall, 1978). Therefore, during the research, this research attempts to protect the participants' and their organisations anonymity and confidentiality based on the ethical principles of Bryman and Bell (2015), who defined the have made a clear distinction between confidentiality and anonymity in management research. Confidentiality "relates to the protection of information supplied by research participants from other parties whereas anonymity involves protecting the identity of an individual or organization by concealing their names or other identifying information" (Bell and Bryman, 2007; p.69).

In particular, the current research sought information about individuals (e.g., experience, age, and gender) and their organizations (e.g., types and number of sectors and/ or business units); several procedures were considered to ensure the respondents' anonymity and confidentiality during the data collection process. A cover letters the respondents (see Appendix B) to provide a brief about the research objective, the need for their willingness to contribute, and the promise of confidentiality. The letter also emphasized that their participation was entirely voluntary, and they enjoyed the freedom to withdraw their contributions at any time, and their answers would be strictly confidential, in conformity with the procedures of Brunel University London's Code of Research Ethics. Furthermore, Brunel University requested that, before the field investigation, the Researcher acquire the University Research Ethics Committee's permission for all specific projects that engaged people as subjects. The researcher has carefully considered the ethical obligations through every stage of the research and submitted a fittingly completed, and signed ethics form from the supervisor and gain approval from the University Research Ethics Committee at Brunel University. Furthermore, the Research Ethics Committee of Brunel University London has granted the Researcher with the formal approval (see Appendix A) before commencing the data collection, and the university's ethical codes are in place to safeguard the participants.

4.15 Summary of the applied research process

The research methodology and design followed in this thesis is presented schematically in Figure 4.2.

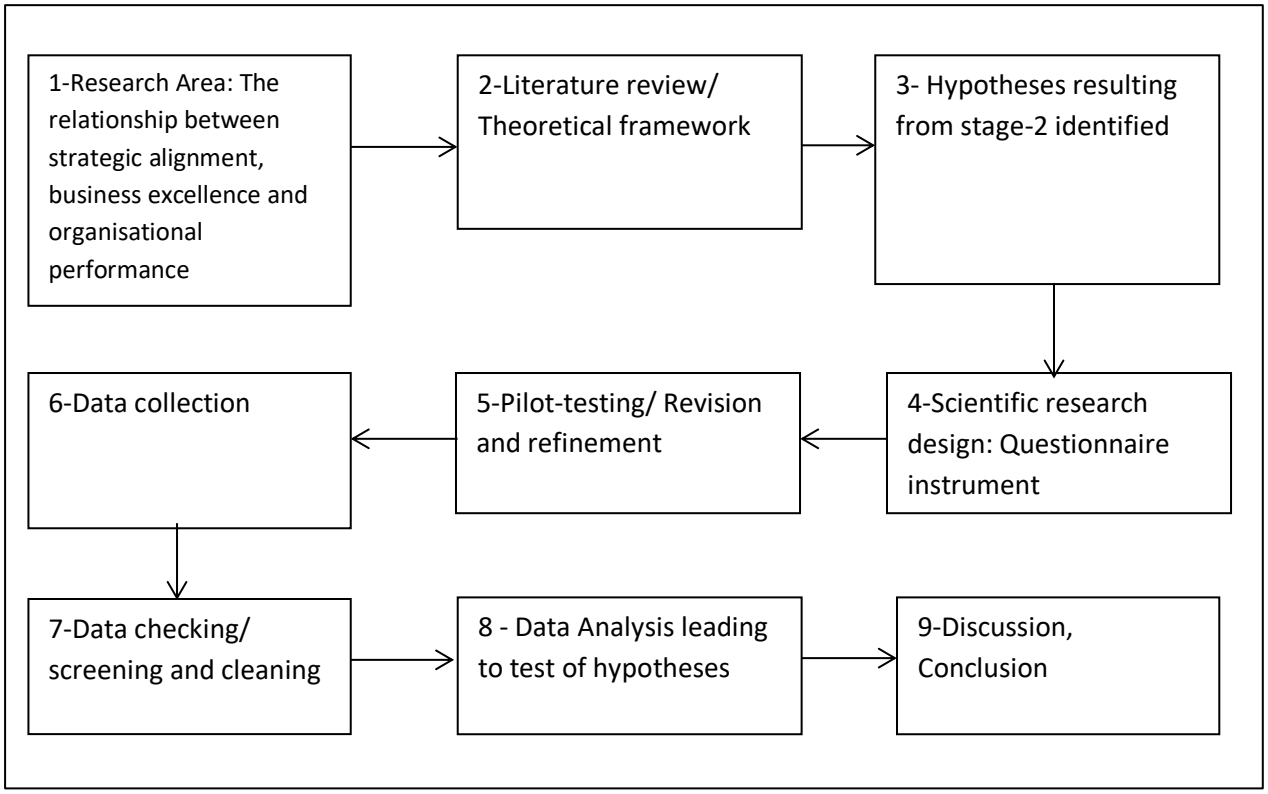


Figure 4.2: Summary of the applied research process

Source: The Researcher

4.16Conclusion

This chapter has detailed the research methodology, which was used to test the proposed theoretical framework. More specifically, positivist research paradigm adopted after critically examining its philosophical assumptions as compared with its counterpart (i.e., interpretive paradigm). Therefore, the deductive approach and the cross-sectional survey strategy were followed to test the theoretical model and associated hypotheses developed in this research.

A judgemental non-probability sample of 320 public shareholding firms in several sectors in the country of Jordan was selected using the ASE database as a sampling frame. Moreover, the research context, population, and the required sample for providing empirical data discussed in this chapter. Survey as a data collection method was chosen given the limitations related to the observations and interviews methods concerning the setting and aim of this research. In addition, a comprehensive review of the related literature was performed to design a user- friendly questionnaire. A critical distinguishing of both type of measurement

model (i.e. the formative and reflective construct); therefore, the reflective measurement model was adopted from prior researches. A pilot study was conducted by academics in the management and IT field before surveying the targeted population. The survey was finally administrated by self-administered strategy after considering the limitations of the other delivering approaches (e.g. post, telephone, and online). Finally, a description of the statistical techniques to be used in this research was provided along with the rationale behind choosing SEM for data analysis.

CHAPTER 5: DATA ANALYSIS AND RESULTS

5.1 Introduction

This research aims to investigate the impact of antecedent factors of sustainable strategic alignment (i.e., shared domain knowledge, and strategic IT flexibility) on sustainable strategic alignment. The research also aimed to examine and the mediation effect of business excellence enablers (i.e., leadership excellence, process excellence, employees' excellence, partnership and resources excellence, and policy and strategy excellence) on the relationship between sustainable strategic alignment and organizational performance. To achieve this, the previous chapter detailed the methodology that was used to collect data. This chapter presents the results of data analysis.

This chapter is structured as follows. Section 5.2 begins by presenting the demographic characteristics of the study sample. Section 5.3 explains the SEM analysis strategy. Section 5.4 explains the process of screening and examining data for missing values, potential outliers, common method bias, and its appropriateness for multivariate analysis by using SPSS version 20. Section 5.5 evaluates the measurement model in terms of unidimensionality, reliability, and validity by applying the statistical package of AMOS version 23. The structural model analysis tested in section 5.6, which also briefly present the research's hypotheses results. Finally, Section 5.7 provides a summary of the chapter.

5.2 Sample description

As discussed in the previous chapter, which explained the research design and execution applied in the presented research. This section presents additional details of the survey instrument used in this research. The questionnaire contains different parts, and covering letters distributed to 300 organizations and a total of 410 participants were expected to participate. The organizations based in the country of Jordan, including 17 banks, 33 insurance companies, 77 manufacturing (Industrial) companies, and 173 services companies. Out of the 410 questionnaires administrated, 250 survey questionnaires were received, representing a response rate of 61 percent. Frequency and descriptive analyses used to obtain a better understanding of the nature of the sample. Tables 5.1 and 5.2 present a profile of the sample in terms of the respondent's demographic profiles and firm profile, respectively.

The survey mainly directed to IT executives and business executives or both which are considered the top management in firms and selected from the public shareholding firms listed and already published by the Amman Stock Exchange (ASE). The justification behind

the selection of the top management executives as respondents from who has knowledge in IT, business planning and organizational performance which based on the fact that the strategic level information is only accessible to top tier hierarchy in a firm.

The completed surveys obtained from 215 respondents over four months. However, Table 5.1 reports the demographics of the respondents and associated frequencies in terms of gender, age groups, and years of experience. Concerning the gender of the targeted respondents, (*n* = 168, representing 78.1%) were provided by male, and (*n* = 47, representing 21.9%) are females. The age range of the respondents was weighted towards the younger age clusters of 26-35 by (*n* = 93, representing 43.3%) and 36-45, by (*n* = 69, representing 32.1%). Also, very young and very old executives are poorly represented, with (*n* = 24, representing 11.2%) of managers being aged 25 years or under; and (*n* = 23, representing 10.7%) for the 46-55 and (*n* = 6, representing 2.8%) for the above 55 years old groups. Finally, years of experience was distributed almost equally between under 2 years (*n* = 26, 12.1%) and 7-10 years, the remaining respondents (*n* = 45, 20.9%) of who worked up to 2 years, and (*n* = 92, 42.8%) have a long experience in their positions. The presented figures refer to the religious nature of society in the country of Jordan, in which women are not expected to work closely with men, thus reducing communication between them. In addition, the nature of the formation of the young Jordanian society necessitates middle-aged and experienced managers to work in Jordanian industries and respond quickly to cases of uncertainty and thus able to lead the business and IT departments.

The last section of the table presents the roles or responsibilities of participants from whom the data collected (i.e., the business unit to which the respondent belongs). The data shows that (*n* = 117, representing 54.4%) of the respondents served in management, core business or as planning executives, (*n* = 53, representing 24.7%) as IT executives and (*n* = 45, representing 20.9%) of the participants were holding both of the responsibilities.

Table 5.1 Demographics of the respondents (N = 215)

Category	Frequency	Percent %
Gender		
Male	168	78.1
Female	47	21.9
Total	215	100
Age		
Under 25	24	11.2
26-35	93	43.3

36-45	69	32.1
46-55	23	10.7
More than 55	6	2.8
Total	215	100
Experience		
0-2 years	26	12.1
3-6 years	52	24.2
7-10 years	45	20.9
More than 11 years	92	42.8
Total	215	100
Business units		
IT	53	24.7
Management/ Core Business/ Planning	117	54.4
Both	45	20.9
Total	215	100

In term of selected sectors, the participating firms were distributed among four different sectors as illustrated in Table 5.2 out of the total 215 respondents, the highest number of the participating firms (*n* = 52, representing 24.2%) work in the Industrial (i.e. Manufacturing) sector and service sector (*n* = 125, representing 58.1%). This is followed by the responses received from the insurance sector (*n* = 21, representing 9.8%) and finally banks with (*n* = 17, representing 7.9%). Notwithstanding, there is no bias towards any individual industry where each industry has a suitable representation in the study sample. This is justified by the fact that the included participants (i.e., the population framework) in the banking and insurance sectors were 17 and 23 respectively, and their responses were 17 and 21 firms respectively; thus, their representation is high. In other words, 17 (100%) of the total 17 respondents belong to the banking industry, whereas 21 (64%) of the total 33 respondents belong to the insurance sector.

Table 5.2 Firm Profile in the Study Sample (N = 215)

Category	Frequency	Percent %
Industry		
Banks	17	7.9
Insurance	21	9.8
Industrial (i.e. Manufacturing)	52	24.2
Services	125	58.1
Total	215	100

This Section, 5.2, showed the demographic profile and statistical analysis of the research samples, and the next section will present the SEM analysis strategy.

5.3 Structural Equation Modelling Strategy

This research selected the Structural Equation Modelling (SEM) by the use of Analysis of Moment Structures (AMOS) version 23 to validate the research hypotheses and the performance of the proposed framework. Hair *et al*., (2010) refer that a structural equation modeling is a family of statistical models that seek to explain the relationship among multiple variables involves two types of models known as the measurement model also known as the confirmatory factor analysis and the structural model (Hair *et al*., 2014). The next few sections present the results of CFA and the structural model for this study.

To ensure a proper evaluation of the measurement model and robust testing of the structural model, five essential steps were followed: (1) data coding and cleaning; (2) identifying and handling missing data; (3) detecting and handling outliers, (4) testing the common method bias (5) examining the assumptions of multivariate analysis (Hair *et al*., 2014a; Tabachnick and Fidell, 2013; Podsakoff *et al*., 2003).

This research used a dataset gained from IT and business managers in Jordan (N=215) to test a set of hypotheses. In order to test the relationships of the constructs in the research, the analysis of the data completed in two stages. The first stage called data screening and the second one called SEM analysis. The first stage covered the general data analysis which includes five essential steps were followed: (1) data coding and cleaning; (2) identifying and handling missing data; (3) detecting and handling outliers; (4) testing the common method bias; (5) examining the assumptions of multivariate analysis which includes examining the data for their normality, linearity, multicollinearity, and sample size (Hair *et al.*, 2014a; Tabachnick and Fidell, 2013; Podsakoff *et al*., 2003). This stage uses SPSS version 20 to conduct the steps above. Therefore, it was necessary to assess each scale for inter-consistency reliability by using Cronbach's alpha to purify the items in the survey before conducting the SEM. In addition, when the data screening stage completed, the second stage of data analysis was procced. As is be clarified below in-depth, by using the structural equation model (SEM) method throughout AMOS version 23, the second stage of data analysis was approved by developing both the current research confirmatory factor analysis (i.e., measurement model) and the structural model. This section describes the SEM analysis strategy used in the

research; the next section explains the data screening stage in terms of missing values and outliers, and the assumptions of multivariate analysis.

5.4 Data screening

To ensure a valid evaluation of the measurement model and robust testing of the structural model, the Researcher used the statistical software SPSS version 20 to cleans up the data, assesses the effects of missing data, identifies outliers, and examines the assumptions underlying (Hair *et al*., 2014a; Tabachnick and Fidell, 2014; Podsakoff *et al.*, 2003). As stated earlier, the main objective of these examinations is to detect what could not be visibly seen as the hidden effects easily ignored.

5.4.1 Data coding and cleaning

One crucial issue before the analysis stage is to ensure data file accuracy. Three steps were followed. The first step includes the coding process by assigning numerical codes to all questions (Pallant, 2013) to facilitate entering the responses into the data window. The second stage includes data editing by proofreading the original data to ensure their conformity with the computerized data file (Tabachnick and Fidell, 2014), in addition, using frequencies and descriptive statistics to scrutinize all observations on the research variables (Tabachnick and Fidell, 2014).

5.4.2 Handling missing data

Missing data refers to any data collection problems, data entry errors, or respondents' refusal or failure to answer one or more questions in the survey (Hair *et al.*, 2014a). As a result, valid values for those questions will be missing from the analysis which in turn result in biased results and affect the generalizability of findings (Hair *et al*., 2014a; Tabachnick and Fidell, 2014). Two issues regarding missing data should be evaluated, the first one is the pattern and relationships underlying the missing data (i.e., level of randomness), and the second one is associated with the amount of missing data (Hair *et al*., 2014; Tabachnick and Fidell, 2014). When missing values are distributed randomly through a data matrix, it refers less complexity but indicates that there is no bias. However, when missing values are non-randomly distributed amongst the survey, it may result in biasing the results and affect the generalisability of the study (Tabachnick and Fidell, 2014).

From the total distributed questionnaires (i.e., 410), 160 (about 39%) were not answered or not returned at all, and thus were eliminated from further examination. Therefore, 250 questionnaires retained for further investigation. As per Hair *et al*. (2010), there are two

types of missing data, (1) ignorable missing data (<10%) which is a type of missing data does not need specific remedies, (2) non-ignorable missing data (>10%) which necessitates finding appropriate remedies. However, based on the above recommendations, we find that the volume of missing values is less than 10% missing a value which is considered to be an acceptable percentage (Hair *et al.,* 2010).

The test of Missing Value Analysis (MVA) showed that the pattern of missing data happened in a totally random manner, which proves that missing data could be considered missing completely at random (MCAR), $p > .05$, $p = .607$. Then, we applied mean substitution (i.e. replacing the missing values for indicators with the mean value of that indicator) as one of the best remedies for missing data (Pallant, 2013), because there is no bias in such a pattern of missing data or any hidden effects on the results (Hair *et al.,* 2010).

5.4.3 Identification of outliers

An outlier is an extreme observation that is substantially different from the rest of observations in the dataset (i.e., has an extreme value) on one or more variables (Field, 2009; Hair *et al.,* 2014a; Tabachnick and Fidell, 2014). Researchers must be aware of such an extreme value as it might result in Type I and II errors, affect the validity and reliability of the data (Pallant, 2013) which subsequently distorts resultant statistics and provide misleading results regarding the hypothesized relationships (Pallant, 2013; Tabachnick and Fidell, 2014). Pallant (2013) argued that if the data has a normal distribution, then outliers might be detected if they extend more than three box lengths from the edge of the box-plot diagram (i.e., three standard deviations from the mean).

The outliers can occur due to coding mistakes or data entry errors (Hair *et al*., 2014a). However, it is vital to check back the codebook which was prepared to facilitate the process of transferring the responses into the SPSS window (Pallant, 2013) and the original data file was proofread against the computerized data file in the SPSS window as indicated previously in Section 5.4.1 to ascertain if there was a fault in entering the data (Tabachnick and Fidell, 2014). Some scholars recommended deleting all outliers from the dataset, while others suggested including them by changing their values to less extreme ones (Tabachnick and Fidell, 2014). The problem of outliers (i.e., extreme values) can be investigated by comparing the original mean with the new 5% trimmed mean. The trimmed mean has the advantage of being relatively resistant to outliers and could be achieved by removing the top and bottom 5% in most cases, then recalculating a new mean value. This procedure is substantial if

researchers need to see if the outlier values have a significant impact on the mean. Therefore, if the two values of the means are very similar, then it has been recommended to return the outliers to the dataset for further examination (Pallant, 2013). This research examined the outliers by using the box-plot method to identify the outliers and then compared the original mean with the 5% trimmed mean, to determine if the outlier values have a considerable impact on the mean. As a result, after careful examinations, no remarkable outliers were detected from the 215 valid observations, and hence, it was decided to pass for further examination using the 215 valid cases.

5.4.4 Common method variance

The common method variance (or bias) is defined as "the variance that is attributable to the measurement method rather than to the constructs the measures represent" (Podsakoff *et al*., 2003, p. 879). This can bias the observed relationships between measures of several constructs (Campbell and Fiske, 1959; Podsakoff *et al.,* 2003). Common method biases are considered as a problem since its influence in inflating the observed relationship among constructs measured with the same method (Sharma *et al.,* 2009) which lead to Type I and Type II errors (Crampton and Wagner, 1994). According to Richardson *et al.* (2009), who considered common method biases as one of the critical sources of measurement error which threaten the validity of the assumption of the relationship between measures. Common method variance can potentially arise as a result of using a self-administrated questionnaire to acquire data on all the research constructs from a single respondent at one point in time (Jap and Anderson, 2004), which was the case in the presented research.

Several preventive procedures were taken in the research stage design to avoid any issue of common method bias, such as 1. Ensuring the respondent's anonymity by sending a cover letter that demonstrated the purpose of the research and that answers provided would be analyzed at an aggregate level and no firm-level results would be revealed by any ways (Podsakoff *et al.,* 2003). 2. Defining the ambiguous or unfamiliar terms such as sustainable strategic IT-business alignment were briefly defined in the questionnaire to facilitate the understanding of the respondents (Tourangeau and Rasinski, 2000). However, despite that different preventive procedures were taken in the research stage design to avoid any issue of common method bias, providing all information on the predictors and criterion variables by a single respondent and at a single time point can raise the potential for common method bias (Richardson *et al.,* 2009). To check for potential common method bias, Harman's (1967) single-factor test was conducted in this research to check the severity of common method

bias. In this test, all the measurement items were loaded into factor analysis and examined the unrotated factor solution to decide whether the majority of variance is caused by one factor (Podsakoff *et al*., 2003; Jap and Anderson, 2004). The result of the analysis indicated that the majority of variance explained in the model by a single factor (23.19%) is less than the threshold value of 50%, suggesting that common method bias was not a critical issue in the current research.

5.4.5 Examining the assumptions of multivariate analysis

This section investigates all data for the assumptions of multivariate analysis in terms of normality, linearity, multicollinearity, and sample size. The need to test the statistical assumptions is critical for two reasons, as illustrated by Hair *et al.* (2014a). First, the complexity of the relationships due to the typical use of a large number of variables makes the potential distortions and biases more intense when the assumptions violated, especially when the violations compound to become severely detrimental than if considered separately. Second, the complexity of the multivariate analyses also may conceal the indicators of assumption violations that visible in the univariate analyses. Therefore, the researcher must be aware of any assumption violations and its related implications on the estimation process or the interpretation of the results. The most fundamental assumptions underlying the multivariate analysis are normality, linearity, multicollinearity (Hair *et al.,* 2014a; Tabachnick and Fidell, 2014). The following subsections show the results of investigating these assumptions.

5.4.5.1 The normality assumption

The normal distribution (also known as Gaussian distribution) of data is the primary assumption in a multivariate analysis that shows the shape of the data distribution and its correspondence to the normal distribution (Pallant, 2013). Large variations from the normal distributions distort other statistical tests and make them invalid (Hair *et al*., 2010). The normality assumption can be tested at the univariate level (distribution of scores at an item-level) and multivariate level (distribution of scores within a combination of two or more items). According to Hair *et al.* (2014a), if the variables have achieved the multivariate normality assumption, the assumption of the univariate normality would then be met as well. However, the reverse is not necessarily true. In other words, the existence of normality at the univariate level does not guarantee the assumption of multivariate normality. In order to assess the normality of the distribution of scores for the dependent and independent

constructs, some researchers (e.g., Pallant, 2013) recommended evaluating their skewness and kurtosis values and applying the Kolmogorov-Smirnov test.

Normality is examined in terms of either graphical or statistical ways and has two main parts: skewness and kurtosis. Jarque-Bera (skewness-kurtosis) test was conducted to ensure that all the research constructs are within the acceptable limit of the skewness and kurtosis ranges and were obtained using descriptive analysis function available in SPSS software (Hair *et al.*, 2014a; Tabachnick and Fidell, 2014). Skewness related to the symmetry of distribution (i.e., the balance of distribution) where the distribution shifted to the left or the right. For example, positively skewed data shows that the distribution is shifted to the left or is unbalanced to the left and tails off to the right, while a negative one reflects a shift to the right and tails off to the left. In contrast, kurtosis corresponds to the peakedness of the distribution (i.e., the height of distribution) (Hair *et al*., 2014). For example, a positive kurtosis shows a peaked distribution, while a negative kurtosis shows a flatter distribution of data (Tabachnick and Fidell, 2014). Scholars have specified the critical values of skewness, and kurtosis values within the range of ±2.58 suggest an acceptable level of departure from normality (Hair *et al.*, 2014a; Tabachnick and Fidell, 2014).

Table 5.3 reports the skewness and kurtosis values of the research constructs. All the research constructs' skewness and kurtosis values are found to be between the acceptable limit of ranges ±2.58, except shared domain knowledge which is found slightly over the limit. In other words, the results refer that the data is normally distributed. These observations can be clearly seen by examining the graphical representation of the distributions depicted in Figure 5.1 with the results similarly indicating that there was no serious deviation from the normal distribution.

Table 5.3 Descriptive Statistics

Total Item	**Mean**	**Standard Deviation**	**Skewness**	**Kurtosis**
Shared domain knowledge	4.2493	0.81961	-1.679	3.071
Strategic IT flexibility	4.2735	0.85423	-1.21	0.564
Sustainable Strategic alignment	4.4698	0.74794	-1.558	1.944
Leadership excellence	4.3767	0.82168	-1.041	1.223
Process excellence	4.3558	1.04798	-1.08	0.582
Employees excellence	4.4791	0.92260	-1.169	0.957

Policy & strategy excellence	4.5209	0.74776	-1.196	1.83
Partnership & resource excellence	4.6031	0.63687	-1.184	1.548
Performance	3.0186	0.55081	-1.082	0.62

Another robust test has been recommended by scholars (e.g., Pallant, 2013) is the Kolmogorov-Smirnov test which evaluates the normality of the distribution of the scores by testing the hypothesis that the distribution of the data is normal. If a non-significant result (i.e., a result with a significant value of more than 0.05) happens, then it has been failed to reject the hypothesis, and thus depicts normality of the variables. In this research, Table 5.4 shows that significant values (i.e., the statistical ones) of the constructs exceeded 0.05, indicating passing the assumption of normality. Indeed, Kolmogorov-Smirnov testing showed insignificant results at 0.05, and then normal distributions.

Table 5.4 Test of Normality

	Kolmogorov-Smirnov (a)			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
Shared domain knowledge	.324	215	.000	.726	215	.000
Strategic IT flexibility	.306	215	.000	.755	215	.000
Sustainable Strategic alignment	.188	215	.000	.813	215	.000
Leadership excellence	.326	215	.000	.658	215	.000
Process excellence	.302	215	.000	.680	215	.000
Employees excellence	.268	215	.000	.795	215	.000
Policy & strategy excellence	.301	215	.000	.679	215	.000
Partnership & resource excellence	.351	215	.000	.625	215	.000
Organizational Performance	.197	215	.000	.829	215	.000

a Lilliefors Significance Correction

5.4.5.2 The linearity assumption

Linearity indicates the existence of a linear or straight-line relationship between two variables (Tabachnick and Fidell, 2014). According to some Scholars (e.g., Pallant, 2013; Hair *et al*., 2014a), factor analysis and SEM techniques presume a linear correlation between indicators and constructs and between construct variables (i.e., between the dependent variable and the independent variables). Therefore, it is essential to test the linearity between variables since correlations will not be estimated for extreme nonlinear relationships (Hair *et al.*, 2014a). By

examining the scatter plot matrix using SPSS statistical software, scatterplots matrix includes all the bivariate scatterplots for each variable with all other variables (Tabachnick and Fidell, 2014). A visual examination of the scatterplots matrix shows that all bivariate scatterplots are relatively oval-shaped (Figure 5.1), and in turn, did not show any support for non-linearity. Therefore, there was no evidence to challenge the linearity assumption.

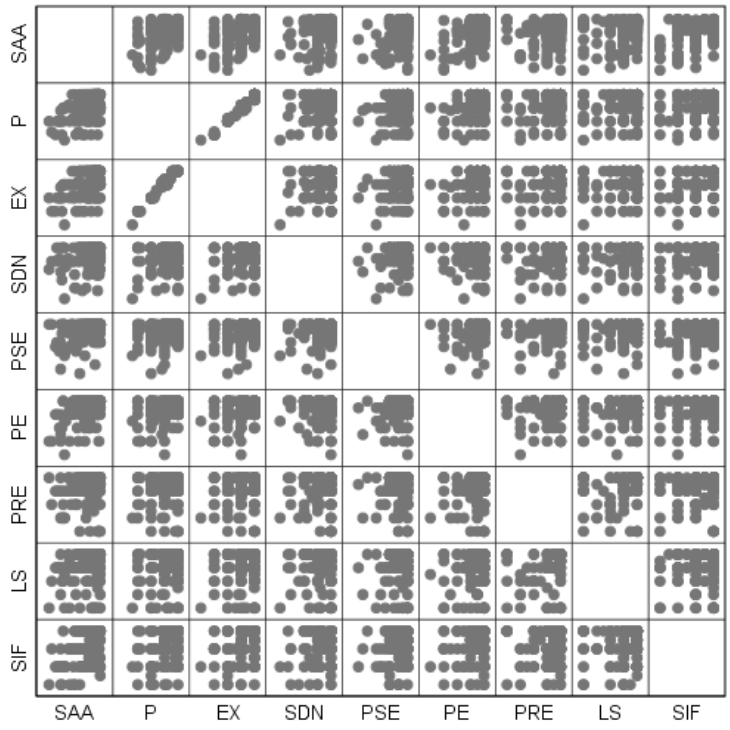


Figure 5.1: Scatterplots matrix of the variables

Note: (SSA: sustainable strategic alignment; P: performance; SIF: strategic IT flexibility; SDN: shared domain knowledge; LS: leadership excellence; PSE: policy and strategy excellence; PE: process excellence; EX: employees excellence; PRE: partnership and resources excellence).

5.4.5.3 The multicollinearity assumption

Multicollinearity indicates to the existing of extraordinary high correlations between the exogenous variables (i.e., independent variables) (Hair *et al.*, 2014a). The presence of a high correlation between the independent variables and the dependent variable with no or little correlation between the independent variables is considered as an ideal situation for a researcher (Hair *et al.*, 2010). The presence of high levels of collinearity between two variables can inflate the size of standard errors for the regression coefficients and, subsequently, reduce the ability to demonstrate significant coefficients and impact the

validity of results produced by the examined model (Hair *et al.*, 2010, Tabachnick and Fidell, 2014).

Moreover, by using SPSS software, two values normally used to check for multicollinearity among the variables: tolerance and VIF (Variance Inflation Factor). Tolerance value indicates the amount of variance of one exogenous variable not explained by other exogenous variables within the same model (Hair *et al.*, 2014). On the other hand, VIF refers to the amount of increase in the standard error as a result of collinearity between variables (Hair *et al.*, 2014). However, Table 5.5 reports that the problem of multicollinearity was not an issue for the current research since all the variables' VIF values are below the threshold value of 0.5 and their tolerance values are higher than 0.2 (Hair *et al*., 2014).

Table 5.5 Multicollinearity Statistics

Dependent Variable	Independent Variables	Tolerance	VIF
Shared domain knowledge	Policy and strategy excellence	0.826	1.211
	Process excellence	0.742	1.347
	Partnership and resource excellence	0.766	1.306
	Leadership excellence	0.748	1.337
	Strategic IT flexibility	0.714	1.400
	Strategic Alignment	0.522	1.918
	Performance	0.020	1.555
	Employees excellence	0.020	1.266
Strategic IT flexibility	Leadership excellence	0.744	1.344
	Strategic Alignment	0.585	1.710
	Performance	0.020	1.806
	Employees excellence	0.019	1.558
	Shared domain knowledge	0.900	1.111
	Policy and strategy excellence	0.829	1.206
	Process excellence	0.740	1.351
	Partnership and resources excellence	0.769	1.301
Sustainable Strategic alignment	Performance	0.020	1.280
	Employees excellence	0.019	1.147
	Shared domain knowledge	0.910	1.099
	Policy and strategy excellence	0.850	1.177
	Process excellence	0.822	1.216
	Partnership and resource excellence	0.772	1.295
	Leadership excellence	0.753	1.328

	Strategic IT flexibility	0.809	1.236
Leadership excellence	Strategic IT flexibility	0.713	1.402
	Sustainable Strategic Alignment	0.522	1.917
	Organisational Performance	0.020	1.945
	Employees excellence	0.019	1.838
	Shared domain knowledge	0.904	1.106
	Policy and strategy excellence	0.824	1.214
	Process excellence	0.745	1.342
	Partnership and resource excellence	0.889	1.124
Process excellence	Partnership and resource excellence	0.766	1.306
	Leadership excellence	0.751	1.331
	Strategic IT flexibility	0.715	1.399
	Sustainable Strategic Alignment	0.574	1.742
	Organisational Performance	0.020	1.263
	Employees excellence	0.019	1.020
	Shared domain knowledge	0.905	1.105
	Policy and strategy excellence	0.821	1.218
Employees excellence	Shared domain knowledge	0.916	1.092
	Policy and strategy excellence	0.823	1.214
	Process excellence	0.741	1.350
	Partnership and resource excellence	0.767	1.304
	Leadership excellence	0.750	1.333
	Strategic IT flexibility	0.717	1.394
	Sustainable Strategic Alignment	0.515	1.941
	Organisational Performance	0.719	1.390
Policy and strategy excellence	Process excellence	0.738	1.355
	Partnership and resource excellence	0.766	1.305
	Leadership excellence	0.746	1.340
	Strategic IT flexibility	0.720	1.389
	Sustainable Strategic Alignment	0.533	1.876
	Organisational Performance	0.020	1.987
	Employees excellence	0.019	1.998
	Shared domain knowledge	0.904	1.106

Partnership and resource excellence	Leadership excellence	0.864	1.157
	Strategic IT flexibility	0.716	1.397
	Sustainable Strategic Alignment	0.520	1.924
	Organizational Performance	0.020	1.202
	Employees excellence	0.019	1.127
	Shared domain knowledge	0.899	1.112
	Policy and strategy excellence	0.822	1.217
	Process excellence	0.738	1.355
Organisational performance	Employees excellence	0.707	1.415
	Shared domain knowledge	0.913	1.095
	Policy and strategy excellence	0.825	1.212
	Process excellence	0.739	1.354
	Partnership & resource excellence	0.767	1.303
	Leadership excellence	0.751	1.332
	Strategic IT flexibility	0.715	1.398
	Sustainable Strategic Alignment	0.515	1.940

5.4.5.4 The sample size assumption

Several scholars recommended that sample size should be large enough to address the research question, and a large sample size would better represent the population (Collis and Hussey, 2014). Moreover, the larger the sample size, the more representative the sample will be of the population of interest and thus will lead to more generalized findings. Notably, the small sample size may prevent some statistical tests among the proposed hypothesis. As this research uses structural equation modeling (SEM) technique to analyze the proposed theoretical model and depends on tests that are sensitive to sample size, thus it would require a larger sample. Some scholars (i.e. Hoelters, 1983) recommended that a proper sample size to be suitable for the data analysis should be between 100 and 200, around 200 sample size (Hoelters, 1983); whereas Kline (2015) indicated that a sample size of less than 100 would be nor sufficient for the applying SEM . Also, Bentler and Chou (1987) recommended 5 cases per parameter estimate, while Stevens (1996) suggested at least 15 cases per measured variable. Krejcie and Morgan (1970) provided guidelines for sample size decision. However, based on Krejcie and Morgan (1970), the current research applied SEM with sample size exceeded the condition of having a minimum number of 152 respondents by 215 cases, with nine variables (see Section 4.11).

5.4.5.5 Test of scale reliabilities

In order to proceed to SEM analysis, it is essential to assess each scale for inter-consistency reliability by using Cronbach's alpha. This method applies to multiple indicator constructs where data collected on all indicators are aggregated to create an overall score for the related construct (Hair *et al*., 2010). The purpose of this method is to ensure that the multiple indicators that measure a particular construct belonged to each other because they all measure the same construct (Bryman and Bell, 2015). However, Cronbach's alpha is most popular techniques for testing the internal reliability of multiple indicators constructs when factor analysis used (Hair *et al*., 2010; Bryman and Bell, 2015) and used to exclude all components with low reliabilities in the SEM analysis before conducting the CFA.

Furthermore, some researchers (e.g., Hair *et al*., 2010) recommended that Cronbach's alpha value between 0.60 and 0.70 should be the lowest acceptable limit for this coefficient. Moreover, Cronbach's alpha coefficient is sensitive to the number of indicators in a construct where the value of Cronbach's alpha increases with the increase in the number of indicators used in measuring a construct. Table 5.6 represents the reliabilities for the observed items of the survey constructs.

Table 5.6 Reliabilities of the Scales (N = 215)

Constructs	Indicators	Cronbach's Alpha
Shared domain knowledge	Q1- Q6	0.85
Strategic IT flexibility	Q7-Q10	0.80
Sustainable Strategic alignment	Q11-Q24	0.90
Leadership excellence	Q25-Q28	0.88
Process excellence	Q29-Q32	0.75
Employees excellence	Q33-Q37	0.79
Policy and strategy excellence	Q38-Q41	0.65
Partnership and resource excellence	Q42-Q44	0.67
performance	Q45-Q53	0.75

The reliability of each construct was estimated using the Cronbach's alpha; all constructs possessed a satisfactory reliability value ranging from 0.65 to 0.90. Having purified the sample by validating the scale reliabilities; the second stage of data analysis (i.e., CFA and structural model) performed in the next sections.

The aforementioned discussions addressed in detail the first stage of the analysis, which included missing data, outliers, common method bias, and examining the assumptions of multivariate analysis (i.e., normality, linearity, multicollinearity, and sample size); the second stage of data analysis addressed in the following sections.

5.5 Measurement Model

Structural equation modeling is the most recent approach in performing CFA in social sciences research (Worthington and Whittaker, 2006). In addition, Byrne (2001) and Kline (2015) refer that confirmatory factor analysis technique (CFA) is seen as the most powerful tool compared with multiple regression. CFA takes into account the modeling of interactions, correlated independents, nonlinearities, measurement errors, correlated error terms, multiple latent independents which measured by multiple indicators, and one or more latent dependents also with multiple indicators. Furthermore, it offers better coefficient estimates and variance analysis; by including the error variance in the study model. Therefore, following the recommendation of Hair *et al*. (2010), the validity of the CFA (measurement model) should be assessed through two stages: (1) goodness of fit indices and (2) Construct Validity approach. Thus, this research has considered these two stages to validate its confirmatory factor analysis.

5.5.1 Estimation and model fit indices

The model analysis involves using the Maximum Likelihood method. Therefore, to achieve statistical power in model fitness to the dataset, then Maximum Likelihood Estimation (ML) is by far the most common method in SEM for various reasons. Firstly, ML is a widely used estimation method, particularly with limited sample sizes range from 100 - 200 (Anderson and Gerbing, 1988). Secondly, it is used to estimate all model parameters simultaneously (Kline, 2015). ML provides path coefficients and variances of the sample population by suggesting that the estimated parameter values maximize the probability (likelihood) that the observed covariances drawn from that population (Kline, 1998). In other words, that is, ML chooses estimates which have the greatest chance of reproducing the observed data. In addition, Kline (2015) refer that model estimation includes estimation of parameters that are unanalyzed associations between independent variables, the direct relationship between independent and dependent variables, variance and error variance of all variables. Therefore, ML is an appropriate technique for estimating the current research parameters.

Furthermore, regarding the model fit measures, a large number of goodness-of-fit indices are provided to judge if the model is consistent with the empirical data. The choice of the

estimation procedure relies on the type of data included in the model (Hair *et al.,* 2010). Also, goodness-of-fit indices determine if the model being tested should be accepted or rejected. However, although there is no agreement on specific fit indices in assessing research models, some scholars (e.g., Hair *et al.,* 2010) refer that to overcome the weaknesses of some of the model indices, then a number of measures should be used to gauge the fit of each measurement model before validating it by evaluating each construct for unidimensionality, reliability, and validity.

Structural Equation Modelling (SEM) has been considered as one of the techniques of choice for researchers across disciplines in the social sciences. However, the issue of model fit focus on how the model will best represent the data which reflects underlying theory. In CFA, there are three types which are determined to be fit measure indices and include absolute fit measure, incremental fit measure, and parsimonious fit measure (Hair *et al*., 2014).

Firstly, absolute indices indicate the ability of a model to reproduce the actual covariance matrix. Absolute indices include the chi-square (x^2) statistic, chi-square per degree of freedom ratio (x^2/df), and the Root Mean Square Error of Approximation (RMSEA) (Hair *et al.*, 2010) which all provide the most fundamental indicator of how well the proposed theory fits the data. In more details, the lower the x^2 statistics, with significant levels at 0.05, 0.01, and 0.001, it indicates to better the fit between the proposed model and covariances and correlations, thus is accepting the null hypothesis of covariance matrix equality (Hair *et al*., 2010). The x^2/df ratio in the range of 2 to 1 or 3 to 1 are indicative of an acceptable fit between the hypothetical model and the sample data (Kline, 2015); also, Byrne (2006) recommended that ratio should not exceed 3. Some researchers (e.g., James *et al.,* 1982) suggested that the ratio should be range between 2 and 5, but not over 5 (Hair *et al.,* 2010). However, most researchers agreed that the smaller the value of the ratio, the better the fit. Root Mean Square Error of Approximation (RMSEA) is the most widely used measures which it represents how well a model fits a population, not just a sample data (Hair *et al*., 2010). According to Hair *et al.* (2010), the RMSEA value, which ranges from 0.03 to 0.08 indicates a close fit of the model in relation to the degrees of freedom. However, some researchers (e.g., Browne and Cudeck, 1993) argued that the lower the value, the better the fit, and the value of 0.08 and higher show a reasonable error of estimation.

Secondly, some of the incremental indices that compare the proposed model to the null model are NFI, IFI, TLI, and CFI. Normed Fit Index (NFI) which also known as the Bentler-Bonett

normed fit index that represents the improvement in the fit of the hypothesized model over the null model. Incremental Fit Index (IFI) compares the chi-square value to a baseline model where the null hypothesis in these models is that all variables are uncorrelated (McDonald and Ho, 2002). Tucker-Lewis Index (TLI) is a development of (NFI) with more consideration to sample size (Hair *et al.*, 2010). However, some of the aforementioned indices such as NFI underestimate fit in small samples; therefore, Bentler (1990) proposed the Comparative Fit Index (CFI), which takes into account sample size (Tabachnick and Fidell, 2015) and compares the hypothesized model to the best fit model (i.e., saturated model). Some scholars (for example Hair *et al.*, 2010) recommended that the value of the NFI, IFI, TLI, and CFI indices should be close to 1 to achieve a very good fit and in turn, the model is considered as acceptable.

Thirdly, parsimonious fit measures could be used to examine the fit of the model concerning the number of estimated coefficients needed to achieve such a level of fit. (Hair *et al.*, 2010). Also, those measures provide information about which model among a set of competing models is best. Parsimony Normed Fit Index (PNFI) is the most widely used parsimony fit indices, where a high value of PNFI represents a better fit. Also, Adjusted Goodness of Fit Indices (AGFI) is another measure of parsimony as it tries to consider the different degrees of model complexity. AGFI value close to 1 indicates a perfect fit.

Based on the above discussion, a number of fit indices have been examined in this research, as shown below in Section (5.5.3), namely chi-square (x^2) statistic test, chi-square per degree of freedom ratio (x^2/df), Incremental Fit Index (IFI), Tucker- Lewis Index (TLI), Comparative Fit Index (CFI), Adjusted Goodness of Fit Indices (AGFI), and Root Mean Square Error of Approximation (RMSEA).

5.5.2 CFA Procedure

Based on the classical test theory, the quality of the reflective measurement model can be assessed by running a confirmatory factor analysis (CFA). It is important to assess each construct for unidimensionality, reliability, and validity in terms of convergent validity and discriminant validity through CFA as a statistical technique to assess the extent to which the observed variables meet the expected factor structure (Hair *et al.*, 2014a).

Two theoretical considerations should be taken into account. Firstly, ensure the conceptual validity of the observed structure and having an adequate number of variables to capture each expected factor (Tabachnick and Fidell, 2014; Hair *et al.*, 2014a). Therefore, the relationship

between the expected factors and their respective variables were founded based on a comprehensive review of the related literature. Also, the expected factors captured by the adequate number of variables is at least three indicators (Hair *et al*., 2010). Secondly, ensure the homogeneity of the research's sample to prevent a different factor structure on the observed variables (Tabachnick and Fidell, 2014). However, the sample in the current study involves only large public companies (>250 employees), and thus exhibited homogeneity.

Tow related statistical assumptions should be tested sequentially before conducting CFA (Hair *et al*., 2014a). Firstly, ensure an adequate sample to produce a correlation matrix. Secondly, ensure the availability of sufficient and sizable inter-correlations among the observed variables.

It is essential to examine Kaiser-Meyer-Olkin (KMO) and Bartlett's test in order to proceed to confirmatory factor analysis (Hinton *et al*., 2004). Kaiser-Meyer-Olkin (KMO) refers to the total of squared correlations to the sum of squared correlations added to the sum of squared partial correlations (Tabachnick and Fidell, 2014) to ensure if the variables in a given sample are adequate to correlate (Hair *et al*., 2010). KMO value ranges from 0 to 1, with higher values indicating the adequacy of the sample to run a correlation matrix. Hair *et al.* (2010) advocate that KMO should exceed the minimum value of 0.60. Table 5.7 illustrates that KMO value is 0.90, suggesting that the observed variables are adequate to correlate.

Table 5.7 KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.906
Bartlett's Test of Sphericity	Approx. Chi-Square	4799.984
	df	780
	Sig.	.000

Bartlett's (1954) test of sphericity was examined to see whether a satisfactory level of inter-correlations exists among the observed variables for factor analysis. Bartlett's test of sphericity test is carried out to confirm the relationship between the variables (Hair *et al.,* 2010). As a rule of thumb, if Bartlett's test of sphericity is significant ($p \leq 0.05$); thus, the observed variables are correlated in the population. On the other hand, if the test is insignificant ($p > 0.05$), the observed variables are uncorrelated in the population. As shown in Table 5.7, the results of this study indicated a Bartlett's test of ($p< 0.05$) suggesting the

existence of an acceptable and sizable level of inter-correlations among the observed variables. In sum, the discussion above indicates that both the theoretical and statistical assumptions of factor analysis are satisfied, which confirms the appropriateness of data for carrying out factor analysis.

Examining the unidimensionality of each construct is essential in theory development since it means that all indicators of the given construct are strongly correlated with each other and represent only that specific construct which has been identified in a theoretical model (Hair *et al.,* 2010). Therefore, standardized factor loadings are expected to meet the minimum recommended value of 0.50 (Hair *et al.,* 2010; Newkirk and Lederer, 2006). In addition, several fit indices (i.e., absolute, incremental, and parsimonious) such as x^2 test, x^2/df, IFI, TLI, CFI, AGFI, and RMSEA should be satisfactory and significant to refer to the suitability of the model.

Furthermore, reliability refers to the stability of the instruments and the consistency of the measures. Indeed, two types of reliabilities examined in this research. First, the reliability multi-item scale for every construct, which is assessed by using Cronbach's alpha, in which the recommended values should be above the 0.70 (Hair *et al*., 2014a). Second, the composite reliability that measures the internal consistency and the rule of thumb it should be greater than 0.70 (Bagozzi and Yi, 1988; Hair *et al*., 2010). Employing Fronell and Larcker's (1981) formula, the composite reliability calculation is (Kearns and Lederer, 2003):

$$\text{Composite Reliability} = (\Sigma \text{ Li})^2 / ((\Sigma \text{ Li})^2 + \Sigma \text{ Var (Ei)})$$

Note: in the formula mentioned above Li is the standardized factor loadings for each indicator, and Var (Ei) is the error variance associated with the individual indicator variables.

Validity is the degree to which an instrument measures the construct it is supposed to measure. According to Sekaran (2003), a few types of validity tests are used to test the goodness of measure. Convergent and discriminant validities; the former is established when the indicators underlying a specific construct are highly correlated or share a high common variance, while the latter, is established when two variables are predicated on being uncorrelated (Sekaran, 2003). Therefore, convergent validity is established when the standardized loading value of each indicator of 0.5 and ideally 0.7 (Hair *et al*., 2010). Moreover, AVE value (i.e., the sum of all squared standardized factor loadings divided by the

number of items) should be 0.5 or higher (Hair *et al*., 2010). Based on an alpha of 0.05, parameters which have t-value more than 1.96 are considered to be significant, and in turn are sufficient evidence of convergent validity.

Discriminant validity evaluates the level to which each construct is distinct from other constructs (Hair *et al*., 2010). Following Fronell and Larcker (1981), discriminant validity can be evaluated by the Average Variance Extracted (AVE), which should exceed the squared value of the correlation estimate between these two constructs (Hair *et al.,* 2010). The formula for the variance extracted is (Kearns and Lederer, 2003):

Variance Extracted = Σ Li ^{2} / (Σ Li ^{2} + Σ Var (Ei))

Note: in the formula mentioned above Li is the standardized factor loadings for each indicator, and Var (Ei) is the error variance associated with the individual indicator variables.

when each of reliability, validity in term of convergent and discriminant support the quality of overall measurement model, the measure is considered adequate for testing the structural or path coefficient that estimates for hypothesized relationships of the research model (Gerbing and Anderson, 1992).

5.5.3 Assessment of measurement model for exogenous and endogenous variables

Researchers use two well-known ways of testing a measurement model. First is a test of the measure of each construct separately. Second is a test of all measures together at one time. Cheng (2001) indicated that the first way prevents measuring the correlations between the indicators of the constructs, and therefore would affect on examining the discriminant validity between the constructs (i.e., high correlations among constructs refer that they measure the same items). Therefore, this research in line with Cheng (2001) who suggests that the evaluation the measurement model for all constructs at one time in one measurement model test is better than the first way, by using the maximum likelihood technique (ML) which is the most commonly used and accepted method for model estimation (Reisinger and Mavondo, 2007).

5.5.3.1 Determining offending estimates

While estimating a measurement model, researchers are required to check the results for common offending estimates such as negative error variances and/ or insignificant error variances; standardized coefficient exceeding 1.0, and very large standard errors related to

any estimate coefficient. Offending estimates refer to any value that exceeds its theoretical limits (Hair *et al.*, 2006). There are a number of estimated coefficients that should be in the acceptable ranges. However, Cheng (2001) refers to the necessity of correcting the theoretically inconsistent estimates before analyzing the hypothesized relationships among variables and evaluating overall model fit. As a result, this research conducted a thorough investigation of the research's constructs and did not found any offending estimates in the measurement model. Consequently, it was appropriate to continue investigating the measurement model of the research constructs.

5.5.3.2 Model modification

The measurement model aims to clarify the relationships among latent variables which are measured by a set of obvious indicators. Therefore, while testing structural equation models, several statistics such as chi-square test statistic ($\chi 2$) and fit indices such as comparative fit index are tested to identify if a theoretical model fits the data adequately or not. When these fit indices present inadequate fit of a structural equation model, the model may be modified, improved or respecified, followed by retesting of the modified model before the structural model estimation (MacCallum, Roznowski, and Necowitz, 1992; Byrne, 1989). In addition, structural equation models are a priori models which based on hypothesized theoretical relations among observed and latent variables. Thus, poor fit in a model considered as a signal of that theoretical model is not plausible and/or poorly conceived or can be seen as evidence of specification errors in the model, which in turn result in a discrepancy between the theoretically plausible model hypothesized and the true model in the population

As illustrated in Table 5.8, the initial specified model, which defines the relationships among the research constructs fits the data moderately in term of the absolute, incremental, and parsimonious model fit indices. These indexes evaluated by the goodness of fit indices such as chi-square per degree of freedom ratio (x^2/df), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Adjusted Goodness of Fit Index (AGFI), and Root Mean Square Error of Approximation (RMSEA). However, scholars (Kline, 1998; Carmines and McIver, 1981) indicated that the ratio of chi-square per degree of freedom (x^2/df) between 2 to 1 or 3 to 1, is considered to be an acceptable fit between the hypothesised model and the sample data. Therefore, the ratio of x^2/df for this research was within the recommended value (x^2/df =1.66). In addition, incremental fit index (IFI = 0.85), Tucker-Lewis index (TLI = 0.87), and comparative fit index (CFI = 0.88) did not fit the data well, since the value's closer to 1 present a better fit. Since the smaller the RMSEA the better will

be the model fit, root mean square error of approximation (RMSEA = 0.065) in this research was inside the recommended range of 0.03 and 0.08 (Hair *et al*., 2010), and was less than 0.10 (Chou et al., 2007).

Indeed, although the initial specification of the presented model was accepted in general, as illustrated above, all model fit indices (i.e., chi-square per degree of freedom ratio (x^2/df), incremental fit index (IFI), Tucker-Lewis index (TLI), comparative fit index (CFI), Adjusted Goodness of Fit (AGFI) and Root Mean Square Error of Approximation (RMSEA)) did not entirely fit the sample data. Specification errors could be the inclusion of irrelevant relations or the exclusion of relevant relations (MacCallum, 1992). Therefore, it is recommended to improve these fit indices by investigating the model's misspecification, and then assessing the measurement model for unidimensionality, reliability, and validity in terms of convergent validity and discriminant validity. Some researchers believe that model modification should be performed to find a model that acceptably explains the relations among observed and latent variables (Saris *et al.,* 2009).

Although different views are taken about model modification, it is known that modification of the model is no longer confirmatory or a priori in nature, but rather exploratory. However, this research present that the standardized regression weights of some indicators had a low loading towards the latent variables, in particular Q3 = 0.410, Q7 = 0.273, Q8 = 0.401, Q18 = 0.303, Q25 = 0.410, Q26 = 0.342, Q30 = 0.187, Q31 = 0.170, Q46 = 0.180. Also, indicators have error values exceeding 2.58 which considered too large (Jöreskog and Sörbom, 1988), for instance, the error variance values for Q48, Q32, Q9, and A21 were 2.923, 3.512, 2.983, and 2.708 respectively. Therefore, the above indicators did not meet the minimum recommended value of factor loadings of 0.50 (Newkirk and Lederer, 2006); also the indicators had high error variances, and because the initial fit indices moderately fit the sample data, they were all deleted and excluded from further analysis. Therefore, the measurement model was modified and showed a better fit to the data as illustrated in Table 5.8.

Table 5.8 Measurement Model Fit Indices

Model	X^2	df	p	X^2/df	AGFI	IFI	TLI	CFI	RMSEA
Initial Estimation	41.51	28	0.048	1.48	0.88	0.85	0.87	0.88	0.065
Final Model	34.98	21	0.028	1.66	0.88	0.98	0.97	0.98	0.056

As reported in Table 5.8, chi-square per degree of freedom ratio (x^2/df) and root mean square error of approximation (RMSEA) enhanced for the final model, the incremental fit index (IFI = 0.98), Tucker-Lewis index (TLI = 0.97), and comparative fit index (CFI = 0.98) and Adjusted goodness of fit Index (AGFI = .88) indicated acceptable fit to the data, after deleting the low factor loading items. Therefore, after purifying the final measurement model for the ten constructs, the next stage is to evaluate them for unidimensionality, reliability, and validity. However, model modifications should be done based on relevant theory. Also, cross-validation is highly recommended to help ensure the predictive validity of modified models (Hair *et al.*, 2010).

5.5.3.3 Unidimensionality of the constructs

The unidimensionality of a construct refers that all indicators of that construct are highly correlated with each other and represent only that specific construct (Hair *et al*., 2010). Therefore, examining the unidimensionality of the research constructs is essential due to the confusion that may appear when some indicators represent more than one construct in the model. Also, Factor analysis (i.e., exploratory factor analysis EFA or confirmatory factor analysis CFA) as a critical statistical tool usually applied to establish the unidimensionality of constructs. Therefore, unidimensionality is considered as a prerequisite for construct reliability and validity analysis (Chou *et al*., 2007; Hair *et al.*, 2010).

Table 5.9 Properties of the Measurement Model

Constructs and Indicators	Standard Loading	Standard Error	t-value	Cronbach Alpha	Composite Reliability	AVE
Shared domain knowledge				**0.90**	**0.72**	**0.57**
Q1	0.721	*******	******			
Q2	0.658	0.058	3.844			
Q4	0.567	0.052	6.768			
Q5	0.550	0.058	3.849			
Q6	0.692	0.051	7.745			
Strategic IT flexibility				**.84**	**0.84**	**0.73**
Q9	0.950	*****	*****			
Q10	0.744	0.056	8.817			
Strategic alignment				**0.93**	**0.94**	**0.53**
Q11	0.892	****	******			
Q12	0.821	0.062	1.995			
Q13	0.804	0.072	1.951			
Q14	0.795	0.059	1.888			

Q15	0.760	0.058	1.882			
Q16	0.735	0.057	1.898			
Q17	0.717	0.065	1.993			
Q19	0.706	0.054	1.785			
Q20	0.698	0.064	1.999			
Q21	0.694	0.061	2.809			
Q22	0.619	0.054	2.786			
Q23	0.581	0.065	4.929			
Q24	0.565	0.051	4.750			
Leadership excellence				**0.88**	**0.82**	**0.70**
Q27	0.877	*****	*****			
Q28	0.804	0.072	4.056			
Process excellence				**0.88**	**0.84**	**0.74**
Q29	0.880	*****	*****			
Q32	0.843	0.064	5.942			
Employees excellence				**0.79**	**0.85**	**0.54**
Q33	0.784	******	******			
Q34	0.783	0.071	5.048			
Q35	0.730	0.070	3.022			
Q36	0.698	0.064	3.937			
Q37	0.672	0.069	4.009			
Policy and strategy excellence				**0.66**	**0.91**	**0.59**
Q42	0.833	******	*****			
Q43	0.763	0.056	5.822			
Q44	0.720	0.058	5.850			
Partnership and resource excellence				**0.67**	**0.86**	**0.52**
Q38	0.778	******	******			
Q39	0.620	0.058	5.857			
Q40	0.578	0.059	4.872			
Q41	0.564	0.057	2.842			
Organizational performance (i.e. Key performance results)				**0.79**	**0.92**	**0.70**
Q45	0.978	****	5.098			
Q47	0.884	0.065	4.864			
Q48	0.864	0.069	2.834			
Q49	0.799	0.066	3.799			
Q50	0.799	0.064	1.789			

In this research, CFA is performed to empirically assess the dimensionality of constructs involved in the model using the SPSS software package. In this analysis, the evaluation of unidimensionality includes the assessment of the (1) standardized factor loadings and the (2) comparative fit index (CFI) Byrne (1989). The first shows that the research indicators point out significant regressions toward the latent variables, while the second refers that all items load significantly on one latent variable. Table 5.9 presents an obvious evidence for the unidimensionality of the nine constructs specified in the measurement model where all the values of the different parameter estimates met the minimum recommended value of 0.50 (Hair *et al*., 2010; Newkirk and Lederer, 2006). Moreover, the comparative fit index (CFI) values (see Table 5.10) for the constructs were all satisfactory and above the recommended value of 0.90 (Hair *et al.,* 2010; Bentler and Bonett, 1980; Bentler, 1990). Therefore, there was strong evidence on unidimensionality for the current research constructs.

Table 5.10 Unidimensionality for the Research Constructs

Construct	**CFI**
Shared domain knowledge	0.90
Strategic IT flexibility	0.95
Sustainable Strategic alignment	0.93
Leadership excellence	0.90
Process excellence	0.90
Employees excellence	0.91
Policy and strategy excellence	0.98
Partnership and resource excellence	0.91
Performance	0.91

5.5.3.4 Reliability of the constructs

Reliability indicates the consistency of measurement indicators meaning that a scale or measurement tool should consistently reflect the construct it measures over time (Sekaran and Bogie, 2000). One important aspect of reliability is the internal consistency among a set of indicators reflecting the same construct (Sekaran and Bogie, 2000). The internal consistency of the indicators' constructs assessed by Cronbach's αlpha developed by (Cronbach, 1951) which is the most common and a well-accepted measure of scale reliability (Bryman and Bell, 2007; Tabachnick and Fidell, 2014), and the composite reliability (Werts *et al*., 1974). Cronbach alpha and composite reliability are considered as useful tests to measure the construct reliability (Hair *et al.,* 2010).

Cronbach's αlpha coefficient refers to the average inter-correlations among the indicators reflecting the construct (Sekaran and Bogie, 2000; Bryman and Bell, 2007). Cronbach's α is range from 0 to 1, with the closer it is to 1, the higher the internal consistency of the indicators (Sekaran and Bogie, 2000). There is an agreement among researchers (e.g., Nunnally, 1978; Hair *et al.*, 2014a) that a Cronbach's alpha value of 60-0.70 indicates an acceptable level of internal consistency for confirmatory studies. However, given the sensitivity of this coefficient to the number of indicators in a construct, its value might be inflated by including a large number of indicators. Therefore, researchers have suggested less conservative Cronbach's α values for exploratory studies (0.6) (Hair *et al*., 2010) or (. 50) (Nunnally, 1978) can be acceptable especially in exploratory research or for measuring constructs with small number of indicators (0.5) (Hair *et al.*, 2010). However, Table 5.9 reports Cronbach's α values for the research's constructs. All the values range from 0.66 to 0.93, suggesting a satisfactory level of internal consistency.

The second measure of internal reliability is the composite reliability measure (Hair *et al*., 2010). Composite reliability means the ratio of the squared sum of the indicators' standardized loadings to the squared sum of the indicators' standardized loadings plus the sum of their variance of measurement error. Unlike Cronbach' alpha, the composite reliability measure does not suppose that all indicators are equally reliable; instead, it prioritizes indicators according to their weights. Satisfactory reliability can be assumed when the value of the composite reliability ranges between 0.7 and 0.9 for confirmatory studies (e.g., Holmes-Smith, 2001; Hair *et al.*, 2014a); while a value of 0.6 is considered acceptable for exploratory studies (Hair *et al.*, 2010). As shown in Table 5.9, the composite reliabilities were calculated based on Fronell and Larcker's (1981) formula of the reliability of a latent construct. Therefore, the composite reliability values ranged from 0.72 to 0.94, suggesting that the constructs have a satisfactory level of internal consistency.

5.5.3.5 Validity of the constructs

After ensuring the unidimensionality, reliability of a construct and its measures, the final step is to test the construct validity (Hair *et al*., 2014a). In addition, reliability means "how" a specific construct should be measured, while validity means "what" should be measured (Hair *et al.*, 2010). Construct validity defined as "the extent to which a scale or set of measures truly measure the constructs which they are intended to measure (Bryman and Bell, 2007). Two types of validity should be established: content and construct validity. Construct validity is further divided into convergent and discriminant validity (Hair *et al.*, 2010).

1. Content validity

Content validity, also known as face validity, is a qualitative assessment of the degree to which a set of indicators reflecting a construct are adequate and represent the theoretical domain of that particular construct (Hair *et al.,* 2014a; Sekaran and Bogie, 2000). Two essential steps performed to establish content validity. In the First, a thorough and systematic review of the relevant literature on strategic alignment antecedents and consequences were carried out to establish the relationship between the variables or constructs and their measuring items through rigorous analysis process (see chapter literature review and the theoretical framework and the process of the questionnaire development. In the second step, an initial survey was pilot tested by experts, professionals, and academics in the field of strategic alignment and performance to establish a logical flow of the items and their congruence to the constructs they measure.

2. Convergent Validity

Convergent validity refers to the degree to which indicators of a specific construct converge or share a high amount of variance and are highly inter-correlated among themselves (Hair *et al.,* 2010;). To examine the convergent validity of the indicators of each construct, a standardised factor loadings of the indicators and the average variance extracted (AVE) of the construct examined when performing CFA (Hair *et al.,* 2010). Factor standardized loadings refer to correlations between the indicators and their given construct (Hair *et al*., 2014a). A standardized loading value of 0.5, and ideally, 0.7 can be a signal of convergent validity (Hair *et al.,* 2010). Also, Byrne (2001) refer that convergent validity could be assessed by examining whether the factor loadings are high, significant, and higher than twice their standard error (also called as the "t-value" ratios, between the factor loadings to their standard errors). Table 5.9 present that the standardized loadings of the indicators on their related constructs are higher than 0.5, moreover, the standard errors for the indicators ranged from 0.051 to 0.072, and all of the indicators loadings were more than twice their standard error. Besides, all t-values were higher than 1.96, indicating that they were considered significant based on the 0.05 level which follows the recommendation of Anderson and Gerbing's (1988), which implies that parameters which have t-value higher than 1.96 are considered to be significant and thus are adequate evidence of convergent validity. Therefore, Table 5.9, all indicators in the presented research were related to their specified constructs, which point towards convergent validity.

Regarding the second method, AVE refers to the amount of variance explained in indicators by their respective construct concerning the unexplained variance due to measurement error (Fornell and Larker, 1981). AVE calculated as the sum of all squared standardized factor loadings divided by the number of indicators. An AVE value of 0.5 or higher indicates a good level of convergent validity (Hair *et al*., 2010; Fornell and Larker, 1981). Table 5.9 shows that the all the constructs' AVE values are greater than 0.5, which confirm the convergent validity because the variances explained in the indicators by their related constructs are greater than their measurement error variances.

4. Discriminant Validity

Discriminant validity assesses the level to which each construct is distinct and represents a phenomenon of interest that is not captured by other constructs within the same measurement model (Hair *et al.*, 2010). Researchers conduct discriminant validity to ensure that the indicators for different constructs are different and not highly correlated in a way that they might measure the same thing (Bagozzi *et al*., 1991). Discriminant validity was investigated using two methods, namely the cross-loadings method and AVE method.

First, discriminant validity can be established by ensuring higher loadings of indicators on their given construct in comparison with their loadings on other constructs (Hair *et al.*, 2010). Second, according to Fronell and Larcke'r criterion, they argued that a construct could establish discriminant validity when its AVE value is higher than the square root of its bivariate correlation with any other construct in the model (Fornell and Larcker, 1981). Also, the correlations among the constructs could be used to test the discriminant validity, by assessing if there are any extremely large correlations among them, which refer that the models have a problem of discriminant validity. In addition, as reported in Table 5.11, although some variables correlate highly (such as employees with performance, 0.59; and Strategic alignment with employees, 0.50), all of the research correlations had a value of less than the recommended cutoff of 0.90 (Bagozzi *et al.*, 1991). A potential explanation for these high correlations is that they present that all of the items had an impact on each other, and therefore did not measure the same factor. Based on Fronell and Larcker's (1981) formula of calculating the variance extracted (AVE) of a latent construct, Table 5.12 presents the squared correlations between constructs in the non-diagonal elements with the AVE values for each construct in the diagonal line. The AVE values are higher than the square correlation between any construct with any other construct (i.e., below the diagonal line). In addition, as

reported in Table 5.9, and based on Fronell and Larcker's (1981) formula, all the constructs explained 50 percent or more of the variance, and ranged from 0.52 to 0.74, which met the recommendation that AVE values should be at least 0.50 for each construct (Hair *et al*., 2010; Holmes-Smith, 2001). Hatcher (1994) refer that with small sample sizes, it is common for AVE estimated to be below 0.50, even when reliabilities are acceptable. Therefore, the measures significantly indicate to an acceptable level of discriminant validity between constructs.

Table 5.11 Correlations among the research construct

	sustainable strategic alignment	Performance	Employees excellence	Shared domain knowledge	Policy and strategy	Process excellence	Partnership and resources	Leadership excellence	Strategic IT flexibility
sustainable strategic alignment	1								
Performance	.468**	1							
Employees excellence	.477**	.59**	1						
Shared domain knowledge	.239**	.176*	.196**	1					
Policy and strategy excellence	.377**	.290*	.287**	.172*	1				
Process excellence	.466**	.366*	.374**	.070	.188**	1			
Partnership& resources excellence	.305**	.220*	.223**	.130	.179**	.178**	1		
Leadership excellence	.322**	.190**	.206**	.170*	.193**	.241**	.441**	1	
Strategic IT flexibility	.504**	.341*	.353**	.181**	.286**	.217**	.220**	.188**	1

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

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

Table 5.12 AVE and Square of Correlations between Constructs

	sustainable strategic alignment	Performance	Employees excellence	Shared domain knowledge	Policy and strategy	Process excellence	Partnership and resources	Leadership excellence	Strategic IT flexibility
sustainable strategic alignment	**.53**								
Performance	.22	**.70**							
Employees excellence	.23	.35	**.54**						
Shared domain knowledge	.06	.03	.04	**.57**					
Policy and strategy excellence	.14	.08	.08	.03	**.59**				
Process excellence	.23	.13	.14	0	.04	**.74**			
Partnership& resources excellence	.10	.05	.05	.02	.03	.03	**.52**		
Leadership excellence	.10	.171	.04	.03	.04	.06	.20	**.70**	
Strategic IT flexibility	.25	.12	.12	.03	.08	.05	.05	.04	**.73**

Note: Diagonal elements are the average variance extracted for each of the six constructs. Off-diagonal elements are the squared correlations between constructs.

The above discussion performed a thorough examination of the measurement model, which result in supporting the reliability and validity of the research constructs. Consequently, the estimation of the structural model discussed in the following sections.

5.6 Structural model analysis and hypotheses testing

In this research, each of reliability tests and convergent and discriminant validities supports the overall measurement quality. The measurement model is considered adequate for testing the path coefficient that estimates for hypothesized relationships of a studied model (Gerbing and Anderson, 1992). Therefore, it is the time to confirm the research hypotheses by testing the structural model, which will empirically identify the relations between the factors. In addition, as shown in the proposed theoretical framework in Figure 3.2 in Chapter 3, the current research proposes that sustainable strategic alignment is influenced by several antecedent factors, which in turn will have an effect on organizational performance, through

business excellence enablers (for more details see section 3.4 from chapter 3, which represents the research hypotheses).

The purpose of this research was to investigate the relationship between antecedent factors and sustainable strategic alignment and its outcome on organizational performance. In detail, the impact of antecedent factors such as shared domain knowledge and strategic IT flexibility were examined on sustainable strategic alignment. In addition, the impacts of sustainable strategic alignment on organizational performance were tested directly and indirectly. The findings from the empirical research, as shown in this section, presented interesting results for discussion, which expanded earlier research in the areas of strategic alignment, business excellence, and organizational performance. As reported in Table 5.13, 13 hypotheses linked to the aims of this research were developed and examined. Out of the 13 proposed relationships, 12 were supported.

Table 5.13 Summary of proposed results for the theoretical model

HN	Hypothesis			Estimate	S.E.	C.R.	P	Results
H1	Strategic IT Flexibility	→	Sustainable alignment	-0.003	0.017	-0.205	0.838	**Rejected**
H2	Shared domain knowledge	→	Sustainable alignment	0.354	0.044	8.044	***	**Supported**
H3	Sustainable alignment	→	Performance	0.136	0.046	2.956	0.003	**Supported**
H4a	Sustainable alignment	→	Leadership	0.55	0.11	4.979	***	**Supported**
H4b	Sustainable alignment	→	Process	0.568	0.074	7.712	***	**Supported**
H4c	Sustainable alignment	→	Employees	1.01	0.163	6.197	***	**Supported**
H4d	Sustainable alignment	→	Partnership & resources	0.458	0.098	4.688	***	**Supported**
H4e	Sustainable alignment	→	Policy & strategy	0.391	0.066	5.953	***	**Supported**
H5a	Leadership	→	Performance	0.551	0.049	11.245	***	**Supported**
H5b	Process	→	Performance	0.454	0.048	9.45	***	**Supported**
H5c	Employees	→	Performance	0.952	0.011	8.54	***	**Supported**
H5d	Partnership and resources	→	Performance	0.505	0.061	8.28	***	**Supported**
H5e	Policy and strategy	→	Performance	0.378	0.05	7.047	***	**Supported**

With regards to hypotheses testing, this research considered analyzing the path significant of each relationship, where it examined the standardized estimate (S.E), critical ratios (C.R or often called t-value) and p-value for each proposed relationship. A relationship is considered as significant if t-value > 1.96 and a p-value ≤.05). Consequently, to calculate the t-value, the regression weight estimate should be divided by the standard error (S.E). Therefore, the regression weight estimates of the 13 hypotheses in this research reported in Table 5.13, where the casual paths for 12 hypotheses out of 13 are significant with the t-values above 1.96, and the p-value is ≤.05.

Based on the above results, the rest for this section briefly explained, and the research findings of the 13 hypotheses have been discussed. However, Chapter 6 discusses the results in deeper detail.

Hypothesis H1: Strategic IT flexibility positively affects sustainable strategic alignment.

The study posited that the existence of Strategic IT flexibility positively influences sustainable strategic alignment. The results reported in Table 5.13 refer that there is no significant relationship between strategic IT flexibility and sustainable strategic alignment (path coefficient of -0.003, critical ratio of -0.205, and a p-value more than 0.05). Thus, hypothesis H1 is rejected.

However, the lack of association between strategic IT flexibility and sustainable strategic alignment in this research could be explained by different reasons. The lack of IS professionals which has many negative impacts on the dynamic strategic alignment process and strategic planning of IS (Reich and Benbasat, 2000). Also and a lack of IS knowledge at the top management level can negatively impact business managers' participation in strategic IS planning which in turn lead to misalignment between IS and business (Kearns and Sabherwal, 2007). Finally, the lack of systems' flexibility in its ability to be upgraded and integrated with other systems and cannot swiftly switch to new systems.

Hypothesis H2: The higher the shared knowledge between business and IT executives, the greater is the alignment geared towards sustainability.

The study argues that the shared domain knowledge between IT and business will improve sustainable strategic alignment (H2). The results reported in Table 5.13 refer to a significant relationship between shared domain knowledge between IT and business and sustainable strategic alignment with (path coefficient of 0.354, critical ratio of 8.044, and a p-value less

than 0.05). Thus, hypothesis H2 is supported. This implies that the higher degree of IT success operations (i.e., results of IT operations satisfy the business needs consistently from past to present and trust and confidence in IT) has an effect on promoting the strategic IT-business alignment. The finding of this hypothesis, therefore, confirms the previous findings, for example, Charoensuk *et al*. (2014) and Chan *et al.* (2006).

Hypothesis H3: The extent of sustainable strategic alignment between IT and business strategy is positively related to organizational performance.

The study also posited that improving sustainable strategic alignment will have a positive impact on on organizational performance as formulated in H3. The result reported in Table 5.13 point out that sustainable strategic alignment is positively associated with organizational performance (path coefficient of 0.136, critical ratio of 2.956, and a p-value less than 0.05). Thus, hypothesis H3 is supported.

Hypothesis H4a: Organization that has a sustainable strategic alignment between IT and business strategies will leverage the leadership excellence

The study argues that sustainable strategic alignment affects positively on leadership excellence (H4a). The results reported in Table 5.13 refer to a significant relationship between sustainable strategic alignment and leadership excellence with (path coefficient of 0.55, critical ratio of 4.979, and a p-value less than 0.05). Thus, hypothesis H4a is supported.

Hypothesis H4b: Organization that has a sustainable strategic alignment between IT and business will leverage the process excellence

The study argues that sustainable strategic alignment affects positively on process excellence (H4b). The results reported in Table 5.13 refer to a significant relationship between sustainable strategic alignment and process excellence with (path coefficient of 0.568, critical ratio of 7.712, and a p-value less than 0.05). Thus, hypothesis H4b is supported.

Hypothesis H4c: Organization that has a sustainable strategic alignment between IT and business will leverage the employees' excellence

The study argues that sustainable strategic alignment affects positively on employees excellence (H4c). The results reported in Table 5.13 refer to a significant relationship between sustainable strategic alignment and employees' excellence with (path coefficient of 1.01, critical ratio of 6.197, and a p-value less than 0.05). Thus, hypothesis H4c is supported.

Hypothesis H4d: Organization that has a sustainable strategic alignment between IT and business will leverage the partnership and resources excellence

The study argues that sustainable strategic alignment affects positively on partnership and resources excellence (H4d). The results reported in Table 5.13 refer to a significant relationship between sustainable strategic alignment and partnership and resources excellence with (path coefficient of .458, critical ratio of 4.688, and a p-value less than 0.05). Thus, hypothesis H4c is supported.

Hypothesis H4e: Organization that has a sustainable strategic alignment between IT and business will leverage the excellence in partnership and resources excellence

The study argues that Strategic Alignment affects positively on policy and strategy excellence (H4e). The results reported in Table 5.13 refer to a significant relationship between sustainable strategic alignment and policy and strategy excellence with (path coefficient of .391, critical ratio of 5.953, and a p-value less than 0.05). Thus, hypothesis H4c is supported.

Hypothesis H5a: Leadership excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance

The study argues that Leadership excellence affects positively on organizational performance (H5a). The results reported in Table 5.13 refer to a significant relationship between Leadership excellence and organizational performance with (path coefficient of 0.551, critical ratio of 11.24, and a p-value less than 0.05). Thus, hypothesis H5a is supported.

Hypothesis H5b: Processes excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance

The study argues that process excellence affects positively on firm performance (H5b). The results reported in Table 5.13 refer to a significant relationship between process excellence and firm performance with (path coefficient of .454, critical ratio of 9.45, and a p-value less than 0.05). Thus, hypothesis H5a is supported.

Hypothesis H5c: Employees' excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance

The study argues that employees' excellence affects positively on organizational performance (H5c). The results reported in Table 5.13 refer to a significant relationship between

employees' excellence and organizational performance with (path coefficient of .952, critical ratio of 8.54, and a p-value less than 0.05). Thus, hypothesis H5c is supported.

Hypothesis H5d: Partnership and resources excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance

The study argues that partnership and resources excellence affects positively on organizational performance (H5d). The results reported in Table 5.13 refer to a significant relationship between partnership and resources excellence and organizational performance with (path coefficient of .505, critical ratio of 8.28, and a p-value less than 0.05). Thus, hypothesis H5d is supported.

Hypothesis H5e: Policy and strategy excellence mediates the relationship between Sustainable strategic IT-business alignment and organizational performance

The study argues that policy and strategy excellence affects positively on organizational performance (H5e). The results reported in Table 5.13 refer to a significant relationship between policy and strategy excellence and organizational performance with (path coefficient of .378, critical ratio of 7.047, and a p-value less than 0.05). Thus, hypothesis H5d is supported.

This research adopted the classic four-step procedure of Baron and Kenny (1986) to test the mediation models. The first step (step 1) to test for mediation is to empirically present a direct link between the independent variable and the final dependent variable (see Figure 5.2). The second step (step 2) include testing the relationships between the independent variable and the mediating variable, and third step (step 3) involves testing the relationships and between the mediating variable and the dependent variable. Finally (step 4), the direct effect from step 1 needs to become significantly smaller for partial mediation or to disappear entirely for full mediation (step 4). In particular, the fourth step tested with the Sobel (1982) test (1982). If the relationships are significant, then the relationship between the independent and the outcome variable is (partially) mediated.

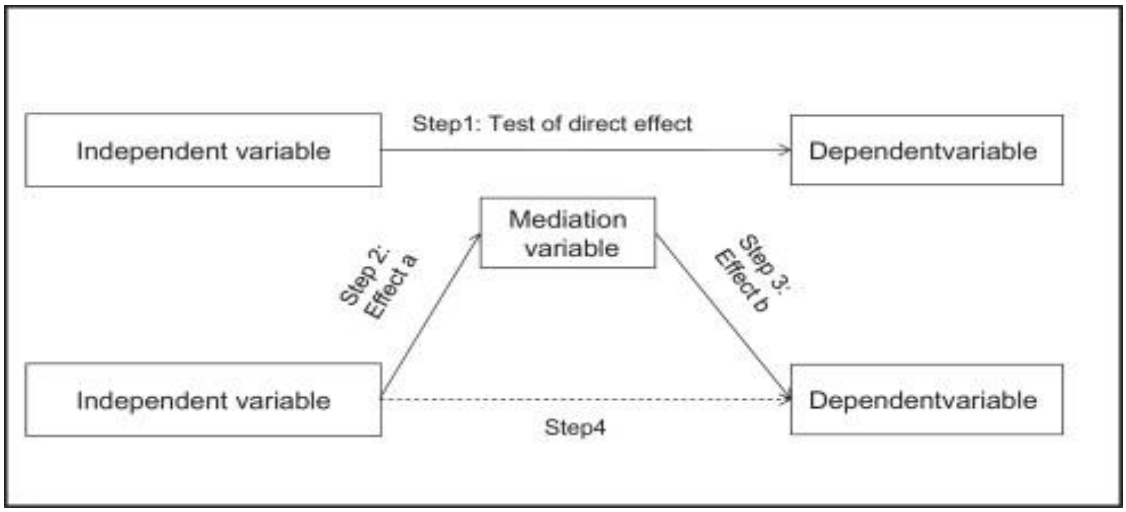


Figure 5.2 Baron and Kenny's (1986) steps to test for mediation.

Source: Baron and Kenny (1986), Burkert *et al.* (2014)

Therefore, this research is also applied Sobel (1982) test to determine the effects (i.e., indirect effects) of mediation variables (i.e., business excellence enablers), on the relationship sustainable strategic alignment and organizational performance. The results of the test were presented through the Sobel test, as reported in Table 5.14. It appears from the table that there is an indirect effect of the Exogenous variable (sustainable strategic alignment) through the mediator variables (leadership, process, employees, partnership and resources, and policy and strategy excellence) on the Endogenous variable organizational performance, where the p-value for each mediator is less than (0.05), suggesting a partial mediation of business excellence enablers on the relationship between sustainable strategic alignment and firm performance.

Table 5.14 Results of Sobel Test Calculator for the Significance of Mediation (i.e., indirect effects between research constructs

Exogenous	**Endogenous**	**Mediation**	**S.E.**	**C.R**	**P**
Sustainable strategic alignment	Organizational performance	Leadership excellence	0.029	2.54	0.01
Sustainable strategic alignment	Organizational performance	Process excellence	0.043	5.96	***
Sustainable strategic alignment	Organizational performance	Employees excellence	0.156	6.18	***
Sustainable strategic alignment	Organizational performance	Partnership& resources excellence	0.057	4.07	***
Sustainable strategic alignment	Organizational performance	Policy & strategy excellence	0.032	4.66	***

5.7 Conclusion

The focus of this chapter was to discuss the data analysis procedures, which involved four main stages. In the first stage, a general profile of the research sample provided in term of respondents' age, experience, and business units, and sector which they belong, using descriptive statistics. The firms involved in this research varied in the industry sector. The second stage involved purifying the items before conducting the SEM analysis, data tested for outliers and missing values, and investigated for the assumptions of multivariate analysis by examining the data for their normality, linearity, common method variance, and multicollinearity, and sample size. In the third stage, the quality of the measurement models, including the reflective models assessed. The application of the CFA method demonstrated the reliability and validity of the reflective measurement model. In the final stage, when the measurement model approved in terms of unidimensionality, reliability, and validity; the structural model was tested to reach the best fit model which represents the proposed framework in the research.

The SEM results reported strong evidence on the relationships between the shared domain knowledge between IT and business managers on sustainable strategic alignment. On the other hand, the SEM failed to support the relationship between strategic IT flexibility and sustainable strategic alignment. Also, the SEM found positive associations between sustainable strategic alignment and business excellence enablers (leadership, process, employees, partnership and resources, and policy and strategy excellence), and in turn firm performance; and the direct relationship between sustainable strategic alignment and firm performance.

CHAPTER 6: DISCUSSION

6.1 Introduction

The presented research investigated the associations between antecedent factors of sustainable strategic IT-business alignment, sustainable strategic IT-business alignment, and its related outcomes. This research developed a theoretical framework which tested several hypotheses on the impact of antecedents factors (i.e., shared domain knowledge between IT and business managers, strategic IT flexibility) on sustainable strategic alignment, and the impact of sustainable strategic alignment and business excellence enablers on organizational performance. Also, the proposed framework developed on the bases of the Resource-based-view (RBV) Theory and dynamic capability Theory (DCT).

Using path analysis technique in Structural Equation Modeling, the results in Chapter 5 present hypothetical relationships of antecedent factors, sustainable strategic alignment, and organizational performance via business excellence enablers as intermediary variables. This chapter discussed, summarized the hypotheses and referred whether the data assessment supported or rejected them with justification based on the related literature review. This chapter highlighted the validation and revision of the research framework variables.

6.2 Discussion of research findings

The previous chapter (Chapter 5) presented a general analysis regarding the hypotheses that developed in this research. This section discusses the results regarding the research's antecedents and the outcomes of sustainable strategic alignment through business excellence enablers. Unlike several researchers (e.g. Reich and Benbasat, 2000; Choe, 2003; Chan *et al.*, 2006; Chan and Reich, 2007) who investigated some enablers on strategic alignment and its impact on organizational performance, this research discriminate the antecedents for sustainable strategic alignment, and its impacts on organizational performance through business excellence enablers. This is by saying that factors of shared domain knowledge and strategic IT flexibility enhance organizations to achieve sustainable strategic alignment and in turn, achieve performance by utilizing business excellence enablers.

6.2.1 Factors enhancing sustainable strategic alignment

Having evidenced the different main relationships between strategic alignment and its antecedent factors (see Chapter 2), this section discusses several hypotheses related to the link between antecedent factors and sustainable strategic alignment.

6.2.1.1 Strategic IT flexibility and sustainable strategic alignment

This research predicted a positive relationship between strategic IT flexibility and sustainable strategic alignment (H1). The research data failed to support this hypothesis (the coefficient value and p-value were -0.003 and 0.838, respectively). Thus, the flexibility in IT (i.e., adopt new IT/IS applications, expand or reduce the available applications, expand to new regional or international markets) by organizations to enhance sustainable strategic alignment was found to be ineffective. This finding is not in line with prior literature (e.g., Chung *et al.*, 2003; Tian *et al.*, 2010; Tallon, 2007). Chung *et al*. (2003) investigated the impact of the components of IT infrastructure flexibility on strategic IT-business alignment and found that these components of IT infrastructure flexibility make significant, positive impacts on strategic alignment. Similarly, six case studies in different industries (e.g., financial services, occupational services, health, publishing, and software organizations) confirmed the relationship between IT infrastructure flexibility and strategic alignment with the existence of Strategic Information Systems Planning (SISP) acted as a mediator for this relationship (Tallon, 2007). Similarly, Isal *et al.* (2016) found that amongst four components of IT infrastructure flexibility, only compatibility that has a positive and significant impact on strategic alignment, the other three components presented an insignificant positive impact on strategic alignment. They suggested that a flexible IT infrastructure is still essential in supporting alignment between IT and business strategy. However, it found that IT flexibility is one of the most critical factors that help sustain strategic alignment in today's environments. The research on this subject is also limited and need more examination (Jorfi *et al.*, 2011).

The lack of association between strategic IT flexibility and sustainable strategic alignment in this research could be explained indirectly by different reasons. First, lack of IT flexibility, particularly in the human components of IT infrastructure in term of the lack of IS professionals which has many negative impacts on the dynamic strategic alignment process and strategic planning of IS. A lack of qualified IS professionals cause a lack of IS knowledge (Davison *et al*., 2008) and IS management (Pearlson and Saunders, 2004) in organizations. In particular, a lack of IS knowledge at the top management level can negatively impact business managers' participation in strategic IS planning which in turn lead to misalignment between IS and business (Kearns and Sabherwal, 2007). This means the existence of IT executives does not guarantee that they are professional in IT and IS.

The second explanation might be that the lack of systems' flexibility in its ability to be upgraded and integrated with other systems and cannot swiftly switch to new systems. This could cause an additional cost to replace the prior systems with new systems in the organization. The lack of IS outsourcing which might cause difficulty in support business needs, catching up with competitors on IS, enabling supporting IS expertise, and increasing flexibility for dynamic environments (Van Lier and Dohmen, 2007). Nevertheless, another possible explanation for this finding is that Jordanian IT and business executives are not aware of the importance of responding to changes in businesses, reacting to new applications launched by competitors, or experimenting with new technologies to produce better, faster and cheaper information services to support business processes, and markets. Also, there is a limited resource, budget, and human resources which can be used to develop a flexible IT infrastructure. Therefore, more research is required to understand how strategic IT flexibility directly impacts strategic alignment.

6.2.1.2 Shared domain knowledge and sustainable strategic alignment

This research expected a positive relationship between shared domain knowledge between business and IT executives and sustainable strategic alignment (H2). The analysis presented compelling evidence to support this expectation (the coefficient value and p-value were 0.354 and 0.00, respectively). That is, the critical role of IT and business managers in sharing knowledge and understanding the work environments has a vital role in achieving strategic alignment. This implies that the more IT managers perform the business strategies, and the more the top management realize the IT resources and capabilities; then the higher they work in achieving strategic alignment. The literature reported that shared knowledge has a significant role in forming the relationship and connecting between IT managers and top management. In addition, this result is consistent with the findings reported by Maharaj and Brown (2015); Street *et al.* (2017); Alaceva and Rusu (2015); Luftman, *et al.* (1999); Kearns and Sabherwal (2006); Reich and Benbasat (2000); Loeser *et al.* (2013) and Chan *et al.* (2006) on the relationship between shared knowledge and strategic alignment.

Initially, Reich and Benbasat (2000, p. 86) found a direct link between shared domain knowledge and strategic alignment (by motivating IT personnel to obtain a practical experience from different business departments, attending conferences, sending the IT staff to engage with the sales offices and clients. Chan *et al.* (2006) argued that mutual exchanges of business and IT knowledge between business and IT managers enhance shared understanding, and promote a shared vision for the long run. Maharaj and Brown (2015) in

found that organizations should focus on creating a knowledge-sharing environment between business and IT. This finding is in line with the results of Alaceva and Rusu (2015), and Eom and Yayla (2015) that shared domain knowledge between business and IT managers help achieve strategic alignment, improve the quality of project planning, reduce problems with IT projects, and improve organizational performance. Likewise, Street *et al.* (2017) found that shared domain knowledge and shared strategic business plans between IT leaders, and non-IT leaders improve strategic alignment, as well as, communication and coordination of strategic plans between IT and non-IT leaders are important. Loeser *et al.* (2013) also indicated that alignment between business and IT is considered a prerequisite for long-term success. They also found that explicit knowledge can be transferred among business and IT domain by communication, while the tacit knowledge must be transferred between them through processes that lead to the application of the knowledge, e.g., strategic planning processes that are performed by executives from business, and IT domain.

6.2.2 Sustainable strategic alignment and organizational performance

This research expected a positive relationship between sustainable strategic alignment and organizational performance (H3). The research data support this expectation (the coefficient value and p-value were 0.136 and 0.003, respectively). That is, strategic alignment as the match between business strategy and IT strategy in public shareholding firms in Jordan has a significant impact on organizational performance. Hence, it can be stated that it has assisted organizations in enhancing their performance concerning their economic-financial results: market share, profit level; sales volume, and non-economic: productivity of processes, flexibility in business process, process efficiency; supplier management. It is noteworthy that the findings have consisted with other researches that investigated this relationship (Sabherwal *et al.*, 2019; Gerow *et al.*, 2015; Wu *et al.*, 2015; Parisi, 2013; Schwarz *et al.*, 2010; Yayla and Hu, 2012). For example, Gerow *et al.* (2014b) found that IT alignment positively linked to performance outcomes such as productivity, customer benefit, and financial performance. Similarly, Wu *et al.* (2015) found that the degree of congruence between realized business strategy and realized IT strategy has a significant and positive impact on the customer perspective, customer satisfaction and also the Financial returns (ROI, ROA, ROE) and on the operational excellence (productivity; customer service; production cycle time). Likewise, Santa *et al.* (2010) found that organizations seeking for improvements in operational performance through the adoption of technological innovations which need to be align with operational strategies of the organization. Based on the above

discussion, therefore, this research confirmed a positive association between sustainable strategic IT-business alignment and organizational performance.

6.2.3 The mediating effect of business excellence enablers

6.2.3.1 The mediation effect of leadership excellence

This research predicted that the organization that has a sustainable strategic alignment between IT and business will leverage leadership excellence (H4a). The data provided support to this prediction (the coefficient value and p-value were 0.55 and 0.00, respectively). Thus, the use strategic IT-business alignment (i.e., shared participation, common understanding for IT's and business' environments, the business conducts a formal assessment and review of IT investments) by IT and business to enhance leadership excellence was found to be effective. This is in line with the results reported by Al-Adaileh, (2017), who found that strategic alignment between IT and business (i.e., harmony between corporate strategy and IT strategy, mutual understanding, common strategic planning, etc.) enhances the excellence in leadership. Likewise, Rookhandeh and Ahmadi (2016) stated that IT support achieving excellence in leadership since technologies such as (information database, control systems, the organization's intranet, electronic data exchange) enhances the communication with partners or customers, and facilitate disseminating the mission and vision and the culture of excellence between different business departments. Moreover, IT provides top management with the adequate information needed and establishes robust databases for supporting the decisions of the organization. Based on the above discussion, therefore, this research confirmed a positive association between strategic IT-business alignment and leadership excellence.

Furthermore, this research predicted that the presence of excellence in leadership positively mediates the relationship between strategic IT-business alignment and organizational performance (H5a). The findings provide support to this prediction (the coefficient value and p-value were 0.551 and 0.00, respectively). This is in line with Calvo-Mora *et al.* (2014) that leadership management is a significant enabler presents a significant impact on the overall performance of the organization. It has a crucial role in promoting organizations towards continuous improvement, which allows attaining better performance results. Dubey and Gunasekaran (2015) found that visionary leadership which involves (i.e., Establish quality policies, objectives and to provide resources, problem-oriented training, and to support improvement) affects the organizational performance. This is also consistent with Taylor and Taylor (2013) who found that when managers share common beliefs about the future

direction of their organization, ensure reviewing the performance measures, motivating employees toward change, all have a significant impact on performance. Also, leadership ensures practices such as reinforcing a culture of excellence; employees training and their involvement in making decisions are fundamental, which enhance achieving improvement in the organizational results (Rahman and Bullock 2005).

Therefore, based on the above discussions, the significant relationships between sustinable strategic IT-business alignment and leadership excellence, and in turn, higher organizational performance, are supported by this research.

6.2.3.2 The mediation effect of process Excellence

This research expected organization that has a strategic alignment between IT and business will leverage the process excellence (H4b). The analysis provided compelling evidence to support this expectation (the coefficient value and p-value were 0.568 and 0.00, respectively). That is, strategic IT-business alignment through collaboration practices (e.g. shared and continuous improvement practices between IT and business, rapid response from IT to organization's changing business needs, attract IT professionals with technical and business skills) is an effective vehicle to enhance the excellence in the process. This result is consistent with the findings reported by Rookhandeh and Ahmadi (2016) that referred to the role of IT in developing process excellence by using updated information technologies to generate optimum value for customers and stakeholders such as bill exchange, inventory control systems, payroll systems, information database, and accounting systems. The study findings also corroborate previous findings of Sadeh *et al.*, (2013) who uncovered that IT enhances the organizations' ability in collecting data, monitoring and analysis processes, and reporting improvements through several technologies and therefore decreasing the error in operations, and enhance data control (Wu and Gu, 2009). The result reported here is also similar to the findings of those studies that examined the impact IT on process excellence. For example, Sanchez-Rodriguez *et al*. (2006) found that computer-aided design (CAD) technologies are IT tools that are necessary for process design which enhances the rapid response to customers' needs and achieves more significant innovation. Also, IT ensures the maintenance of machines via the use of automated systems which detect and diagnosis of errors. Also, IT can increase the speed of processes and improve the level of quality of products (Dewhurst *et al*., 2003). This is in line with the results reported by Al-Adaileh (2017) who found that strategic alignment between IT and business (i.e., coordination between different departments, business support for the IT in the company) enhance the excellence in the

process. Based on the above discussion, therefore, this research confirmed a positive association between sustainable strategic IT-business alignment and process excellence.

Furthermore, this research predicted that the presence of excellence in process positively mediates the relationship between sustainable strategic IT-business alignment and organizational performance (H5b). The findings provide support to this prediction (the coefficient value and p-value were 0.454 and 0.00 respectively) and suggest that when an organization generates more excellence in process, it will deliver a better level of organizational performance. This was declared directly by an experienced IT and business executives, who confessed that implementing excellence in the process such as improving processes continuously based on identified opportunities and needs, translating customer requirements to new products and services. Initially, Calvo-Mora *et al.* (2014) reported that organizations work more effectively in achieving aims and attaining better results when all their related activities are systematically developed, managed and improved through processes and thus better performance than firms that did not. Similarly, Fotopoulos and Psomas (2010) stated that processes management include developing a set of activities such as the monitoring and improvement of all the design and manufacturing stages, the preventive maintenance of teams, the statistical control of processes, as well as the reduction of inspection or variability in the processes. Likewise, Calvo-Mora et al. (2014) emphasized that organizations must specify, design, manage and improve their key or strategic processes to wholly satisfy their stakeholders and then positively impact the organizations' economic and commercial results such as higher sales, profit or market share, which in turn positively influence the organizations' profitability and its shares' market value. These activities are positively related to productivity or economic efficiency. Therefore, this finding appears to be in line with the findings from Wilson and Collier (2000), Saraph *et al. (*1989), and Prajogo (2005).

Therefore, based on the above discussions, the significant relationships between sustainable strategic IT-business alignment and process excellence, and in turn, higher organizational performance, are supported by this research.

6.2.3.3 The mediation effect of employees Excellence

This research predicted the organization that has a sustainable strategic alignment between IT and business will leverage the employees' excellence (H4c). The analysis provided compelling evidence to support this prediction (the coefficient value and p-value were 1.01

and 0.00, respectively). That is, strategic IT-business alignment (e.g., providing an innovative entrepreneurial environment for employees, programs to attract IT professionals with technical and business experience, and change readiness programs) is an effective vehicle to enhance the excellence in employees. This result is consistent with the findings reported by Sanchez-Rodriguez *et al*. (2006) who found that IT support employees' practices through training, evaluation, and recognition and also facilities effective communications among employees and top management (Dewhurst *et al*., 2003). Likewise, Sadeh *et al.* (2013) stated that employees and job applicants could easily use the inventory systems to apply for the job online and track their status via the Internet and Intranet. Moreover, IT provides various training technologies over the web systems, which are more useful than traditional tools. Similarly, Mejma *et al.* (2005) revealed to the role of IT in the area of people management, where managers can evaluate the performance of staff by using expert systems and also provide feedback to staff about their performance. IT contribute in reducing the number of supervisory layers, increases the span of control, helps organizations to deliver information to their employees and therefore gives employees a greater sense of control (Jabnoun and Sahraoui, 2004). Similarly, (Zárraga-Rodríguez and Alvarez (2013) who found that IT can automate and integrate the management of business processes to support the management of people (e.g., training, developing and knowledge management and also interact and strengthen relationships with stakeholders (suppliers, customers, partners, employees).The finding is also in line with Al-Adaileh, (2017) who found that strategic alignment between IT and business enhance the excellence in process in term of ensuring the coordination between business departments, business support for the IT in the company. Based on the above discussion, therefore, this research confirmed a positive association between sustainable strategic IT-business alignment and employees' excellence.

Furthermore, this research predicted that the presence of excellence in employees' positively mediates the relationship between sustainable strategic IT-business alignment and organizational performance (H5c). The findings provide support to this prediction (the coefficient value and p-value were 0.952 and 0.00, respectively). Organizations should care for, communicate, motivate, and qualify people to enable them to use their expertise and knowledge for the advantage of the organization (EFQM, 2013). In addition, developing an innovative and efficient employee will lead to superior organizational performance (Cañibano, 2013). Similarly, Bonavia and Marin-Garcia (2011) found that employees' management directly impacts the implementation of strategic organizational aims and

operations (Bonavia and Marin-Garcia, 2011) in efforts to improve organizational efficiency (Psomas *et al*., 2018). Likewise, Ali *et al.* (2017) reported that developing an organizational culture enhance innovation, and sustaining the competitive strategy of the organization and therefore improving organizational performance which is in line with the findings of Matthies-Baraibar *et al*. (2014).

Therefore, based on the above discussions, the significant relationships between sustainable strategic IT-business alignment and employees' excellence, and in turn, higher organizational performance, are supported by this research.

6.2.3.4 The mediation effect of partnership and resource Excellence

This research predicted that the organization that has a sustainable strategic alignment between IT and business will leverage excellence in partnership and resource in organizations (H4d). The data provided support to this prediction (the coefficient value and p-value were 0.458 and 0.00, respectively). Thus, the use strategic IT-business alignment (i.e., innovative entrepreneurial environment for employees, attract IT professionals with technical and business experience, and change readiness programs) is a capable vehicle to enhance the excellence in partnership and resource. This result is consistent with the findings reported by Sadeh *et al*. (2013) that organizations should support the two-way communication with their suppliers by using IT tools. Similarly, Dewhurst *et al*. (2003) who stated that electronic data (EDI) technology is used to place orders, provide product specifications, design details, as well as confirmation of invoices and paying for suppliers. Likewise, Sanchez-Rodriguez *et al*. (2006) found that organizations can benefit from IT tools in managing their physical and financial resources such as warehouse systems and to help in taking the right decision in purchasing and shipment. IT supports organizations in sharing their information with their suppliers and increase the richness of information shared, and enhances the trust between buyers and suppliers (Hemsworth *et al.,* 2008). More recently, Al-Adaileh, (2017) found that strategic alignment between IT and strategic business alignment between IT and business enhance the structural excellence which includes the managing the relationships with of internal and external partnership and resources. Based on the above discussion, therefore, this research confirmed a positive association between strategic IT-business alignment and excellence in partnership and resources.

Furthermore, this research predicted that the presence of excellence in partnership and resources positively mediates the relationship between strategic IT-business alignment and

organizational performance (H5d). The findings provide support to this prediction (the coefficient value and p-value were 0.505 and 0.00, respectively). Cooperation with suppliers involves practices such as involving JIT deliveries and involvement in product/process design improvements which influence positively on operational performance (e.g., market share, reducing production cycle time, and Customer delivery commitments met) (Wiengarten *et al.*, 2013). The finding is consistence Dubey and Gunasekaran (2015) that relationship with partnership and resource is found to be the strongest positive determinant of organizational performance in both financial (ROI, EBIDTA) and non-financial terms (quality of goods, overstocks, and defect control). Also, managing external alliances (e.g., managing economic resources, the buildings, equipment, and knowledge) contribute in supporting excellence and therefore affect positively on key performance results which involve financial-economic, associated with innovation and technology or processes improvement (Calvo-Miora *et al.*, 2015).

Therefore, based on the above discussions, the significant relationships between strategic IT-business alignment and partnership and resources excellence, and in turn, higher organizational performance, are supported by this research.

6.2.3.5 The mediation effect of policy and strategy Excellence

This research predicted that the organization that has a sustainable strategic alignment between IT and business will leverage leadership excellence (H4e). The data provided support to this prediction (the coefficient value and p-value were 0.391 and 0.00, respectively). Thus, the use strategic IT-business alignment (i.e., strategic planning done with business and IT participation, IT function react quickly to organization's changing business needs) by IT and business to enhance excellence policy and strategy was found to be effective. This is in line with the results reported by Rookhandeh and Ahmadi (2016) found that applying information technology help in supporting decision making and achieving organizational excellence. The role of IT in enhancing strategy and policy involves enhancing the managers' ability to deal with decision support systems such, and data analysis techniques and decision-making techniques of information technology in an efforts to formulate strategies and its related policies based on real, valid information. In particular, using computer-assisted planning systems CAPP, enterprise resource planning ERP, and software and technologies of human resource management can be used to achieve better planning in the organisation. Similarly, Zárraga-Rodríguez and Alvarez (2013) found that IT supports strategy and policy where organization employs IT in predicting possible outcomes of

decisions before deciding through predicting indicator values as well as support for competitive and technology surveillance. Based on the above discussion, therefore, this research confirmed a positive association between strategic IT-business alignment and excellence in policy and strategy.

Furthermore, this research predicted that the presence of excellence in strategic planning (i.e., policy and strategy) positively mediates the relationship between strategic IT-business alignment and organizational performance (H5e). The findings provide support to this prediction (the coefficient value and p-value were 0.378 and 0.00, respectively). Strategic planning had a statistically significant causal impact on performance results, since policy and strategy 'which is also known strategic planning criterion' involves each of strategy development process and strategy deployment, and performance projections, to cope with changes and needs, and therefore achieve the superior organizational performance as reflected in stakeholder results, operational results, financial and market results, organizational effectiveness results, Governance and social responsibility results (Badri *et al*., 2006). Silmilarly, Gorji and Siami (2011) found that policy and strategy in organizations involves developing strategy and business plan based on internal and external data in organization, Support strategic objectives and values by practical and acceptable policies and plans, and allocation of required resources, which all have a meaningful relationship with hospital performance in term of (people results, performance results, society, customer results. The important role of strategic planning in the success of excellence model systems involves providing direction to management. Developing mission, vision and business strategy should be consistence with stakeholder needs and expectations, and the business environment in which the organization's activity is performed to help in enhancing the results that the organization is striving to achieve in terms of customers, employees, society, and the key performance results of business (i.e. economic-financial, operational performance (Suareza *et al.*, 2016).

Therefore, based on the above discussions, the significant relationships between strategic IT-business alignment and policy and strategy excellence, and in turn, higher organizational performance, are supported by this research.

6.3 The validation and revised of the research framework

The main focus of this section is to embed the findings of the empirical research into the theoretical sustainable strategic alignment Framework developed in Chapter 3. The researcher conducted an in-depth gap analysis that led to the verification of key constructs of the framework. Therefore, this section offers practical guidance for implementing the sustainable strategic alignment Framework, based on the findings of the academic research contributions, along with the results of the empirical investigation. The researcher aims to investigate the theoretical assumptions drawn from the literature through the empirical examination and validation of the theoretical sustainable strategic alignment Framework.

The framework represented in Chapter 3, Figure 3.1 was derived from the key findings research theoretical and empirical contributions of prior research. Its primary aim was to address the existing literature gap (Chapter 2, Section 2.8) that has evidenced the need for a framework to align antecedent factors of alignment, and sustainable strategic alignment with performance via business excellence enablers in the firm. Therefore, the researcher first defined key constructs fundamental to the framework (Chapter 3), then validated their importance via empirical research (Chapters 5). The final step is to provide practical guidance on the implementation of the sustainable strategic alignment framework to IT and business managers and industry professionals as well as the academics.

This research tested the convergent and discriminant validity to ensure that the constructs' measurements represent the concept of interest precisely. This research performed convergent validity by using factor loading, composite reliability (CR), and average variance extracted (AVE) (Hair et al., 2014). As a rule of thumb, factor loading must obtain all standardized regression values greater than 0.50; also, the critical ratio (t-value) must be greater than 1.96. An approximation to observe is that the AVE weight must be greater than 0.5, and CR should be greater than 0.70 (Hair et al., 2014). However, the results of the analysis revealed that all of the values suggested a great deal of convergent validity for all of the indicators used in the measured framework. These research outcomes provided a significant level of discriminant validity because, since all of the research constructs, the AVE values are greater than the squared correlation. Furthermore, this research used Cronbach's alpha (α) to assess the reliability of the research indicators. The outcomes of the existing research present that all indicators have reliability greater than 0.70; therefore, this research constructs an illustrated high level of reliability and validity.

Most investigations have a lack of attention to the importance of business excellence enablers in enhancing organizational (Sadeh *et al.*, 2013). Also, a review of the literature does not classify any research as investigating the effect of antecedent factors, sustainable strategic alignment on organizational performance through business excellence enablers. The present research fills this gap and contributes to the literature by developing a complete framework that demonstrates the effect of antecedent factors on sustainable strategic alignment; and the impact of sustainable strategic alignment on performance using business excellence enablers. The proposed research framework yields a better understanding of the effect of the sustainable strategic alignment on organizational performance by applying the dynamic capability (DCT) Theory and the Resource-Based-View Theory (RBV). In the context of the Jordanian public shareholding firms, examining the effect of sustainable strategic alignment on organizational performance through the enablers of business excellence is essential for different reasons. First, previous studies have stated that business excellence has a significant effect on performance (Vijande and Gonzalez, 2007).

Okland and Tanner (2008) argued that organizations that implement business excellence for achieving greater performance need to focus on excellence enablers. Hence, the role of IT is one of enhancing and sharing excellence, and notably promoting effective re-use of business excellence aspects. Moreover, most organizations emphasized that enablers of business excellence are available within the organization, but finding and leveraging such enablers is problematic (Bou-Llusar *et al.*, 2009). However, Sadeh *et al.* (2013) note that no clear frameworks or models provided in the literature. Some researches indicate that business excellence is a very significant attribute in achieving performance. Thus, a separate component in the strategic alignment frameworks should be set aside for business excellence (Calvo-Mora *et al.*, 2014). Given the causal link between business excellence and organizational performance (Bou-Llusar *et al.*, 2009; Calvo-Mora *et al.*, 2005), researchers have argued for examining the intermediary role performed by business excellence between IT-strategic management and organizational performance based on some indication from few researchers (e.g., Al-Adaileh, 2017). Business excellence contributes to an organization's performance by improving process efficiency and enhancing product quality, productivity, market share (Bou-Llusar *et al.*, 2009), also contributes to organizations outperforming competition and the achievement of competitive advantage (Vijande and Gonzalez, 2007). Yet there is a research void concerning the relationship between IT, business excellence, and organizational performance. The present research attempts to explain the effect antecedents

factors on sustainable alignment, in addition, the impact of sustainable strategic alignment has on business excellence enablers and on organizational performance in the Jordanian public shareholding firms.

Second, the incorporation of business excellence in the research framework is also significant because current evidence advises that the theoretical frameworks of strategic alignment have limited potential in enhancing organizational performance. In this research, business excellence is defined based on the EFQM excellence model, which include excellence in (process, leadership, partnership and resources, and policy and strategy) in Jordanian public shareholding firms. Finally, the current studies such as Tang and Duan (2006) proposed that business excellence should be merged in IT improve our understanding of how excellence in business affects performance. Sadeh *et al.* (2013) found that IT has a significant role in supporting business excellence. Moreover, strategic alignment was found to play a significant role in business excellence (Al-Adaileh, 2017).

In addition to this background, the results of the research revealed organizational performance to be significantly affected by business excellence. Therefore, business excellence in the proposed framework is essential, leading to a better understanding of the effect of sustainable strategic alignment on performance in the Jordanian public shareholding firms. Figure 6.1 presents the revised framework that clarifying the relationships between the research framework constructs.

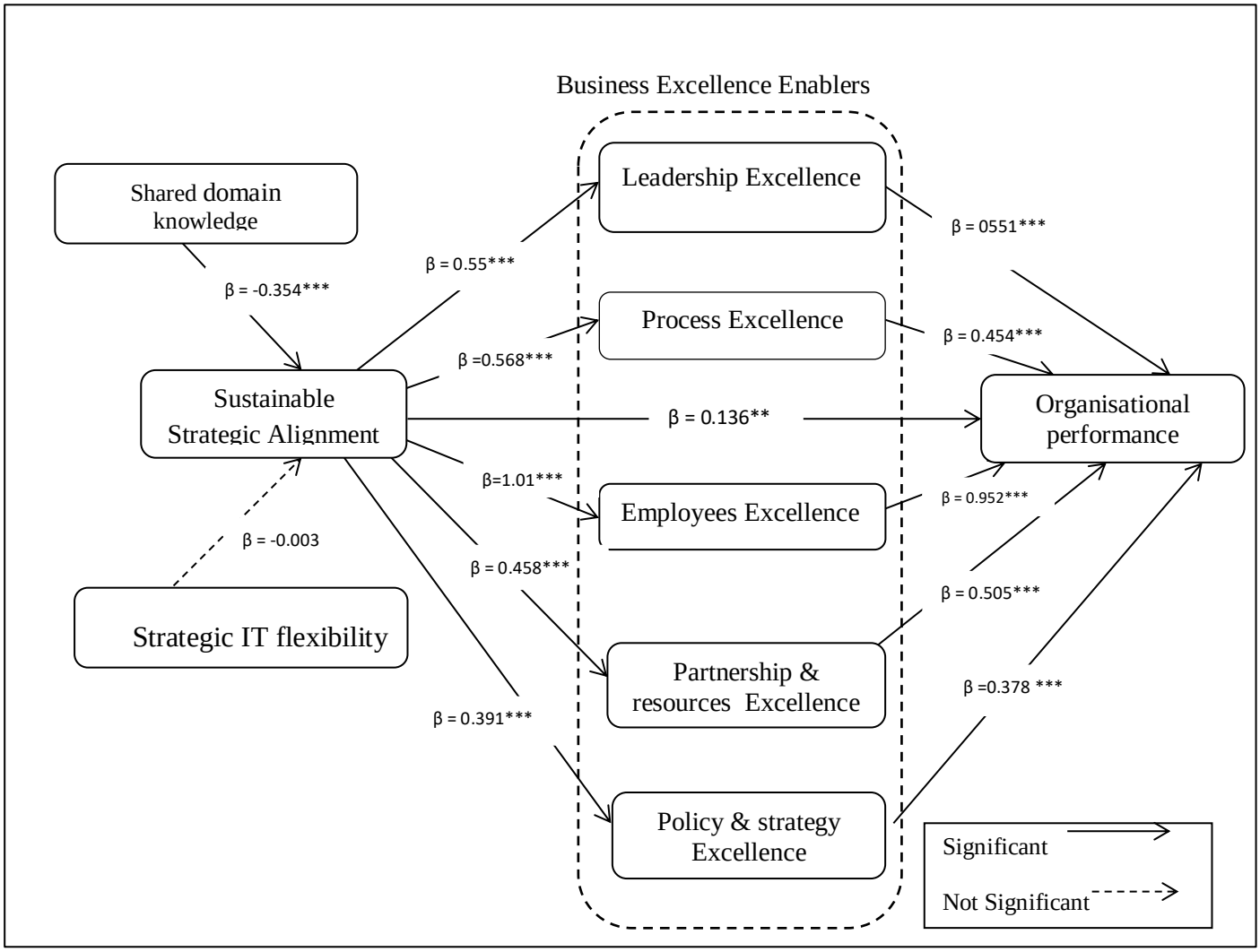
The outcomes of the path analysis summarized in Figure 6.1. The first part presents the impact of antecedent factors on sustainable strategic alignment. The results indicate an insignificant relationship between strategic IT flexibility on sustainable strategic alignment (β -0.003 $p > 0.05$). Thus, H1 is not supported. Our results also showed an established relationship between shared domain knowledge between IT and business and sustainable strategic alignment (β 0.345, $p < 0.001$). Thus H2 is supported.

The second part presents the impact of sustainable strategic alignment on business excellence enablers. As predicted the results indicates a significant established relationship between sustainable strategic alignment and business excellence enablers. In particular, sustainable strategic alignment has a positive effect on leadership excellence (β 0.55, $p < 0.001$). Thus, H4a is established. H4b is also supported (β 0.568, $p = 0.001$), which indicates that sustainable strategic alignment has a significant effect on process excellence. H4c is also supported (β 1.01, $p < 0.001$), which indicates that sustainable strategic alignment has a

positive effect on employees' excellence. Our results show that sustainable strategic alignment has a positive effect on partnership and resources (β 0.458, $p < 0.001$). Thus, H4d is established. Also, H4e is supported (β 0.391, $p < 0.001$), which indicates that sustainable strategic alignment has a significant effect on policy and strategy excellence.

The third part presents the impact of business excellence on organizational performance. As predicted, our results showed that business excellence enablers have a significant relationship with organizational performance. In particular, leadership excellence has significant positive effect on performance (β 0.551, $p < 0.001$). Thus H5a is supported. Moreover, H5b is supported (β 0.454 $p < 0.001$); which indicates that process excellence has a significant effect on performance. Also, H5c is supported (β 0.952 $p < 0.001$), which indicates that employees' excellence has a significant impact on performance. Also, there is a significant relationship between partnership and resources and performance (β 0.505, $p < 0.001$). This H5d is supported. H5e is also supported, which indicates that policy and strategy has a significant relationship with performance (β 0.378, $p < 0.001$).

Finally, our results indicated that there is a direct relationship between sustainable strategic alignment and performance in Jordanian firms (β 0.136, $p < 0.01$). Thus H3 is supported. Based on the statistical results of the research, the mediating effect of business excellence enablers has a significant effect on the relationship between sustainable strategic alignment and organizational performance. Besides, the impact of shared domain knowledge on alignment is also significant. Figure 6.1 shows the revised research framework. However, this section provided a validation of the presented framework; Section 6.4 presented the guidelines for implementation of the framework.



*** P< 0.001, ** P<0.01, * p<0.05

Figure 6.1 Revised framework of the relationships (overall framework)

Source: The Researcher

6.4 Practical guidelines for implementing the Framework

The theoretical framework in this research offers organizations some implemental guidance (step by step) based on analysis of the primary and secondary data, of how they can organize their IT to promote sustainable strategic alignment. This section discusses the research's proposed practical guidelines for implementing the sustainable strategic IT-business alignment and organizational performance Framework (Figure 6-1). The implemental guidance focus on the ways the organizations can organize their IT to promote sustainable strategic alignment which covers the antecedent factors of sustainable strategic alignment, sustainable strategic alignment, business excellence enablers (leadership, process, employees, policy and strategy, and partnership and resources.

The key implementation steps regarding the shared domain knowledge between IT and business include different initiatives that can be provided to achieve a sustinable alignment. These would include: 1. business managers understand the nature of IT and IT staff needs, 2. business staff participates in key IT operational issues related to business, 3. Staff understand the nature of business and their needs, and IT staff participate in key business operational issues or activities. Therefore, both managers and researchers have to focus on such a relationship and improve how to strengthen such shared domain knowledge in order to contribute to sustainable strategic alignment.

This research uncovered that Jordanian firms lacked strategic IT flexibility. The key implementation steps regarding the strategic IT flexibility as an antecedent factor of sustainable strategic alignment include that IT and business managers should be aware that strategic IT flexibility can contribute to sustainable strategic alignment by different practices. This would include 1. IT infrastructure facilitate organizational responses, which means that IT strategy must be tightly aligned with the organizational strategy. 2. IT and business managers should establish IT flexibility in their organizations to ensure that all technology components can communicate with all other components inside and outside of the organizational environment. Also, 3. Introducing new IT applications in response to changes in competitors' businesses. In addition, 3. Integrating each of organization's physical capital (e.g., IT infrastructure), human capital (e.g., flexible IT personnel), and organizational capital (e.g., organizational culture and structure which support flexibility). These are some implementational steps to ensure achieving sustainable strategic alignment through achieving strategic IT flexibility. Strategic IT flexibility enables information systems in the organization to promptly adapt to the changes in technology and market to enhance and form the organization's strategic choices and business activities.

The empirical findings of this research referred to the mediation of business excellence enablers to enhance the relationship between sustainable strategic alignment and performance. First, leadership excellence should be considered as an essential enabler for supporting IT and business managers in improving their performance. Several implementation guidance would include the 1. The crucial role of both IT and business managers in promoting organizations towards continuous improvement; emphasis of managers on the value of the organisation to be accepted and practiced, problem-oriented training and to support improvement, 2. Encouraging share common beliefs about the future direction of their organization, 3. Managers meeting with customers, suppliers and others

outside the organisation, and involvement in improvement of partnerships, 4. Motivating employees toward change. 5. Ensuring of respectability and effectiveness of implemented structure and process management in delivering improving results; 6. Employees training and their involvement in making decisions, all have a significant impact on performance.

Secondly, process excellence should be considered as an essential enabler for supporting IT and business managers and motivating them to enhance their performance. Several implementation guidance would include: 1. the crucial role of both IT and business managers in Having a system to ensure that all process and activities are controlled, to the prescribed standards. 2. Providing a method for understanding customer's perceptions and needs and the markets.3. Developing a set of activities such as the monitoring and improvement of the design and manufacturing stages, 4 . Ensuring that the audits and results are used to improve the systems.

Thirdly, employees' excellence should be considered as an essential enabler for supporting IT and business managers and motivating them to enhance their performance. Several implementation guidance would include: 1. Matching of recruited people with the organisation's values and needs.2. the crucial role of both IT and business managers to care for, motivate and qualify people to enable them to use their expertise and knowledge for the advantage of the organization; employees' management; developing an organizational culture enhance innovation as well as providing a two-way communications with the employees.

Fourthly, excellence in policy and strategy should be considered as an important enabler for supporting IT and business managers and motivating them to enhance their performance. A number of implementation guidance would include: 1. the crucial role of both IT and business managers in the appling the internal and external data inputs in the process of developing the strategy and business Plans as well as the allocation of required resources. 2. Support of strategic aims and values by feasible and acceptable policies and plans, and allocation of resources.3. Awareness and familiarity of staff with the organisation's goals relevant to their activity

Fifthly, excellence in partnership and resources should be considered as an important enabler for supporting IT and business managers and motivating them to enhance their performance. A number of implementation guidance would include: 1. Developing and implementing alternative and new technologies .2. the crucial role of both IT and business managers in

cooperation with suppliers which involves practices such as involving JIT deliveries and involvement in product/process design improvements which influence positively on operational performance; Allocation and use of financial resources to support the strategic goals 3. Development of partnership relation through a structured approach to achieve extra opportunities.

However, top IT, and business management should correspond to share responsibility for achieving strategic IT-business alignment, sustaining it, and realizing organizational performance through it. Also, IT and business managers have to understand that strategic alignment is a dynamic process, which requires continual adjustment and readjustment. Organizations are different in their practical responses to the challenges of strategic alignment because every organization faces an exclusive environment. Therefore, effective partnership between IT and business in an organization is the best way to assess and respond to the particular conditions facing it.

6.5 Conclusion

This chapter has provided the outcomes of the research hypotheses presented in Chapter 5 using the structural equation model (SEM). First, it discussed the research hypotheses and the results that supported each hypothesis in previous researches. The discussion of the outcomes emphasized significant inputs to the domain of public shareholding firms in the country of Jordan. The path analysis shows that one hypothesis was not significant in this investigation. Moreover, shared domain knowledge has a significant effect on sustainable strategic alignment. While strategic IT flexibility does not have a significant impact. Furthermore, business excellence enablers (leadership, process, employees, policy and strategy, and partnership and resources) play a significant mediating role between sustainable strategic alignment and organizational performance in the public shareholding firms in Jordan. The results of this research also indicate that business excellence enablers have a positive effect on organizational performance. In addition, the chapter considered the construct validity of the items utilized in the survey to gather data about public shareholding firms IT and business managers in the Country of Jordan.

In the following chapter, (Chapter 7), a summary of the key conclusions of this investigation provided. Moreover, Chapter 7 will focus on the practical and theoretical implications of the research and possible limitations and recommendations for future studies.

CHAPTER 7: CONCLUSIONS

7.1 Introduction

The current aim of this research is to investigate the impact of sustainable strategic IT-business alignment on organizational performance using the mediation of business excellence enablers. In addition, develop a framework that advances our understanding of sustainable strategic alignment and performance using the Theory of dynamic capability (DCT) and Resource-based-View (RBV) theories. This chapter presents an overall summary of the research, also, the theoretical and practical implications. Finally, it summarizes the limitations of the thesis and gives directions for future work.

7.2 Meeting the research aim and objectives

This research aim to examine the effect of sustainable strategic IT-business alignment antecedent factors (i.e., shared domain knowledge, strategic IT flexibility) on sustainable strategic alignment, and also the impact of sustainable strategic alignment on performance using the mediation of business excellence enablers (i.e. leadership, process, employees, partnership and resources, and policy and strategy) on organizational performance. In addition, develop a framework that advances our understanding of strategic IT-business alignment and performance using the Theory of dynamic capability (DCT) and resource-based-View (RBV) theory. The DCT and RBV theories helped to investigate the relationships of strategic alignment antecedents and consequences. To achieve the aim, this research set several objectives. Table 7.1 presents each objective and the chapters in which these objectives addressed.

Table 7.1: Objectives and the chapters where these objectives addressed

Objective	Chapter
Identify the key constructs of this research by critically reviewing the antecedent factors of sustainable strategic alignment, sustainable strategic IT-business alignment, business excellence enablers, and organizational performance.	Chapter 2
Develop a framework that investigates the impact of sustainable strategic IT-business alignment on organizational performance using the mediation of business excellence enablers.	Chapter 3
Evaluate and analyze the hypothetical relationships of sustainable strategic alignment antecedents and strategic alignment, and the association between sustainable strategic alignment and organizational performance via business excellence enablers as mediators.	Chapter 4,5
Validate the proposed framework, and link the research results with the literature, conclude theoretical contribution and implications and	Chapter 6, 7

developing recommendations for IT and business managers that provide a better understanding of the antecedents and consequences of sustainable strategic alignment followed by suggestions for future research.	

Source: The Researcher

7.3 Summary of the research investigation

This thesis explored diverse issues of strategic IT-business alignment, which detected based on an intensive and thorough literature review. This, in turn, resulted in a new theoretical framework assist in demonstrating the relationships in this research. This research examined the research's theoretical framework by conducting 410 survey questionnaires in Jordanian public shareholding firms. This thesis presented links between the research's variables in the theoretical framework.

The research set out to examine the effects of antecedent factors (i.e., shared domain knowledge, strategic IT flexibility) on sustainable strategic IT-business alignment. The study also aimed to examine the impact of sustainable strategic alignment on organizational performance, and whether these effects can be mediated by the of business excellence enablers (i.e., process, employees, partnership and resources, and policy and strategy). Also, the study aimed to examine the direct impact of the strategic alignment on organizational performance.

The survey questionnaires analysed through the structural equation modelling (SEM). The results of the analysis unveiled that there is a strong evidence on the relationship between shared domain knowledge between IT and business manager and sustainable strategic IT-business alignment. On the other hand, the SEM failed to support the link between strategic IT flexibility and sustainable strategic alignment. Furthermore, the SEM found positive relationships between sustainable strategic alignment and business excellence enablers (leadership, process, employees, partnership and resources, and policy and strategy), and its impact on organizational performance. Also, the SEM found a direct linkage between sustainable strategic alignment and organizational performance. Therefore, business excellence enablers partially mediated the relationship between sustainable strategic alignment and organizationl performance.

This research increases our understanding of the implementation of sustainable strategic alignment and its impact on organizational performance by highlighting the critical role of business excellence enablers. It offers a set of managerial implications that can support

informed decision-making by IT and business managers. The following subsections highlight the significant theoretical and practical implications of this research.

7.4 Contributions of the research

The presented research has contributed to theory by rooting the research's theoretical framework in the strategic IT-business alignment literature. Furthermore, the thesis has contributed to practice by providing recommendations which would support managers and practitioners to achieve and sustain strategic alignment overtime in their organizations. This section presents the theoretical and practical contribution concluded from this research.

7.4.1 Theoretical contributions

Firstly, this thesis developed a theoretical framework based on an intensive literature review from the MIS, business excellence, and organizational performance. This literature guided this thesis in developing an integrated theoretical framework regarding sustainable strategic IT-business alignment to several antecedents, including shared knowledge between business and IT, and strategic IT flexibility; and the consequences of sustainable strategic IT-business alignment, including business excellence enablers as intermediary variables including, and organizational performances. However, this research may be the first research of its kind to integrate several antecedents of sustainable strategic alignment, sustainable strategic alignment, business excellence enablers, and organizational performance. Based on the Researcher's knowledge, there is no research found which combined and empirically investigated the research above constructs. Thus, this research has added more vision into the existing knowledge in the MIS and business excellence literature by providing different results from IT and business managers' perspectives.

Secondly, this research has provided additional literature by looking at the dynamic capability perspective of strategic alignment. Researchers have criticised conventional strategic alignment as being too static, mechanistic and belonged to an era of greater stability in the business world (Baker *et al.,* 2012; Chan and Reich, 2007) (See Chapter 2 Section 2.4.6). This means that conventional strategic alignment can be difficult to achieve in practice and rapidly changing environments. Conventional strategic alignment criticized for lack of theoretical support to the issue of alignment. Researches on static alignment generally adopt a contingency theory perspective, explaining that the degree of alignment is contingent on the factors identified. Also, it can lead to cases of misalignment in organizations as well as failing in achieving strategic alignment. In addition, relatively few studies examined the

sustained or dynamic alignment such which they present the sustainable strategic alignment as a dynamic process rather than a static alignment which needs to be sustained.

Thirdly, this research is dissimilar to most of the previous literature, which examined either the effect of antecedents on strategic alignment or the alignment's effects on organizational performance. The presented research investigates an integrated theoretical framework which covers the impact of antecedent factors on sustainable strategic alignment and its impact on organizational performance through business excellence enablers as intermediary variables. The current thesis reported that the dynamic perspective of sustained strategic alignment presents superior insights into the antecedent and consequences of alignment. These insights include the need for intermediate processes contribute in leveraging the organizational capabilities such as realizing the maximum business values of IT. This thesis investigates the relationships between strategic alignment and some antecedents which selected after a thorough and critical review of the literature of sustainable strategic alignment (Section 2.7) to select the unique factors that impact alignment over time. This research proposed that shared domain knowledge, and the strategic IT flexibility is antecedents to sustainable strategic alignment in Jordanian public shareholding firms. This assumption is in response to recent researchers (e.g. Baker *et al.*, 2011; Chan *et al.*, 2006; Baker and Jones, 2008, Chan and Reich, 2007, Tallon and Pinsonneault, 2011) which have constantly called for further research into the factors that affect sustainable strategic alignment, and the coupling process between strategic alignment and enhanced business performance.

Fourthly, this research provides several relationships between excellence enablers (i.e., leadership, process, employees, partnership and resources, and policy and strategy) and organizational performance. This is response to the elusive link and mixed results on the direct relationship between strategic alignment and organizational performance which call for additional research into intermediate variables in which strategic alignment may influence organizational performance (e.g., Chan and Reich, 2007; Tallon and Pinsonneault, 2011; Nambisan and Swahney, 2007). Some scholars (e.g., Aladaileh, 2017; Sadeh *et al.*, 2013; Ismail *et al.*, 2015; Sánchez-Rodríguez, 2006) highlighted that business excellence enablers could be essential mediators between IT and performance in which they achieve excellent results and therefore increase organizational performance.

Fifthly, this thesis expands the discussion of strategic IT-business alignment, with more focus on the dynamic nature of strategic alignment in efforts to contribute further to the MIS field and to investigate the effect of the sustained strategic alignment on subjective measures of firm performance. Also, this research is the first of its kind -to the best of our knowledge- in using the 'key performance results' which is one of the results' dimensions in the EFQM excellence model as a measure of performance in strategic alignment research. A little of researches used the EFQM excellence model to measure performance in IS and MIS discipline.

Finally, this research investigates the research framework in developing countries in general, and Jordan, in particular. The results of this research would support IT and business managers to have a better understanding of the significance of the convergence between the two parties in the context of a developing country. Also, once top management intends to conceptualize their investment decisions, therefore, they can rely on this theoretical framework to guide them to understand the resources needed, realize the potential value of their IT investments in terms of financial and non-financial performances. Therefore, the findings in this thesis can be beneficial to the top management of the business and IT when they plan, develop, and deploy their own strategic business and information systems.

7.4.2 Practical contributions

The first practical contribution is related to sustainable strategic alignment, which has a valuable strategic implication for the top management of IT and business parties. It noticed that scholars and practitioners give more concern to the end results like growth, profitability, market shares, innovation, or customer satisfaction, with neglecting the importance of the source of these outcomes. This thesis strongly induces IT and business managers, and scholars to provide much attention to the sustainable strategic IT-business alignment and investigate its antecedents and consequences.

Secondly, the theoretical framework in this research offers organizations some indicators of how they can organize their IT to promote sustainable strategic alignment. For instance, the framework includes shared domain knowledge and strategic IT flexibility as antecedents for sustainable strategic alignment. It is important to maintain shared knowledge between business and IT managers in order to achieve alignment over time. On this point, different initiatives can be provided to achieve sustainable alignment. These would include the understanding and appreciation of business managers of the IS work environment and

understanding and appreciation of the IS managers of the line organization. Therefore, the findings of the current research have established the positive relationship between shared domain knowledge between IT and business managers and sustainable strategic alignment. Therefore, it is essential for both managers and researchers to examine such a relationship and to concentrate on how to strengthen the relationship.

Thirdly, the research findings reported that Jordanian organizations lacked of strategic IT flexibility. However, IT and business managers should be aware that strategic IT flexibility can contribute to sustainable strategic alignment through different practices. IT infrastructure can facilitate organizational responses in dynamic environments, thus, IT strategy must tightly be aligned with the organizational strategy. This close alignment means that IT infrastructures must also be flexible. IT and business managers should establish IT flexibility in their organizations to ensure that all technology components can communicate with all other components inside and outside of the organizational environment as well as sharing a different type of data and applications through technology components. Therefore, these techniques aim to ensure achieving sustainable strategic alignment through achieving strategic IT flexibility.

Fourthly, the findings of the research have also reported that if organizations seek to achieve sustainable strategic alignment, and in turn attain higher performance, then they should achieve business excellence which covers five different areas (leadership, process, employees, policy and strategy, partnership and resources) as presented in the following paragraphs:

Leadership excellence should be considered as an essential enabler for supporting IT and business managers and encouraging them to improve their performance. The current research explored a significant fact that leadership excellence is being supported in relation to performance targets. On this particular point, several initiatives can be introduced to achieve high performance. These would include the crucial role of both IT and business managers in promoting organizations towards continuous improvement; support the visionary leadership by establish quality policies, objectives and provide resources, problem-oriented training and support improvement; share common beliefs about the future direction of their organization, ensure reviewing the performance measures. In addition, leadership ensures practices such as reinforcing a culture of excellence; employees training and their involvement in making decisions, all have a significant impact on performance. Initially, such steps are consistent

with previous literature. Such as Al-Adaileh, (2017) and Rookhandeh and Ahmadi (2016), who emphasized that IT support achieving excellence in leadership.

Process excellence should be considered as an important enabler for supporting IT and business managers and motivating them to enhance their performance. The current research explored the significant fact that process excellence is being supported in relation to performance targets. On this particular point, a number of initiatives can be introduced to achieve high performance. These would include the crucial role of both IT and business managers in implementing the excellence in process through improving processes continuously based on identified opportunities and needs, translating customer requirements to new products and services; monitoring and improving of all the design and manufacturing stages. Initially, such steps are consistent with previous literature such as Rookhandeh and Ahmadi (2016) and Sadeh *et al*., (2013) who reported the role of IT in developing process excellence.

Employees' excellence should be considered as an important enabler for supporting IT and business managers and motivating them to enhance performance. The current research explored the significant fact that employees' excellence is being supported in relation to performance targets. On this particular point, a number of initiatives can be introduced to achieve greater performance. These would include the crucial role of both IT and business managers to care for, communicate, motivate and qualify people to enable them to use their expertise and knowledge in enhancing the organization, employees' management,developing an organizational culture to enhance innovation. Initially, such steps are consistent with previous literature such as Sanchez-Rodriguez *et al*. (2006) and Mejma *et al*., (2005) who found that IT support employees' practices through training, evaluation, and employee recognition and also facilities effective communications among employees and top management.

Excellence in policy and strategy should be considered as an important enabler for supporting IT and business managers and motivating them to enhance their performance. The current research explored the significant fact that excellence in policy and strategy is being supported in relation to performance targets. On this particular point, several initiatives can be introduced to achieve high performance. These would include the crucial role of both IT and business managers in the strategic planning which involves each of strategy development process based on internal and external data in organization, and strategy deployment,

allocation of required resources, providing direction to management; developing mission, vision and business strategy should be consistence with stakeholder needs and expectations. Initially, such steps are consistent with previous literature such as Rookhandeh and Ahmadi (2016) and (Zárraga-Rodríguez and Alvarez, 2013) who found that applying IT help in supporting decision making and achieving organizational excellence.

Excellence in partnership and resources should be considered as an important enabler for supporting IT and business managers and motivating them to enhance their performance. The current research explored the significant fact that excellence in partnership and resources is being supported in relation to performance targets. On this particular point, several initiatives can be introduced to achieve high performance. These would include the crucial role of both IT and business managers in cooperation with suppliers which involves practices such as involving JIT deliveries and involvement in product/process design improvements that influence positively on operational performance (e.g., market share, reducing production cycle time, and Customer delivery commitments met); and managing external alliances (e.g. managing economic resources, the buildings, equipment, and knowledge). Initially, such steps are consistent with previous literature such as Sadeh *et al*. (2013) that organizations should support two-way communication with their suppliers by using IT tools.

Finally, the research framework could be applied by top management, academics, and practitioners as an analytical instrument to assists organizations where fundamental progress is absent, and at the same time as a practical method to distinguish processes that need to be generated. Furthermore, based on the above presentation, top management should correspond to share responsibility for achieving strategic IT-business alignment, sustaining it, and realizing organizational performance through it. Also, IT and business managers have to understand that strategic alignment is a dynamic process, which requires continual adjustment and readjustment. Organizations are different in their practical responses to the challenges of strategic alignment because every organization faces an exclusive environment. Therefore, effective partnership between IT and business in an organization is the best way to assess and respond to the particular conditions facing organization. However, the next section presents the current research limitations, which may limit the research's generalisability.

7.5 Limitations of the research

Despite the significant contributions of this research, various limitations should be acknowledged, which can be considered as a fertile base for future research on strategic IT-business alignment literature. Firstly, based on extensive research, this research concluded that shared domain knowledge and strategic IT flexibility are the antecedent factors for sustaining strategic IT-business alignment over time. Therefore, future research needs to explore other emerging factors and investigates whether they contribute to sustaining alignment, which could extend the research findings.

Secondly, although this research targeted multiple informants (e.g., IT and business managers) as participants to attain their perceptions regarding the research relationships, this research did not establish the value of using the difference between their perceptions on the research associations. Therefore, further research should consider the differences (agreements and/ or disagreements) in perceptions for both IT managers and business managers. Similarly, this research targeted the Jordanian public shareholding firms which are distributed under four sectors (banking, insurance, services and industrial) to attain data, but this research did not establish the value of using the difference between these sectors on the research associations. Thus, there is a need to conduct further research to realize the differences in perceptions for both IT managers and business managers who operated in these different sectors.

Thirdly, despite that the response rate of this research was adequate to conduct the statistical analysis; "the percentage of participants who did not respond was still observable. Commonly, although the research findings could be representative, it is reasonable to be cautious in their generalization. Therefore, to increase statistical validity, further research should consider higher response rates. Also, it might be possible to adopt a longitudinal study in investigating the main constructs in this research which cover an extended period which could yield more insights into the relationships between the research' constructs and organizational performance."

Fourthly, the data and results reported in this thesis based on a single country "(i.e., Jordan), and therefore applicable specifically to the Jordanian context. Therefore, this raises questions concerning the generalisability of the research's findings for other cultures and various contexts. Thus, there is a need for further research to be conducted in several countries, as

this would assist in advancing the understanding of the strategic IT-business alignment in term of it's antecedent's factors and consequences of achieving it from several international origins in different contexts."

Fifthly, this research collected data from participants through a quantitative method approach. Therefore, there is a need to conduct future researches based on a qualitative approach, such as interviews. Indeed, participants' responses in some of the organizations which adopt IT/IS and communication services could be different from the responses of participants who operate in less IT related organizations. Survey questions may have been comprehended by different participants in a slightly different way based on their importance and dependence on IT.

Finally, this thesis was well-grounded, depending on prior theories, which in turn led to the development and examining of a theoretical framework model of the antecedents and consequences of strategic IT-business alignment. Also, several kinds of literature from MIS, management, and business excellence and survey questionnaires used to reach the final results. Therefore, this thesis has contributed to the theory and to practice based on results obtained from the developed theoretical framework used in this thesis. However, several future research paths presented in the following section.

7.6 Future research directions

The theoretical framework in this research was tested using a sample from large public shareholding firms which involve a number of sectors (banks, service, insurance, and industrial) operating in the country of Jordan. "Although this setting assisted in controlling sectors and country-levels variations as potential noises in investigating the framework, it limits the generalizability of the results due to sectors and culture-specific characteristics. "Future research can replicate the research in several settings, including other countries and other sectors. Also, although the presented research has proposed that large firms are more capable of adopting and achieving sustainable strategic IT-business alignment, further research should adopt the understanding provided by this research to look at the antecedents and consequences of strategic IT-business alignment barriers in small and medium-sized firms. "This is in line with Chan *et al.*'s (2006) findings, that firm size has an impact on strategic alignment. Therefore, further research is needed to examine the impact of strategic alignment and business excellence enablers on performance, in terms of SME's firms."

In this research, two antecedent factors were empirically tested to be affecting sustainable strategic alignment (i.e., shared domain knowledge, and strategic IT flexibility. Therefore, future research could investigate other factors which may involve external factors (e.g., governmental, regulations, economic and cultural aspects) to consider their effects on sustaining strategic alignment and their combined impact on organizational performance. Moreover, future research should further specify accurate measures for strategic IT-business alignment. In other words, their indicators (items) should be chosen precisely and with a high degree of concern, because inappropriate indicators could cause issues in reliability and validity and therefore influence the research findings.

Furthermore, due to the time limitations, this research used the dimension (namely, key performance results) from the EFQM excellence model as a measure of organizational performance, this dimension includes financial and non-financial measures. However, the other performance dimensions in EFQM identified and discussed in Chapter 2; therefore, further research could examine the existing research framework by adding these dimensions of EFQM such as (employees results, customer results, society results) as dependent outcomes for measuring performance to be researched in more details.

Moreover, although the research findings validated the theoretical framework, further investigation is required to cover a more extended period of time. “Therefore, a longitudinal research of the presented research framework is needed in order to obtain a further explanation of findings of the studied relationships, as well as to support the theoretical underpinnings of this research and create a solid ground for the research constructs.” Countries or organisations have several organisational structures, IT/IS infrastructure and therefore, it would be beneficial to find any”differences there might be exists.

Although the research results based on the perceptions of both business managers and IT managers, this research did not establish the value of using the difference between their perceptions on the research constructs. Therefore, additional research should consider the differences between the two parties and examine their effects on realizing strategic alignment. “Furthermore, the further examination needs to be performed with an international perspective, as well as developing the research framework to consider other countries in efforts to achieve more validation for the presented framework and achieve more generalized

results. In particular, additional research could validate the framework by replicating it in other Arab and non-Arab countries. In the same vein, the same framework could be applied in comparative research between the banking, insurance, services, and manufacturing sectors, to investigate the differences of research relationships in the sectors, and to make sure if the framework could be more general across several industries." Finally, the quantitative method is not without its drawbacks; therefore, Future research is needed to be conducted over a larger scale with more participants from several contexts. Also, it would be motivating to realize how far the finding is influenced by incorporating a qualitative case study or mixed-method research in a similar context.

To sum up, although this research examined different hypotheses, and provided empirical support for the acceptance and rejection of some of these hypotheses, "more generalizations on the implementation of the theoretical premises developed in building the research framework will be required to enrich and build upon the alignment theory. Therefore, a more generalized research framework that compensates for the presented research's limitations, through bringing additional influencing constructs to the framework, and which procure a more representative sample from several sectors, is needed."

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APPENDIX A: DATA COLLECTION ETHICAL APPROVAL

College of Business, Arts and Social Sciences Research Ethics Committee
Brunel University London
Kingston Lane
Uxbridge UB8 3PH
United Kingdom www.brunel.ac.uk

4 May 2018

Applicant: Mrs Nour Qatawneh

Project Title: Antecedents and Outcomes of Strategic

IT-Business Alignment

Reference: 11282-LR-May/2018- 12654-5

Dear Mrs Nour Qatawneh

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- Please ensure a copy of the Participant Information Sheet is given out with each copy of the questionnaire.
- The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- Approval to proceed with the study is granted subject to receipt by the Committee of satisfactory responses to any conditions that may appear above, in addition to any subsequent changes to the protocol.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor David Gallear

Chair

College of Business, Arts and Social Sciences Research
Ethics Committee Brunel University London

APPENDIX B: THE QUESTIONNAIRE

Dear manager,

I am writing this letter to ask for your help with my PhD thesis in Management Information Systems which I am at present conducting at Brunel University in the United Kingdom. As part of it I am required to collect data from the country of Jordan. My research topic concerns the Impact of Strategic Alignment of Business and Information Technology on organizational Performance in Public Organizations in Jordan.

I would be very grateful if you could please complete the attached questionnaire. I am aware that your time is extremely valuable. In return for your courtesy, I will be very happy to provide you with the summary of my findings.

I am also confirming that the questionnaire is ethically approved by the ethical committee in Brunel University London by which -as a researcher- I am obligated to ensure that all participants and organisations will be completely anonymous, and all replies will be used solely for the purposes of this research. Although entirely optional, participation would be highly appreciated. Feel free to contact me if you have any inquiries.

Sincerely,

Nour Qatawneh

Doctoral Researcher

Brunel Business School

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Brunel University London

Section A: Demographic and Basic Information

Please tell us about yourself and your background.

Years' experience in this job: ☐ Less than 2 Years ☐ 3-6 ☐ 7-10 ☐ More than 11 Years

Gender: ☐ M ☐ F

Age: ☐ Less than 25 Years ☐ 26-35 ☐36-45 ☐ 46-55 ☐More than 55

To which of the following business units you belong?

☐ IT management
☐ Management/ Core Business/ Planning
☐ Both

Sector which your company belongs to (Please select from the following):

☐ Banks
☐ Insurance
☐ Services
☐ Industrial (manufacturing)

Section B: Strategic Alignment Antecedents

Please response by indicating the extent to which each statement is applicable in your organisation. Where 1= strongly disagree, 5= strongly agree.

Shared domain knowledge					
1. Business managers understand the work environment of IT	1	2	3	4	5
2. Business managers appreciate the accomplishments of IT	1	2	3	4	5
3. IT managers understand the work environment of business functions.	1	2	3	4	5
4. managers appreciate the accomplishments of the business functions	1	2	3	4	5
5. Business are informed of key IT operational activities related to business					
6. Business staff appreciate the IT contribution to business in terms of increasing the productivity					
Strategic IT flexibility To what extent do you agree that your organization's information systems can easily and quickly perform the following business actions?					
7. Respond to changes in businesses	1	2	3	4	5
8. Customize an application to suit a specific business	1	2	3	4	5
9. React to new applications launched by competitors	1	2	3	4	5
10. Introduce new applications in response to changes in competitors' businesses	1	2	3	4	5

Section C: Strategic Alignment of Business and IT

Please select the level that best evaluate the situation in your organisation. Where 1= Very low, 5= Very High.

Sustainable strategic alignment is the degree to which the business strategy and plans, and the IT/IS strategy and plans, complement each other over long time period.

Strategic Alignment	1	2	3	4	5
11. IT understands the organisation's business environment	1	2	3	4	5
12. Business departments understands the IT environment	1	2	3	4	5
13. Organizational learning occurs through (intranet, meetings, e-mail, ..)	1	2	3	4	5
14. Using balanced metrics to measure the contributions of IT and business	1	2	3	4	5
15. Continuous improvement practices for IT and Business	1	2	3	4	5
16. Formal assessment and review of IT investments	1	2	3	4	5
17. The strategic business planning is done with IT participation	1	2	3	4	5
18. strategic IT planning is done with business participation	1	2	3	4	5
19. IT function react quickly to organisation's changing business needs	1	2	3	4	5
20. IT is perceived by the business as a partner in bringing value to the organization	1	2	3	4	5
21. IT's role in strategic planning with business to enable the strategic objectives	1	2	3	4	5
22. IT and business management are sharing the risks and rewards	1	2	3	4	5
23. IT systems as enablers and drivers for business strategy	1	2	3	4	5
24. IT standards are performed across functional business units	1	2	3	4	5

Section D: Business Excellence enablers

This section seeks to assess the Business Excellence of your organisations. Please response by indicating the extent to which each statement is applicable in your organisation. Where 1= strongly disagree, 5= strongly agree.

Business Excellence Enablers		1	2	3	4	5
Leadership	25. Developing mission, vision, values and ethics	1	2	3	4	5
	26. Organizational system is developed, implemented and improved	1	2	3	4	5
	27. Interact with customers, partners and representatives of society	1	2	3	4	5

	28. Reinforcing a culture of excellence by the recognition the employees who generate improvements	1	2	3	4	5
Policy and strategy	29. Considering present and future needs of stakeholders	1	2	3	4	5
	30. Information from all organization's processes is analysed when strategy is defined	1	2	3	4	5
	31. Policy and Strategy are developed, reviewed and updated	1	2	3	4	5
	32. Policy and Strategy are deployed by a framework of key processes	1	2	3	4	5
Employees	33. Employees resources are planned, managed and improved	1	2	3	4	5
	34. Employee's competencies are developed and sustained	1	2	3	4	5
	35. Recognition and reward of employees' efforts in generating improvement	1	2	3	4	5
	36. Effective communication with employees	1	2	3	4	5
	37. Match of recruited employees with the organisation's values and needs					
Partnerships and resources	38. Internal and external partnerships are based on mutual trust and sustainable benefits	1	2	3	4	5
	39. Finances resources are managed to secure sustained success	1	2	3	4	5
	40. Managing assets (Buildings, equipment,..) in a sustainable way	1	2	3	4	5
Process	41. Processes are improved to generate optimum value for customers and stakeholders	1	2	3	4	5
	42. Products and Services are developed based on customer needs and expectations	1	2	3	4	5
	43. Products and Services are effectively produced and delivered to meet customer needs	1	2	3	4	5
	44. Processes in organization are systematically designed and managed	1	2	3	4	5

Section E: Organizational Performance This section seeks to assess the organisational performance of your organisation. Please response by indicating the extent to which you agree or disagree with each statement. Where 1= strongly disagree, 5= strongly agree.

Organisational Performance: Strategies that are **CURRENTLY** adopted in your organisation have assisted in:		1	2	3	4	5
Key Performance Results	45. Improved market share in the company	1	2	3	4	5
	46. Improved profit level in the company	1	2	3	4	5
	47. improved Sales\ services per employee	1	2	3	4	5
	48. Improved quality of goods and services provided by suppliers	1	2	3	4	5
	49. Better relations with suppliers and internal and external relations with the company	1	2	3	4	5
	50. Improve supplier management and compliance with delivery schedules	1	2	3	4	5
	51. Improved process efficiency in the company	1	2	3	4	5
	52. More flexibility in business process	1	2	3	4	5
	53. improved productivity of processes	1	2	3	4	5

بحث دكتوراه لدراسة العلاقة بين الموائمة الاستراتيجية المستدامة لتكنولوجيا المعلومات والأعمال وتأثيرها على أداء الشركات المساهمة العامة في الأردن

هذا الإستبيان يتكون من خمسة اقسـام ويستغرق 25 دقيقة للإجابه عليه

كل المعلومات ستكون سرية للغايه

الرجاء وضع الاستبيان في المغلف المرفق بعد الانتهاء من الإجابة وتسليمه للباحث

تعليمـــــــــــــــات

التعليمات التالية ستساعدك في تعبئة الاستبان:

الرجاء العلم بأن أي معلومات ستزودها بالاستبيان ستكون سرية للغاية ولن تستخدم إلا لغايات البحث العلمي.

الرجاء الإجابة على جميع الأسئلة حتى إذا كان بعضها متشابه.

الرجاء الإجابة على الأسئلة بشكل يعكس الوضع أو التطبيق الحالي لشركتكم وليس كما تتمنى أو تخطط لها أن تكون بالمستقبل.

إذا لديك أية أسئلة أو تعليقات حول الاستبيان الرجاء عدم التردد والإتصال بالباحث عن طريق:

البريد الإلكتروني: Nour.Qatawneh@brunel.ac.uk

الشكر الجزيل لتعاونكم ومساعدتكم

دراسة مسحية للموائمة الاستراتيجية لتكنولوجيا المعلومات والأعمال وتأثيرها على أداء الشركات المساهمة العامة الأردنيـة

سـيدي المـدير/ سـيدتي المـديرة :

أكتب هذه الرسالة لأطلب مساعدتكم في أطروحة الدكتوراه في نظم المعلومات الإدارية التي أقوم بها حاليًا في جامعة برونيل لندن بالمملكة المتحدة. وسأكون ممتنًا جدًا لو تفضلتم بإكمال الاستبيان المرفق. كما أنني أؤكد أن الاستبيان معتمد من قبل اللجنة الأخلاقية للبحث العلمي في جامعة برونيـل لنـدن والتي من خلالها ألتزم كباحث دكتوراه بضمان أن المعلومات التي ستقدمونها ستكون سرية ولن يسمح بالإطلاع عليها وستستخدم فقط لأغراض البحث العلمي. نقدر لكم تعاونكم معنا في هذه الدراسة وأنا على أتم الاستعداد لتزويدكم بنسخة من نتائج الدراسة بعد إتمامها لتعم الفائدة.

تهدف هذه الدراسة الى تفهم وجهة نظر مدراء الأعمال و مدراء تكنولوجيا المعلومات في الشركات المساهمة العامة الأردنية تجاه موضوع الموائمة الاستراتيجية لتكنولوجيا المعلومات والأعمال وتأثيرها على أداء الشركات.

هذا وقد تم اختياركم ضمن عينة عشوائية للمشاركه في هذا المسح وسيمثل رأيك الموضوعـــي أهمية كبيرة في تحقيـق أهداف الدراســة.

وفي الختام نعتقد أنكم ستجدون الإستبانة مسلية ومثيرة ونتطلع لإستقبال ردودكم

شاكريم لكم حسن تعاونكم ومساعدتكم

الباحـــث

نور عبدالوهاب القطاونة

جامعة برونيل لندن- المملكة المتحدة

القسم الأول: المعلومات الشخصية والوظيفية

الرجاء تعبئة البيانات الشخصية والمهنية التالية:

1. **العمر : ☐ 25 سنة فأقل ☐35-26 ☐ 45-36 ☐ 55-46 ☐ 56 سنة فأكثر**
2. **عدد سنوات الخبرة ☐ اقل من 2 سنة ☐3- 6 ☐7- 10 ☐ 11 سنة فأكثر**

في هذه الوظيفة :

3. **الجنس : ☐ ذكـر ☐ انثى**

إلى أي من وحدات الأعمال التالية تنتمي في الشركة؟

☐ **ادارة تكنولوجيا المعلومات**

☐ **الإدارة, التخطيط الاستراتيجي, اعمال اساسية**

☐ **كـلاهما**

القطاع الذي تنتمي إليه شركتك (الرجاء الاختيار من التالي):

☐ **قطاع البنـوك**

☐ **قطاع التأمـين**

☐ **قطـاع الخدمـات**

☐ **قطـاع الصناعة**

القسم الثـاني: العـوامـل المؤثره علـى الموائمة الاستراتيجية لتكنولوحيا المعلومات والأعمال

يرجى الاجابة من خلال تحديد مدى تطبيق كل عبارة في شركتك بوضع اشارة في المكان المناسب, حيث 1= غير مطبق بشدة , 5= مطبق بشدة.

الفقـرات	1	2	3	4	5
تخفيض تكاليف المنظمة	1	2	3	4	5
الوفاء بمتطلبات الموظفين	1	2	3	4	5
زيادة الإنتاجية الكلية	1	2	3	4	5
المنتجات والخدمات تصبح قديمه بسرعة كبيرة	1	2	3	4	5
تتغير تقنيات التكنولوجيه للمنتجات / الخدمات بسرعة كبيرة	1	2	3	4	5
التنبؤ بسلوك المنافسين للخدمه او المنتج	1	2	3	4	5
تنوع كبير في طبيعة شراء الزبائن	1	2	3	4	5
تنوع كبير في طبيعة المنافسة	1	2	3	4	5
تنوع كبير في خطوط المنتجات / الخدمات	1	2	3	4	5
تكنولوجيا المعلومات تزيد من الإنتاجية	1	2	3	4	5
تكنولوجيا المعلومات تزيد من الأداء الوظيفي	1	2	3	4	5

تكنولوجيا المعلومات تعزز الفعالية في العمل	1	2	3	4	5
تعلم تشغيل البرامج والأجهزة والأنظمة أمر سهل	1	2	3	4	5
من السهل استخدام تكنولوجيا المعلومات في القيام بالمهام الإدارية والتقنية	1	2	3	4	5
يتطلب الأمر الكثير من الجهد لإكتساب المهارة في استخدام تكنولوجيا المعلومات	1	2	3	4	5

القسم الثــالث: الموائمة الاستراتيجية لتكنولوجيا المعلومات والأعمال

يرجى تحديد المستوى الذي يقيّم الوضع في شركتك بأفضل طريقة. حيث 1 = منخفض جدًا ، 5 = مرتفع جدًا

دائرة تكنولوجيا المعلومات تتفهم بيئة أعمال المنظمة	1	2	3	4	5
الأقسام الاداريه في الشركة تتفهم بيئة تكنولوجيا المعلومات	1	2	3	4	5
يحدث التعلم التنظيمي في الشركه من خلال (الشبكه الداخلية للمنظمة، اجتماعات، بريد إلكتروني)	1	2	3	4	5
استخدام مقاييس متوازنة لقياس مساهمات تكنولوجيا المعلومات والأعمال في الشركه	1	2	3	4	5
ممارسات التحسين المستمر لتكنولوجيا المعلومات والأعمال	1	2	3	4	5
التقييم والمراجعة الرسمية لاستثمارات تكنولوجيا المعلومات	1	2	3	4	5
يتم التخطيط الاستراتيجي للأعمال مع مشاركة تكنولوجيا المعلومات	1	2	3	4	5
التخطيط الاستراتيجي لتكنولوجيا المعلومات يتم بمشاركة الأعمال	1	2	3	4	5
تتفاعل وظيفة تكنولوجيا المعلومات بسرعة مع احتياجات العمل المتغيرة للشركة	1	2	3	4	5
يتم اعتبار تكنولوجيا المعلومات من قبل الشركة كشريك في تحقيق قيمة للشركة	1	2	3	4	5
دور تكنولوجيا المعلومات في التخطيط الاستراتيجي مع الأعمال لتمكين الأهداف الاستراتيجية	1	2	3	4	5
تتقاسم إدارة تكنولوجيا المعلومات والأعمال المخاطر والمكافآت	1	2	3	4	5
نظم تكنولوجيا المعلومات هي كعوامل تمكينية ومحركات لإستراتيجية الاعمال	1	2	3	4	5
يتم تنفيذ معايير تكنولوجيا المعلومات عبر وحدات الأعمال الوظيفية	1	2	3	4	5
مكونات البنية التحتية لتكنولوجيا المعلومات تتواكب مع الأعمال	1	2	3	4	5
تعزيز بيئة ريادية مبتكرة	1	2	3	4	5
برامج فعالة لجذب متخصصي تكنولوجيا المعلومات من ذوي المهارات التنظيمية والتقنية	1	2	3	4	5
توافر برامج ادارة التغيير على مستوى الشركة	1	2	3	4	5

القسم الرابع: التميــز في الأعمــال

يسعى هذا القسم إلى تقييم التميز في الأعمال لشركتك. يرجى الإجابه من خلال تحديد مدى تطبيق كل عبارة في شركتك.
حيث 1 = مطبق بشدة ، 5 = غير مطبق بشدة.

تطوير الرسالة والرؤية والقيم للشركة	1	2	3	4	5
تطوير النظام الاداري وتنفيذه وتحسينه	1	2	3	4	5
التفاعل مع العملاء والشركاء وممثلي المجتمع	1	2	3	4	5
النظر في الاحتياجات الحالية والمستقبلية لأصحاب المصلحة	1	2	3	4	5
يتم تحليل المعلومات من جميع عمليات الشركة عند تحديد الإستراتيجية	1	2	3	4	5
يتم تطوير سياسة واستراتيجية الشركة ومراجعتها وتحديثها	1	2	3	4	5

يتم تخطيط الموارد البشرية وإدارتها وتحسينها	1	2	3	4	5
يتم تطوير كفاءات الموظفين واستدامتها	1	2	3	4	5
تمكين الموظفين في الممارسات التحسينية في الشركة	1	2	3	4	5
تقوم الشراكات الداخلية والخارجية في الشركة على الثقة المتبادلة والفوائد المستدامة	1	2	3	4	5
تتم إدارة الموارد الماليةبشكل فعال لضمان النجاح المستمر	1	2	3	4	5
إدارة الأصول (المباني ، المعدات ، ..) بطريقة مستدامة	1	2	3	4	5
يتم تحسين العمليات التنظيمية في الشركة بشكل يوفر القيمة المثلى لخدمة العملاء وأصحاب المصلحة	1	2	3	4	5
يتم تطوير المنتجات والخدمات بناءً على احتياجات العملاء وتوقعاتهم	1	2	3	4	5
يتم إنتاج وتسليم المنتجات والخدمات بفعالية لتلبية احتياجات العملاء	1	2	3	4	5

القسم الخامس: الأداء التنظيمـــي في الشركة

يسعى هذا القسم إلى تقييم الأداء التنظيمي لشركتك. يرجى الإجابة عن طريق الإشارة إلى مدى موافقتك أو عدم موافقتك مع كل عبارة. حيث 1 = لا أوافق بشدة ، 5 = موافق بشدة.

الأداء التنظيمي: ساعدت الاستراتيجيات التي يتم اعتمادها حاليًا في شركتك في :	**1**	**2**	**3**	**4**	**5**
تحسـين مستويات الربح في الشركة	1	2	3	4	5
تحسـين الحصة السوقية للشـركة مقابل المنافسيـن	1	2	3	4	5
تحسين معدل المبيعات \ الخدمات لكل موظف	1	2	3	4	5
تحسـن في جودة السلع والخدمات المقدمة من الـموردين	1	2	3	4	5
علاقات أفضل مع الموردين والشراكات الداخلية والخارجية مع الشـركة	1	2	3	4	5
تحسين إدارة الموردين والتزامهم بمواعيد التسليم	1	2	3	4	5
تحسين كفاءة العمليات التنظيمية في الشـركة	1	2	3	4	5
المزيد من المرونة في العمليات في الشـركة	1	2	3	4	5
تحسـين انتاجيــة العمليات	1	2	3	4	5