

THE RELATIONSHIP BETWEEN INFORMATION TECHNOLOGY
FLEXIBILITY, CAPABILITY AND STRATEGIC ALIGNMENT

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This thesis is dedicated to my beloved mother and wife

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ABSTRACT

The quest for information technology (IT) and business strategic alignment has become more complex due to the fact that organisations are finding it hard to align their IT with business strategies in today's ever changing business environment. Upon reviewing previous literatures, it is found that IT flexibility and IT capability are two most important factors to sustain strategic alignment. Studies investigating the effect of IT flexibility dimensions (i.e., connectivity, compatibility, and modularity) and IT capability dimensions (i.e., IT infrastructure, IT architecture, IT relationship resource, and IT human resource) on strategic alignment are very limited and there is an opportunity to study these relationships. Furthermore, the effect of IT flexibility dimensions on IT capability is another key issue of the research and has not been studied in previous studies. 125 IT managers of top medium-to-large Iranian firms were the target subjects in this study and statistical software of SPSS and PLS were used to analyze the data. The results revealed that one dimension of IT flexibility (i.e., connectivity) and three dimensions of IT capability (i.e., IT human resource, IT relationship resource and IT infrastructure) significantly affect strategic alignment. Furthermore, the relationships of two dimensions of IT flexibility (i.e., compatibility and modularity) were significant with IT capability. The findings also indicated that the dimensions of IT flexibility and IT capability explain 67% of the variance in strategic alignment and IT flexibility explains 39% of the variance of IT capability. Unexpectedly, the effects of compatibility, modularity and IT architecture on strategic alignment and the relationship between connectivity and IT capability have not been supported in the present study.

ABSTRAK

Usaha penjajaran teknologi maklumat (IT) dengan strategi perniagaan telah menjadi semakin kompleks kerana organisasi mendapati sukar untuk mensejajarkan IT dengan strategi perniagaan dalam persekitaran perniagaan yang sentiasa berubah pada hari ini. Setelah meneliti literatur terdahulu kefleksibelan IT dan keupayaan IT didapati sebagai dua faktor yang paling penting untuk mengekalkan penjajaran strategik. Kajian yang mengkaji kesan dimensi kefleksibelan IT (iaitu keberkaitan, keserasian dan kemodulan) dan dimensi keupayaan IT (iaitu infrastruktur IT, seni bina IT, sumber hubungan IT dan sumber manusia IT) dalam penjajaran strategik adalah sangat terhad dan terdapat peluang untuk mengkaji hubungan ini. Tambahan lagi, kesan dimensi kefleksibelan IT kepada keupayaan IT adalah satu lagi isu utama penyelidikan yang tidak dikaji dalam kajian-kajian lepas. Seramai 125 pengurus IT firma sederhana dan besar di Iran merupakan sasaran subjek dalam kajian ini dan perisian statistik SPSS dan PLS telah diguna untuk menganalisis data. Hasil kajian mendedahkan bahawa satu dimensi kefleksibelan IT (iaitu keberkaitan) dan tiga dimensi keupayaan IT (iaitu sumber manusia IT, sumber hubungan IT dan infrastruktur IT) secara signifikan mempengaruhi penjajaran strategik. Sementara itu, hubungan dua dimensi kefleksibelan IT (iaitu keserasian dan kemodulan) adalah signifikan dengan keupayaan IT. Hasil kajian juga menunjukkan bahawa dimensi kefleksibelan IT dan keupayaan IT menerangkan 67% daripada varians dalam penjajaran strategik sementara kefleksibelan IT menerangkan 39% daripada varians keupayaan IT. Tidak seperti dijangka kesan keserasian, kemodulan dan seni bina IT ke atas penjajaran strategik dan hubungan antara keberkaitan dengan keupayaan IT tidak disokong dalam kajian ini.

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LIST OF ABBREVIATIONS

IS	-	Information System
IT	-	Information Technology
SA	-	IT-business Strategic Alignment
CON	-	IT Connectivity
COM	-	IT Compatibility
MDU	-	IT Modularity
ITHUR	-	IT Human Resource
ITRR	-	IT Relationship Resource
ITARC	-	IT Architecture
ITINF	-	IT Infrastructure
CIO	-	Chief Information Officer
CEO	-	Chief Executive Officer
RBV	-	Resource-based View
EFA	-	Exploratory Factor Analysis
VIF	-	Variance of Inflation Factors
CFA	-	Confirmatory Factor Analysis
AVE	-	Average Variance Extracted
PCA	-	Principal Components Analysis
KMO	-	Kaiser-Meyer-Olkin
CR	-	Composite Reliability
SPSS	-	Statistical Package for Social Sciences
PLS	-	Partial Least Squares
SEM	-	Structural Equation Modeling

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CHAPTER 1

INTRODUCTION

1.1 Research Background

Managers are utilising more capital and time on applying and building information system (IS) in order to manage their organizations strategically and competitively (Wang and Zions, 1997). One example of this situation is organisations such as Citibank and Federal Express which have spent more than \$1 billion on information technology (IT) (Lucas, 1999). Lucas later notes that organisations like Citibank and Federal Express have strongly defended their high expenditure for IT because they believe that if they wish to meet the demands of the tough competition and the increasing challenges of an international economy, they must invest in IT. These kinds of organisations have made IT a strong ally and have made use of IT as an efficient weapon for the competitive battles which takes place in today's market. According to Stowell (1995), business leaders see the usage of information technology in their organisations as a crucial aspect that helps their business to attain and maintain a good competitive advantage. The quick access of information is possible with information systems in helping the top managers of the firms to achieve higher effectiveness, which also allows for improved and efficient decision making (Stowell, 1995). Organisational leaders are now able to appreciate the benefits which are brought to their business by IT, which also leads to the start of a lucrative alignment endeavor between the business and IT (Hu and Huang, 2006). As a result of such use of IT by organisations, the issue of aligning IT strategies in an efficient manner with business strategies has arisen.

Organisations are able to make the most of the positive effects of their spending on IT in order to attain a good sync between the business and IT by aligning their business strategies with information technology (IT) (Byrd, Lewis, and Bradley, 2006; Henderson and Venkatraman, 1993; Nelson and Coopriider, 1996; Papp, 1999; Tan and Gallupe, 2006). Over the last couple of decades, attaining alignment has become one of the major concerns with regards to IS management for both the managers of business and IT (Brancheau and Wetherbe, 1987; Luftman, Kempaiah, and Nash, 2006; McGee, 2006; Niederman, Brancheau, and Wetherbe, 1991; Rosa, 1998). In today's world, this tendency continues (Alter, 2005). In a survey conducted by the Society for Information Management, it is found that the alignment of business and IT is still one of the top three worries for CIOs (McGee, 2006). In today's fast paced global economy, many enterprises realise that there is a gap between their IT strategy and corporate strategy (Sabherwal and Chan, 2001; Hirschheim and Sabherwal, 2001; Kaplan and Norton, 2004).

Reviewing previous studies indicates that many studies have found the impact of IT-business strategic alignment on businesses. In many of these studies, the focal point is on the manner in which organisations have benefited from the alignment. The studies have found an encouraging relationship between the performance and alignment (see e.g. Chan *et al.*, 1997; Cragg, King, and Hussin, 2002; Palmer and Markus, 2000; Sabherwal and Chan, 2001). These studies have also found that alignment plays a role as a mediator between the investments in IT and the performance of the business. What the studies have found is that, organisations are able to influence the impact of the investments made in their IT on their overall performance through strategic alignment because the alignment actually facilitates the logic in IT investments and the advancement of strategic systems for the long run whilst avoiding careless expenditures (Byrd, Lewis, and Bradley, 2006). In a similar fashion, when managers of IT have excellent knowledge and awareness of business aims and when businesses have strategic alignment, there is a higher chance that the investments made in IT will aim for the business's main concerns (Rockart, Earl, and Ross, 1996). There is also speedier attainment of the gains in IT with the alignment in organisations as reported by Massey, Montoya-Weiss, and Brown (2001). Besides these, Powell (1992) has stated that attaining alignment is regarded

as a skill in the organisations, meaning that it has become a vital cause for a continued competitive excellence.

Despite the fact that there are many benefits associated with strategic alignment as stated above, organisations are confronted with critical challenges in maintaining strategic alignment. Organisations today have to work harder to sustain their territories when confronted with prolonged competition in today's age, where everything is more global, regulated, with consumers who are increasingly indecisive and rapidly changing innovations. In light of these factors, a very new and unstable environment has been ushered in. In order to react to these situations, organisations must make some major modifications with regards to their business and IT strategies.

By examining from the perspective of strategic alignment which involves business strategies being aided by IT, there has been a major issue with regards to whether or not organisations are able to use their IT to meet the transformations in their business strategies (Tallon, 2009) and eventually act in response to the changes in the environment. Luftman, Papp and Brier (1999) also highlight that "changes" is the main problem which organisations have to handle. Incidents such as the battle in prices, decrease in demand, and the introduction of a new product by a rival usually trigger changes in business strategies (Mendelson and Pillai, 1998). IT will not be able to offer a long lasting competitive excellence if it does not rapidly respond to changes, which is actually the typical trait of legacy systems which eventually results in a deadlock or inflexibility of the organisation (Tallon, 2009; Bharadwaj, 2000). Companies cannot depend on the legacy systems, mainly regarding insufficient integration and are not capable to respond to the quick changes in the business world. Thus, companies are taking more interest for getting a more flexible IT or information systems which enable them to quickly align to the changes in the business strategies (Bharadwaj, 2000). Thus, there is a need to determine which aspects of information technology that influence aligning IT with business strategies or IT-business strategic alignment. This study attempts to answer these and related questions.

1.2 Problem Background

This study seeks to address the research problem of the lack of alignment between the Information Systems (IS) or Information Technology (IT) with business strategies. For a quarter of a century, the lack of alignment between IT and organisational strategies or strategic alignment has been frequently cited as an important problem in the results of surveys of business executives and IT managers (Brancheau, Janz, and Wetherbe, 1996; Boar, 2001; Galliers and Sutherland, 1991; Turban *et al.*, 2009). Moreover, the gap between IT and business strategies in Iranian firms has been frequently reported in previous studies (e.g., Manyan, Sarami, and Arabsorkhi, 2008; Faryabi *et al.*, 2012). More recently, Sadeghian and Pilevari (2014) conducted a research to measure the level of strategic alignment in Gharzol-Hasaneh Mehr Bank of Iran. They provided a model for assessing strategic alignment based on fuzzy logic and the results indicated that the participating bank has a low level of strategic alignment between IT and business strategies. IT-business strategic alignment issue is still considered as an important challenge in Iranian firms (Faryabi *et al.*, 2012) and there is a need to build a capacity to align IT with business needs in Iranian firms (Abbasi, Niaraki, and Dehkordi, 2008).

Rosa (1998) conducted a study and discovered that only a small percentage, namely 8% of managers in IT and business, think they are capable of aligning their business objectives together with Information Systems (IS) efficiently. Luftman, Papp, and Brier (1999) likewise point out that only 50% of the 1000 managers who take part in their study state that they have attained alignment in their organisations.

In surveying over 300 CIOs and CEOs, Beal (2003) notes that strategic alignment is currently the top priority for most CEOs and CIOs. Despite the fact that the significance of IT strategic alignment has been examined in the relevant research, scholars are persistent in their efforts to highlight the shortcomings of implementing IT strategic alignment within companies (Luftman and Kempaiah, 2007). A study conducted fairly recently, and focusing on IT executives, verifies the notion that an alignment gap is present between IT and business. Having said this, the executives in question are not in agreement when it comes to the matter of how substantial this gap

is (Grocery Manufacturers Association, 2008). Additionally, Beal (2003) and Ferranti (2001) conclude that strategic alignment is difficult to comprehend and quantify, and that a lack of it defies easy solutions. In addition, it has been debated by Grant (2003) that it is extremely tough to achieve strategic IS alignment even though it is crucial. Due to globalisation and the need for information systems which can cater for wider global businesses, there is tremendous demand to align IT strategies with business strategies (Grant, 2003). The constantly changing business requirements and the rapidly advancing technological environment have become the force of the on-going challenge in attaining alignment. Moreover, for researchers of IS, the energy and drive between IT and business has been a continuing subject (Chan *et al.*, 1997; Henderson and Venkatraman, 1993; Reich and Benbasat, 1996; Sabherwal and Chan, 2001). As a matter of fact, despite the fact that the issue of business and IT alignment has been a subject studied by researchers earlier on in the IS literature (King, 1978; McLean and Soden, 1977), it has received even more attention over the past few years because businesses are now becoming more dependent on information technology (IT) (Chan, Sabherwal, and Thatcher, 2006; Hu and Huang, 2006; Luftman, Kempaiah, and Nash, 2006) in order to achieve competitiveness and continued existence in the globalised business environment. Generally speaking, IT managers feel that strategic alignment is one of many crucial hurdles which an organisation must face (Ives and Mandviwalla, 2004; Luftman, 2000; Tallon and Kraemer, 2003a).

More recently, the strategic alignment issue is also considered by IT and business executives as an important challenge for organisations. According to Smits *et al.* (2009), organisations are faced with a long-running challenge, which is aligning IT services with business needs. The Society for Information Management in their annual survey of top management reported that IT-business alignment has been ranked either first or second with regards to key concerns, since 2003 (Silvius, De Waal, and Smit, 2009). Indeed, IT-business strategic alignment has received much attention because it is an issue of crucial importance, and one which IT and business managers must face head on (Huang and Hu, 2007; Luftman, 2005). Chan and Reich (2007) assert that achieving an impeccable level of IT-business alignment maturity is certainly an obstacle, due to the fact that a business's needs and environment are constantly changing. Hence, the importance of IT-business strategic alignment is

well recognised and is still viewed as a crucial area of concern by top IT and business executives (Silviu, De Waal, and Smit, 2009).

Additionally, it has been stressed by Hirschheim, Shwarz, and Todd (2006) that a crucial component in recognising business worth of investment in IT, is achieving strategic alignment between the business and information technology. It has also been pointed out by Singh, Lai, and Cheng (2007) that when there is not enough alignment between the strategies of business and IT, the performance of the organisation suffers. The impact of such poor alignment shows itself in a form of insufficient managerial, operational and useful support from IT for the business client (Smaczny, 2001). Over the years, multiple studies (Hirschheim and Sabherwal, 2001; Kaplan and Norton, 2007; Sabherwal and Chan, 2001; Teo and King, 1997) have indicated that poor or non-existent business-IT alignment has contributed to decreased organisational performance. Misalignment can bring about reduced profit margins, problems in putting thought into action, and a weak performance of the organisation on the whole (Chan, 2002; Croteau and Bergeron, 2001). Furthermore, because business objectives are constantly changing with the pressures coming from outside and inside the organisation, attaining a perfect match between business and information technology (IT) at one particular time will not assure an alignment for the future. As a result of this, weak alignment and poorly matched business and IT strategy will be on the rise (Pearlman and Baker, 2005; Sabherwal, Hirschheim, and Goles, 2001). With this in mind, it can be said that attaining and maintaining an effective strategic alignment is an on-going struggle for top managers (Chan, 2002; Luftman, 2003b). Now, the issue that comes to mind is the kind of factors which can influence an acceptable level of strategic alignment.

1.3 Research Gap

IT-business strategic alignment research is a considerable research domain for both IT and business people. The majority of strategic alignment research studies investigate strategic alignment impact on organisational performance or competitive advantage (see Viscusi, Thevenet, and Salinesi, 2008; Tallon and kraemer, 2003a;

Henderson and Venkatraman, 1999; Truch and bridgeer, 2002; Bergeron, Raymond, and Rivard, 2004; Croteau and Raymon, 2004; Henderson and Venkatraman, 1993; Venkatraman, 1991; Decoene and Bruggeman, 2006; Joshi, Kathuria, and Porth, 2003; Kearns and Lederer, 2000; Chan *et al.*, 1997; Cragg, King and Hussin, 2002; Sabherwal and Chan, 2001; Gutierrez, Orozco, and Serrano, 2009; Grant, 2003; Kearnes and Lederer, 2003; Truch and Bridger, 2002; Croteau and Raymond, 2004; Avison *et al.*, 2004).

In a scenario where the research material is broadly in consensus with the positive effect of IT-business strategic alignment with regard to organisation performance, the next key issue is the manner in which to attain and maintain this kind of an alignment. Obviously, a school of thought has come to emerge which probes the aspects impacting strategic alignment to completely comprehend and give guidelines regarding the manner in which to attain strategic alignment.

A review of the literature reveals that factors such as the relationship between IT and business executives, shared domain knowledge, connections between business and IT planning, environmental uncertainty, communication among IT and business executives, IT value management, corporate governance, skill management, relationship management, human resources, and IT flexibility, have a positive impact on strategic alignment (see Lederer and Mendelow, 1989; Weill and Broadbent ,1993; Brown and Magill, 1994; Ward and Peppard, 1996; Teo and King, 1997a; Teo and King, 1997; Luftman, Papp, and Brier, 1999; Reich and Benbasat, 2000; Truch and Bridger, 2002; Chan, Sabherwal, and Thatcher, 2006; Tallon, 2009). In general, there are important factors to maintain strategic alignment in today's business environment, while have been limitedly studied in previous studies (Tallon, 2009; Ness, 2005; Burke 2011), so there are opportunities for studying important factors affecting strategic alignment as explained in detail below.

Investigating the relationship of IT flexibility with strategic alignment is one of the most important opportunities in this study. IT flexibility has been introduced in a few studies as a new weapon to maintain strategic alignment in today's business environment (Tallon, 2009; Ness, 2005). In general, firms have now become more

interested in the subject of having information systems which are able to quickly act in line with the changes in the business strategies. Since changes of strategies are one of the primary challenges confronting strategic alignment as regarded by executives. (Luftman, Papp, and Brier, 1999; Tallon, 2009). Events such as price wars, reduced demand, and the launch of a new product by a competitor, all stimulate changes in business strategy (Mendelson and Pillai, 1998). If firms use legacy information systems, IT in turn reacts to changes slowly and cannot be a cause of sustainable gain (Tallon, 2009). Bharadwaj (2000) argues that the slow-to-change features of legacy systems can lead to inflexibility traps or organisational obstinacy. Thus, there has been a rise in interest around flexible IT (Tallon, 2008) which has the ability to rapidly react to business changes as mentioned in the existing literature.

Despite the importance of IT flexibility in today's business environment to align IT with business strategies, studies regarding relationship between IT flexibility and strategic alignment are quite limited (Ness, 2005; Burke 2011). To the researcher's knowledge, previous studies had investigated IT flexibility as one construct with regard to strategic alignment. More specifically, Chung, Rainer, and Lewis's (2003) study is the only research that had studied dimensions of IT flexibility (connectivity, compatibility, and modularity) separately with strategic alignment. The research had been conducted on US and Canadian firms and the study's findings supported the significant relationships of the IT flexibility dimensions with strategic alignment, with exception of compatibility. Besides, investigating the relationship of IT flexibility with strategic alignment have been conducted in US and European countries and few of them have been in developing countries. Overall, there were calls to study IT flexibility, especially its dimensions with regard to strategic alignment in other contexts (Zhang and Tansuhaj, 2007; Zhang, 2005, Tallon, 2009), so there is an opportunity for the researcher to fill this gap by studying the dimensions of IT flexibility (i.e., connectivity, compatibility, and modularity) both individually and together as one construct on strategic alignment in other contexts in general and in Middle East context in particular (i.e., Iran)

Based on the literature review, there is another opportunity to study other important factors to support strategic alignment in today's business environment due

to existing gaps in previous studies. These factors include IT human resource, IT skill and business, IT relationship resource, communication between IT and business, shared knowledge between IT and business, and the relationship between IT and business executive, IT infrastructure and IT architecture (see Coughlan, Lycett, and Macredie, 2005; Luftman and Brier, 1999; Luftman *et al.*, 2004; Henderson and Venkatraman, 1993; Buchanan and Soley, 2002). Reviewing the literature demonstrates that these factors are dimensions and aspects of IT capability. As stated by Qingfeng and Daqing (2008), IT capability is a multi-dimensions concept which consists of IT architecture, IT infrastructure, IT human resources (i.e., IT skill and business), and IT relationship resources (i.e., shared knowledge, communication and relationship among business and IT). To the best of the researcher's knowledge, there are some limitations on the previous studies regarding the link between IT capability dimensions and strategic alignment.

First, no empirical study has investigated the relationships between IT infrastructure and IT architecture (as dimensions of IT capability) with strategic alignment. Second, the link between IT relationship resources (as a dimension of IT capability) and strategic alignment has been investigated just from internal perspective (i.e., the link between business and IT departments), but not from external perspective (i.e., the link of the organisation with customers, suppliers, and other organizations). Third, most of the studies regarding IT capability dimensions and their link to strategic alignment have been conducted in US and European countries and few of them have been in developing countries in general and in Middle East context in particular (i.e., Iran). To state more clearly, contextual differences may affect the perception of IT capability in different contexts (Zhang and Tansuhaj, 2007; Zhang, 2005). In addition, as far as the researcher's knowledge, no studies have considered all these IT capabilities as one construct with relation to strategic alignment. Integrating all these dimensions may provide more comprehensive view of the link between "overall IT capability" and strategic alignment. With this in mind, the present research is important with regards to filling the gaps and going beyond previous researches by studying IT capability dimensions (i.e., IT infrastructure, IT architecture, IT relationship resource, and IT human resource) both separately and together as one variable with regard to IT-business strategic alignment.

As stated above, IT capability is proposed as an important factor to maintain strategic alignment in today's business environment. So, it is important to identify factors that might influence IT capability. Unfortunately, studies of factors affecting IT capability are limited and there is a need to fill this gap in this study. Based on the literature review and to the researcher's knowledge, the IT flexibility dimensions are important factors that might support IT capability, but have not been empirically studied in previous studies. Some researchers believe that the dimensions of IT flexibility (connectivity, compatibility, and modularity) influence IT capability. For example, Zhang, Li, and Zieglmayer (2009) remark that connectivity and compatibility allow for the sharing of information within and even between organisations. They argue that sharability enables and improves IT capabilities. In addition, when IT demands or requirements change, modularity means that it is possible for technology to be rearranged and for business processes to be augmented. Since business processes are crucial in determining how resources are utilised and how business activities are coordinated, modularity improves IT reaction time and capability through flexible process designs (Zhang, Li, and Zieglmayer, 2009). Thus, there is an opportunity for investigating the relationships between the dimensions of IT flexibility and IT capability to understand the role of each IT flexibility dimensions in improving IT capabilities.

Finally, another important aspect of this study is the fact that it examines IT flexibility, IT capability, and strategic alignment simultaneously. As stated earlier, IT flexibility has not been empirically studied with regard to IT capability. Beside, IT capability (as one construct) has not been investigated in conjunction with strategic alignment in previous studies. Obviously, IT flexibility, IT capability, and IT-business strategic alignment have not also been studied simultaneously. In general, the study provides a more comprehensive view of interrelationship of all these factors.

1.4 Research Objectives

Considering the issues discussed in the problem background and the research gap, the main research objective is to determine the organizational factors that affect IT-business strategic alignment. More specifically:

1. To investigate the relationship between IT flexibility dimensions and IT-business strategic alignment.
2. To investigate the relationship between IT capability dimensions and IT-business strategic alignment.
3. To investigate the relationship between IT flexibility dimensions and IT capability.

1.5 Purpose of the Study

The purpose of this study is to provide a better understanding of IT-business strategic alignment and aspects of information technology to maintain a strategic alignment between IT and business strategies in today's business setting. Specifically, the present quantitative study examines and determines the degree to which IT strategic alignment is affected by IT flexibility dimensions (i.e., connectivity, modularity, and compatibility) and IT capability dimensions (i.e., IT architecture, IT infrastructure, IT human resources, and IT relationship resources). Moreover, this study intends to study the link between IT flexibility dimensions and IT capability with the intention of understanding the role of IT flexibility dimensions to improve IT capability.

1.6 Research Questions

The research is designed to study the degree to which IT flexibility components (i.e., connectivity, compatibility, and modularity) and IT capability components are related to IT-business strategic alignment (see Figure 1.1). In addition, the research intends to study which IT flexibility components and IT

capability components are more related to strategic alignment. The study also considers which IT flexibility components, that is, connectivity, compatibility, and modularity, are more associated with IT capability. To achieve these goals, the following research questions have been posed.

RQ1: To what extent, if any, does IT flexibility relate to the degree of IT-business strategic alignment?

RQ1a: To what extent, if any, does connectivity of IT flexibility relate to the degree of IT-business strategic alignment?

RQ1b: To what extent, if any, does compatibility of IT flexibility relate to the degree of IT-business strategic alignment?

RQ1c: To what extent, if any, does modularity of IT flexibility relate to the degree of IT-business strategic alignment?

RQ2: To what extent, if any, does IT capability relate to the degree of IT-business strategic alignment?

RQ2a: To what extent, if any, does IT infrastructure (as a dimension of IT capability) relate to the degree of IT-business strategic alignment?

RQ2b: To what extent, if any, does IT architecture (as a dimension of IT capability) relate to the degree of IT-business strategic alignment?

RQ2c: To what extent, if any, does IT relationship resource (as a dimension of IT capability) relate to the degree of IT-business strategic alignment?

RQ2d: To what extent, if any, does IT human resource (as a dimension of IT capability) relate to the degree of IT-business strategic alignment?

RQ3: To what extent, if any, does connectivity of IT flexibility relate to the degree of IT capability?

RQ4: To what extent, if any, does compatibility of IT flexibility relate to the degree of IT capability?

RQ5: To what extent, if any, does modularity of IT flexibility relate to the degree of IT capability?

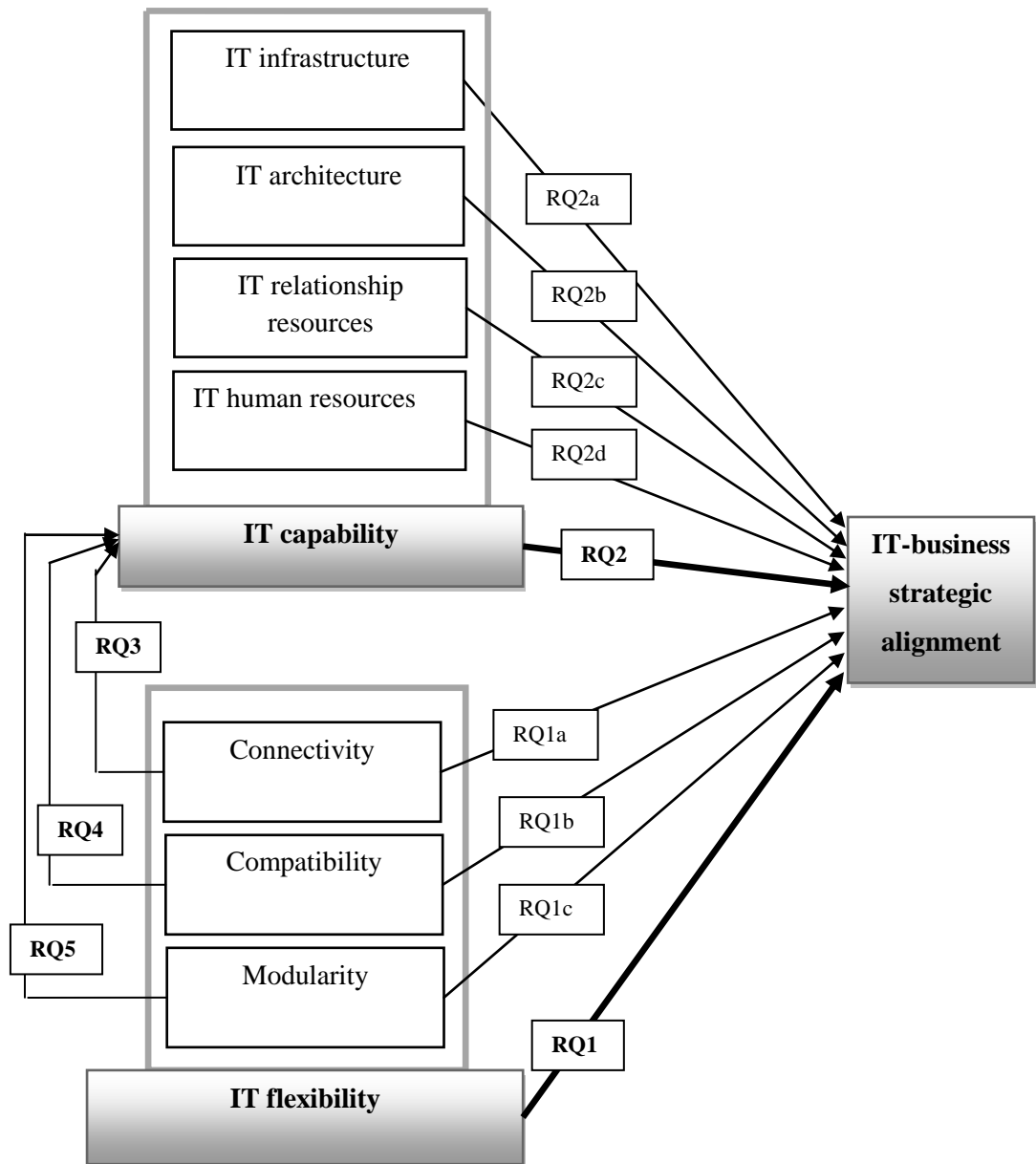


Figure 1.1 The Proposed Model

1.7 Scope of the Study

This research studied IT flexibility dimensions (i.e., connectivity, compatibility, and modularity) and IT capability (i.e., IT infrastructure, IT architecture, IT human resource, and IT relationship resource) as factors affecting strategic alignment. The study focused on organizations in Iran from various industries. Specifically, only those organizations that have a formal IT department were included in this study. The respondents were IT managers (or similar titles) in those organizations as person that possesses detailed knowledge of IT and its relationship to business.

1.8 Contribution to Academic Research

The researcher believes that there are significant contributions in conducting this research. The research contribution will add new knowledge to the existing literature on IT management and business, especially the IT-business strategic alignment domain by reviewing the respective literature and developing and measuring a model of relationships between IT flexibility, IT capability, and strategic alignment. From the viewpoint of factors affecting strategic alignment, this research contributes to the existing knowledge by studying IT capability dimensions (i.e., IT architecture, IT infrastructure, IT human resource, and IT relationship resource) both separately and together as one variable. Previous studies have not investigated this relationship in the manner which is employed here. Moreover, the researcher provides additional empirical evidence by examining the effects of dimensions of IT flexibility, namely connectivity, modularity, and compatibility on strategic alignment. This is due to the fact that previous studies regarding the relationship between IT flexibility dimensions and strategic alignment are quite limited (Ness, 2005). In addition, studying which dimension of IT flexibility is more related to strategic alignment will enhance new knowledge to the existing literature on strategic alignment area. Investigating the impact of IT flexibility dimensions on IT capability is another possible contribution which can be made to the available literature; no studies have investigated this relationship.

One of the purposes of this research is to determine which dimensions of IT capability (i.e., IT architecture, IT infrastructure, IT human resource, and IT relationship resource) have more impact on strategic alignment. The outcome of this study would allow researchers to understand new knowledge of strategic alignment domain in terms of which dimensions of IT capability has more impact on strategic alignment.

IT flexibility, IT capability, and strategic alignment have not been previously studied simultaneously, and thus there is an opportunity to extend knowledge in the strategic alignment domain by simultaneously investigating IT flexibility dimensions and IT capability dimensions and their effect on strategic alignment. The impact of IT flexibility dimensions and IT capability dimensions in combination on strategic alignment provides a more comprehensive view of interrelationship of all these factors.

1.9 Contributions to Practice

The researcher attempts to review a rich literature on the area of IT-business strategic alignment and factors affecting it, namely IT flexibility dimensions and IT capability dimensions. The aim is to develop a model of the relationships between these variables. Hopefully, with this study, organisations' managers will be able to accurately understand the concept of IT capability, IT flexibility, and strategic alignment, along with a better understanding of their relationships. It can make a significant contribution in helping managers of business and IT to sustain strategic alignment in today's business environment if there is a good understanding of these factors and their relationships. The new knowledge gained from the prioritisation of the benefits from IT flexibility and IT capability towards strategic alignment can enhance the decision-making process for managers when investing in IT. The researcher will examine IT flexibility by looking at three of its main components, which are connectivity, modularity and compatibility. With the findings from this study, top IT and business executives will be able to identify the components that are vital to them in sustaining strategic alignment, which also gives them the knowledge

and understanding they need in dealing with flexible IT. This study also focused on the effects that the components in IT flexibility such as modularity, connectivity and compatibility have on IT capability. The findings from this study will be able to assist business and IT managers to make more accurate decisions regarding factors which affect their IT capability. It is also hoped that managers will have a better insight and knowledge on how to support their IT capabilities in their businesses. As stated earlier, the research studied the impact of IT capability dimensions on strategic alignment. Since this part of the research has not been previously studied in the manner which is employed here, the findings will assist managers in gaining new understanding. In addition, this will help managers gaining new insights into which factors of IT capability dimensions and IT flexibility dimensions are more important to support strategic alignment. In addition, the results will aid IT management in more effectively setting the priorities for allocating financial resources towards IT capability dimensions and IT flexibility dimensions. This new knowledge can benefit managers who are deciding whether or not to invest corporate funds to bring their organizations into compliance with new technologies which could help them to achieve a sustainable competitive advantage. As mentioned earlier, good strategic alignment leads to enhanced performance of the organisation. So, this research can help organisations to improve their performance.

1.10 Definition of Terms

The three main components of this study, which are IT strategic alignment, IT capability and IT flexibility, are defined in this section.

1.10.1 IT Strategic Alignment

The strategic and effective utilisation of IT is mirrored in the notion of strategic alignment. This concept has been developed over a period of more than 10 years and has put forth by various authors and academics in the field.

According to Henderson and Venkatraman (1993), strategic alignment can be viewed as the “‘Strategic Fit’ and ‘Functional Integration’ among business strategy, IT strategy, business infrastructure, and IT infrastructure”. In addition, Reich and Benbasat (1996; 2000), believe strategic alignment to be the extent to which the IT goal, targets and agendas aid and are aided by the firm’s goal, targets and agendas. Luftman (2000) also states that IT-business strategic alignment refers to “applying Information Technology (IT) in an appropriate and timely way, in harmony with business strategies, goals and needs”. The most common view on IT-business strategic alignment is stated by Sauer and Yetton (1997), stating that the basic principle is that IT should be managed in a way that mirrors management of the business. Conceptually, IT strategic alignment is viewed in the literature as a bridge that links IT to different viewpoints on other domains of an organization and its environment (Avila, Goepf, and Kiefer, 2009, Chebrolu and Ness, 2013). In general, IT-business alignment concerns the degree to which IT supports business goals, strategies, and needs (Silvius, 2008; Rahbar, Zeinolabedin, and Afiati Mehrvarz, 2013).

1.10.2 IT Flexibility

Information system flexibility is “the ability to respond and adapt to changing business conditions both within and outside the organisation” (Mensah, 1989). In other literature, Duncan (1995) has demonstrated information technology flexibility by making references to platform, network/telecommunication, data, and applications. Byrd and Turner (2000) have attempted to assess the flexibility of IT infrastructure by assessing IT connectivity, application functionality, IT compatibility, data transparency, technology management, management know-how, business know-how, and technical expertise.

Recently, Langdon (2006) has defined IT flexibility as the ready abilities of IT to be adapted and bended to meet and satisfy changes, rapid growth, and new additions of business requirements. In addition, according to Chanopas, Krairit, and Khang (2006), IT infrastructure flexibility is the capability possessed by IT

infrastructure with regards adapting to alterations both internal and external to the organisation. It is also concerned with its ability to play the role of catalyst for information sharing, system enhancement and consistency of IT processes. Moreover, this should all be achieved with the least amount of work and time.

In this study, IT flexibility refers to the ability of IT to respond quickly and effectively in order to meet dynamic business strategies and to sustain strategic alignment in today's business environment (Luftman, 2005). Regarding the elements of IT flexibility, there appears to be consistency among several researchers. This is especially true of Tallon and Kraemer, (2003c); Byrd and Turner, (2000); and Duncan, (1995) who suggest that the elements applied for measuring IT flexibility consist of connectivity, compatibility, and modularity.

1.10.2.1 Connectivity

Connectivity is defined by Chanopas, Krairit, and Khang (2006) and Byrd and Turner (2000), as the ability of IT components (hardware and software) to attach and connect to others both inside and outside the organisation. It has been stressed by Tapscott and Caston (1993) that with IT connectivity, organisations are flawless and transparent and are free from the influence of time and space. It is much easier to share IT resources at the platform level with connectivity. In general, connectivity is the ability of any technology component to communicate with any of the other components inside and outside of the organizational environment (Duncan, 1995).

1.10.2.2 Compatibility

Compatibility refers to the alleged fit and consistency of the systems (software and hardware) required for sharing within the organisation (Kamal, 2006). According to Chanopas, Krairit, and Khang (2006), Byrd and Turner (2000) and Ness (2005), compatibility is the capability of a firm to distribute various types of

information over a plethora of technology (hardware and software) platforms both internal to the organisation and external to the organisation. Organisations are increasingly interconnected and e-connected with the outside world and they are no longer a technology island. Compatibility refers to the ability to integrate many enterprise systems and enable them to share information (Byrd, Lewis, and Bradley, 2006). According to Ness (2005), compatibility encompasses the ability which a company has to spread any kind of information across a plethora of technology (hardware and software) platforms whether internal to the organisation or external to it. In this research, compatibility is the ability to share and use any type of data and applications across any technology component.

1.10.2.3 Modularity

Duncan (1995) defines modularity as the ability to easily add, modify, and remove technology components to support business strategy changes. Duncan also indicated that modularity is the ability for business processes to be standardized in order for them to be shared and reused (e.g., structured programming and component-based software architectures). According to Schilling (2000), modularity is described as the level or degree in which a system's component can be divided and put together again. Seltzer (2005) argues that modularity is an influential tool which is used for controlling the size and complexity of enterprise systems, while also making it possible for application and data management capabilities to interact harmoniously. This research considers modularity as the ability to easily add, modify and remove technology components.

1.10.3 IT Capability

Some researchers in the IS-based literature have conceptualised IT capability from different angles. Wang and Alam (2007) see IT capability as the combination of hardware, services which are shared software, technical and management skills and management practices. According to Tippins and Sohi (2003), IT capability is as the

degree of firm's efficiency to utilise its IT to process information in the organisation, which consists of IT-operation, IT object, and IT knowledge.

Other researchers such as Peppard and Ward (2004) depict IT capability as containing three interconnecting qualities, which are a combination of business knowledge with IT knowledge, an adaptable and recyclable IT infrastructure, and a process which is efficiently used. Jiao, Chang, and Lu (2008) view IT capability as being inseparable from enterprise formation, transfer, and deployment of enterprise information technology resources in an effort to support and enhance other one-of-a-kind functions. These are unique functions which have the power and ability to pioneer the latent potential needed to sustain competitive advantages. Examples of these functions are IT architecture and routine, IT infrastructure, IT human resources, and IT relationship assets.

Recently, Qingfeng and Daqing (2008) and Zhang and Tansuhaj (2007) have pictured IT capability as a multidimensional construct, that is, (1) IT architecture, (2) IT infrastructure, (3) IT human resource, and (4) IT relationship resource, the definition of which is considered in this research.

1.10.3.1 IT Architecture

IT architecture is defined as an elevated map of information and an organisation's capabilities in telecommunications technology (Gibson, 1994). The necessity for consistency and integration in an organisation's operating model is defined by architecture (Ross and Westerman, 2004). Architecture is the clarity and organizational consensus surrounding technology, data, and process benchmark. Feeny and Willcocks (1998) pointed out that IT architecture as the choices of technical platforms on which to mount IS service, and it is the first critical step in managing IT assets of the organization.

According to Zhang and Tansuhaj (2007), IT architecture is "both a high level map of information and technology requirements of the entire firm and the clarity and

organizational consensus around technology, data, and process standards". This research considers IT architecture as the level of clarity and organizational consensus around technology, data, and processes to support business needs.

1.10.3.2 IT Infrastructure

IT infrastructure consists of communication technologies and computers, as well as the technical platforms and databases which are shareable (Ross, Beath and Goodhue, 1996; Weill, Subramani, and Broadbent, 2002). According to Zhang's (2005) study, firms that have sufficient IT infrastructure; they have well-established in-house networks and external Web sites and linkage, a computer lab for employee instruction and strong data and network architecture. In addition, they have communication devices for access of remote database and computer facilities for IT projects. In general, IT infrastructure is defined as the shared IT resource that data and applications access through communication networks for organizational use (Bhatt, 2000; Zhang, 2005).

As stated by Bhatt (2000) and Zhang (2005), the key purpose of IT infrastructure is to provide quick information support throughout the firm to react to dynamic challenges in the markets. In this research, IT infrastructure is the degree to which computers, communication technologies, technical platforms, and databases exist in the organization.

1.10.3.3 IT Human Resources

Today, IT staff who can without fail resolve business problems and deal with opportunities using IT are invaluable. As the value of IT increases in present-day organisations, the mandatory skill of IT staff must be developed. In addition to technical skills, managerial, business, and interpersonal skills have been quoted as mandatory for employees in the technical fields (Couger *et al.*, 1995; Lee, Trauth and

Farwell, 1995). In today's organisations, research has made it clear that these soft skills are just as vital to programmers, database administrators, systems analysts, and other IT staff (Cheney, Hale and Kasper, 1989; Rockart, Earl, and Ross, 1996; Ross, Beath, and Goodhue, 1996).

IT human resources is defined as a valuable human asset that can be used to consistently solve business problems and address business opportunities through information technology. It is related to IT technical skills, IT managerial skills, business understanding and planning, and problem-solving orientation (Bharadwaj, 2000; Zhang, 2005). This research considers IT human resource as level of IT staff's technical skills, business understanding, and problem-solving orientation (Zhang, 2005).

1.10.3.4 IT Relationship Resource

IT relationship resource is defined as the valuable relationship between the IT and business departments (Zhang, 2005). Examples of a valuable relationship asset can be found in: 1) business partner ownership of every IT project, 2) executive management guidance in creating IT priorities, 3) furthering users' comprehension of IT's uses, and 4) IT sourcing ability (Ross, Beath and Goodhue, 1996; Bharadwaj, 2000; Feeny and Willcocks, 1998). In general, IT relationship resource is the level of closeness in relationship between IT and business departments as well as between a firm and its vital business partners (i.e., customers, suppliers, and other organizations) (Zhang, 2005; Zhang and Tansuhaj, 2007).

Overall, definition of the constructs in terms of conceptual and operational are mentioned below (Table 1.1)

Table 1.1: Definition of the Constructs

Construct	Conceptual Definition	Operational Definition
IT-business strategic alignment	A bridge that links IT to different viewpoints on other domains of an organization and its environment (Avila, Goepf, and Kiefer, 2009; Chebrolu and Ness, 2013).	The degree to which IT supports business goals, strategies, and needs. (Silvius, 2008; Rahbar, Zeinolabedin, and Afiati Mehrvarz, 2013)
Connectivity	The state to which a firm can connect to platforms (Ness, 2005).	The ability of any technology component to communicate with any of the other components inside and outside of the organizational environment (Duncan, 1995; Bani, 2011).
Compatibility	The state to which technical components can seamlessly communicate with each other (Keen, 1991; Ness, 2005).	The ability to share and use any type of data and applications across any technology component (Duncan, 1995; Bani, 2011).
Modularity	A larger range of uses for each resource, lowered switching costs and difficulty, and lowered time required to switch from one resource to another (Ness, 2005).	The ability to easily add, modify and remove technology components (Duncan, 1995; Bani, 2011).
IT architecture	A high-level map of information and technology requirements of the entire firm (Zhang, 2005).	The level of clarity and organizational consensus around technology, data, and processes to support business needs (Zhang, 2005; Zhang and Tansuhaj, 2007)
IT infrastructure	The ability to provide consistent and quick information support throughout the organization (Zhang, 2005).	The degree to which computers, communication technologies, technical platforms, and databases exist in the organization (Zhang, 2005; Zhang and Tansuhaj, 2007)
IT human resource	An IT staff that consistently solves business problems and addresses opportunities through IT (Zhang, 2005).	The level of IT staff's technical skills, business understanding, and problem-solving orientation (Zhang, 2005; Zhang and Tansuhaj, 2007)
IT relationship resource	The valuable relationship between the IT and business units and between a firm and its vital business partners (Zhang, 2005).	The level of closeness in relationship between IT and business departments as well as between a firm and its vital business partners (i.e., customers, suppliers, and other organizations) (Zhang, 2005; Zhang and Tansuhaj, 2007).

1.11 Plan of the Thesis

This study consists of five chapters, the first being the introduction, whereby the research problem, gap, and purpose are discussed, the research hypotheses developed, and contributions of the study explained with regards to their importance to researchers and practitioners. Finally, the terms used in the study were defined. In Chapter Two, the framework for the conceptual model of this study is developed through a review of the existing literature. The chapter provides a review of the relevant literature on strategic alignment, IT flexibility, and IT capability. Chapter Three discusses the research methodology including research design, the research philosophy, the survey respondents, the sampling frame, the constructs measurement as well as validity and reliability of the constructs. Pre-test and pilot test are discussed in this chapter. Chapter Four presents the results of the data analysis using statistical software of SPSS and PLS. Examining and screening data, descriptive analysis, pre-analysis, testing measurement model and assessing structural model are included in this chapter. Chapter Five examines the findings for each of the hypotheses with a discussion and interpretation. It also discusses the theoretical and practical contributions and limitations. Suggestions and direction for future research are also discussed.

REFERENCES

- Abbasi, A., SadeghiNiaraki, A., MirzaeianDehkordi, B., (2008), A Review of ICT Status and Development Strategy Plan in Iran, *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*. 4 (3), 143-154.
- Ahuja, V. (1988). Common Communications Support in Systems Application Architecture. *IBM Systems Journal*, 27(3), 264-281.
- Alter, A. E. (2005). CIOs Shift: Focus IS on Revenue, Not on Saving Money. *CIO Insight*, October 15.
- Arbnor, I., and Bjerke, B. (1997). *Methodology for Creating Business Knowledge*: Thousand Oaks, Calif.; London, Sage.
- Armstrong, C. P., and Sambamurthy, V. (1999). Information Technology Assimilation in Firms: The Influence of Senior Leadership and IT Infrastructures. *Information Systems Research*, 10(4), 304-327.
- Association, G. M. Grocery Manufacturers Association, IBM (2008) GMA Information Technology Investment and Effectiveness Study. City: Washington, D.C: GMA, Publication No. GBE03087-USEN-00.
- Avison, D., Jones, J., Powell, P., & Wilson, D. (2004). Using and Validating the Strategic Alignment Model *Journal of Strategic Information Systems*, 13(3), 223-246.
- Bacharach, S. B., and Aiken, M. (1972). Communication in Administrative Bureaucracies. *Academy of Management Review*, 20, 365-377.
- Bai, R. J., and Lee, G. G. (2003). Organizational Factors Influencing the Quality of the IS/IT Strategic Planning Process. *Industrial Management & Data Systems*, 103(8), 622-632.
- Bani, J. (March 2011). *Assessing the Relationships among Information Technology Flexibility, IT-Business Strategic Alignment, and Information Technology Effectiveness: An Investigation of Business Intelligence Implementation*, PhD.

- Thesis, School of Business and Technology, Capella University, USA.
- Barrett, S., and Konsynski, B. (1982). Inter-Organization Information Sharing Systems. *MIS Quarterly* (Special Issue).
- Bassellier, G., and Benbasat, I. (2004). Business Competence of Information Technology Professionals: Conceptual Development and Influence on IT-Business Partnerships. *MIS Quarterly*, 28(4), 673-694.
- Beal, B. (2003). The Priority that Persists. *CIO Magazine*, October 15.
- Bechor, T., Neumann, S., Zviran, M., and Glezer, C. (2010). A Contingency Model for Estimating Success of Strategic Information Systems Planning. *Information & Management*, 47(1), 17-29.
- Berg, B. (2007). *Qualitative Research Methods for the Social Sciences USA*: Pearson
- Bergeron, F., Raymond, L., and Rivard, S. (2004). Ideal Patterns of Strategic Alignment and Business Performance. *Information & Management*, 41(8), 1003-1020.
- Betz, F. (2001). *Executive Strategy: Strategy Management and Information Technology*, New York: John Wiley and Sons.
- Bharadwaj, A., Bharadwaj, S., and Konsynski, B. (1999). Information Technology Effects as Measured by Tobin's q. *Management Science* 45(6), 1008-1024.
- Bharadwaj, A. S. (2000). A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation. *MIS Quarterly*, 24(1), 169-196.
- Bharadwaj, A. S., Sambamurthy, V., and Zmud, R. W. (1999). IT Capabilities: Theoretical Perspectives and Empirical Operationalization. *20th International Conferences on Information Systems*. City: Charlotte, NC.
- Bhatt, G. D. (2000). Exploring the Relationship between Information Technology, Infrastructure and Business Process Re-Engineering. *Business Process Management Journal*, 6(2), 139-163.
- Bhatt, G. D., and Grover, V. (2005). Types of Information Technology Capabilities and Their Role in Competitive Advantage: An Empirical Study. *Journal of Management Information System* 22(2), 253-277.
- Blodgett, M. (2004). The challenge: Globalization. *CIO Magazine*, 56(August 15).
- Boar, B. H., AT&T Bell Laboratories (1994). *Practical Steps for Aligning Information Technology with Business Strategies - How To Gain a Competitive Advantage (1st Edition)*, New York: John Wiley & Sons, Inc.

- Boar, B. H. (2001). *The Art of Strategic Planning for Information Technology (Second ed.)*, New York: John Wiley & Sons, Inc.
- Bowman, B., Davis, G. B., and Wetherbe, J. C. (1983). Three Stage Model of MIS Planning. *Information and Management*, 6(1), 11-25.
- Brancheau, J. C., Janz, B. D., and Wetherbe, J. C. (1996). Key Issues in Information Systems Management: 1994-95 SIM Delphi Results. *MIS Quarterly*, 20(2), 225-242.
- Brancheau, J. C., and Wetherbe, J. C. (1987). Key Issues in Information Systems Management. *MIS Quarterly*, 11(1), 23-45.
- Broadbent, M., and Weill, P. (1997). Management by Maxim: How Business and IT Managers Can Create IT Infrastructures. *MIT Sloan Management Review*, 38(3), 77-92.
- Brown, C. V., and Magill, S. L. (1994). Alignment of the IS Functions with the Enterprise: Toward a Model of Antecedents. *MIS Quarterly* 18(4), 371-404.
- Brown, C. V., and Sambamurthy, V. (1999). *Repositioning the IT Organization to Enable Business Transformation*: Pinnaflex Educational Resources, Cincinnati, OH.
- Brown, I. T. J. (2004). Testing and Extending Theory in Strategic Information Systems Planning through Literature Analysis. *Information Resources Management Journal*, 17(4), 20-48.
- Brynjolfsson, E., and Hitt, L. M. (1996). Paradox Lost? Firm-level Evidence on the Returns to Information Systems Spending. *Management Science*, 42(4), 541-558.
- Buchanan, R. D., and Soley, M. (2002). *Aligning Enterprise Architecture and IT Investments with Corporate Goals*: White Paper, META Group, Inc.
- Burke, M. F. (February 2011). *IT Effectiveness and Flexibility versus Strategic Alignment: Assessing the Correlative Effects in Higher Education*, PhD. Thesis, School of Business and Technology, Capella University.
- Burn, J. M. (1996). IS Innovation and Organisational Alignment – a Professional Juggling Act. *Journal of Information Technology Management*, 11(1), 3-12.
- Byrd, T. A., Lewis, B. R., and Bradley, R. V. J. (2006). Is Infrastructure: The Influence of Senior IT Leadership And Strategic Information Systems Planning. *The Academy of Management Executive*, 47(1), 101-113.
- Byrd, T. A., and Turner, D. E. (2000). Measuring the Flexibility of Information

- Technology Infrastructure: Exploratory Analysis of a Construct. *Journal of Management Information Systems Management*, 17(1), 167-208.
- Capon, N., and Glazer, R. (1987). Marketing and Technology: A Strategic Co alignment. *Journal of Marketing*, 51(3), 1-14.
- Chan, Y., and Reich, H. (2007). IT Alignment: What Have We Learned? *Journal of Information Technology*, 22(4), 297-315.
- Chan, Y. E. (2002). Why Haven't We Mastered Alignment? The Importance of the Informal Organization Structure. *MIS Quarterly Executive*, 1(2), 97-112.
- Chan, Y. E., and Huff, S. L. (1993). Strategic Information Systems Alignment. *Business Quarterly*, 58(1), 51-55.
- Chan, Y. E., Huff, S. L., Barclay, D. W., and Copeland, D. G. (1997). Business Strategic Orientation, Information Systems Strategic Orientation, and Strategic Alignment. *Information Systems Research*, 8(2), 125-150.
- Chan, Y. E., Sabherwal, R., and Thatcher, J. B. (2006). Antecedents and Outcomes of Strategic IS Alignment: An Empirical Investigation. *IEEE Transactions on Engineering Management*, 53(1), 27-47.
- Chanopas, A., Krairit, D., and Khang, D. B. (2006). Managing Information Technology Infrastructure: A New Flexibility Framework. *Management Research News*, 29(10), 632-651.
- Chau, P. (1999). On the Use of Construct Reliability in MIS Research: A Meta-Analysis. *Information and Management*, 35(4), 217-227.
- Chebrolu, S. B. (2010). *Assessing the Relationships among Cloud Adoption, Strategic Alignment and Information Technology Effectiveness*, PhD. Thesis, Capella University, Minneapolis, MN.
- Chebrolu, S.B., Ness, L. (2013). How Does Alignment of Business and IT Strategies Impact Aspects of IT Effectiveness? *International Journal of Applied Management and Technology*, 12(1), 1–15.
- Chen, L. (2010). Business-IT Alignment Maturity of Companies in China. *Information & Management*, 47, 9-16.
- Chen, R., Sun, C., Helms, M., and Jih, W. (2009). Factors Influencing Information System Flexibility: An Interpretive Flexibility Perspective. *International Journal of Enterprise Information Systems*, 5(1), 32-43.
- Cheney, P. H., Hale, D. P., and Kasper, G. M. (1989). Information Systems Professionals: Skills for the 1990s *the 22nd Annual Hawaii International*

Conference on Systems Science.

- Cheng, Q., Zhang, R., and Tian, Y. (2008). Study on Information Technology Capabilities Based on Value Net Theory. *International Symposium on Electronic Commerce and Security, 2008 IEEE*, 1045-1050.
- Chin, W. W. (1998). *The Partial Least Square Approach to Structural Equation Modeling*: G.A. Marcoulides (ed.), Lawrence Erlbaum Associates, Mahwah, NJ.
- Chin, W. W. (2010). *How to Write up and Report PLS Analyses*. In Esposito, V., et al. (eds.), *Handbook of Partial Least Squares* New York: Springer-Verlag.
- Choi, J. (2007). Business Driven Strategy for Service-Oriented Architecture: A Systems Dynamics Approach *International Conference on Service Oriented Computing (ICSOC 2007)*. City: Vienna, Austria, pp. 19-24.
- Chung, S. H., Rainer, R. K., and Lewis, B. R. (2003). The Impact of Information Technology Infrastructure Flexibility on Strategic Alignment and Applications Implementation. *Communications of AIS*, 11, 191-206.
- Churchill, G. A. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, 16(February), 64-73.
- Ciborra, C. U. (1996). The Platform Organization: Recombining Strategies, Structures, and Surprises. *Organization Science*, 7(2), 103-118.
- Ciborra, C. U. (1997). De Profundis? Deconstructing the Concept of Strategic Alignment. *Scandinavian Journal of Information Systems* 9(1), 67-82.
- Clemons, E. K., and Row, M. C. (1991). Sustaining IT Advantage: The Role of Structural Differences. *MIS Quarterly*, 15(3), 275-293.
- Coleman, P., and Papp, R. (2006). Strategic Alignment: Analysis of Perspectives *Proceedings of the 2006 Southern Association for Information Systems Conference*. City: Jacksonville, Florida USA, pp. 241–250.
- Cooper, D. R., and Schindler, P. S. (2004). *Business Research Methods (8th edition)*, Delhi: Tata McGraw-Hill.
- Cooper, D. R., and Schindler, P. S. (2006). *Business Research Methods (9th edition)*, New York: McGraw-Hill Irwin.
- Copeland, D. G., and McKenney, J. L. (1988). Airline Reservation System: Lessons from History. *MIS Quarterly*, 12(3), 353-370.
- Couger, J. D., Davis, G. B., Dologite, D. G., Feinstein, D. L., Gorgone, J. T., Jenkins, A. M., Kasper, G. M., Little, J. C., Longenecker, H. E., and Valacich, J. S.

- (1995). IS '95: Guideline for Undergraduate IS Curriculum. *MIS Quarterly*, 19(3), 341-360.
- Coughlan, J., Lycett, M., and Macredie, R. D. (2005). Understanding the Business-IT Relationship. *International Journal of Information Management*, 25(4), 303-319.
- Cragg, P., King, M., and Hussin, H. (2002). IT Alignment and Firm Performance in Small Manufacturing Firms. *Journal of Strategic Information Systems*, 11(2), 109-132.
- Crano, W. D., and Brewer, M. B. (1973). *Principles of Research in Social Psychology*, New York: McGraw-Hill.
- Cronbach, L. J. (1951). Coefficient Alpha and the Internal Structure of Tests. *Psychometrika*, 22(3), 297-334.
- Croteau, A. M., and Bergeron, F. (2001). An Information Technology Trilogy: Business Strategy, Technological Deployment and Organizational Performance. *Journal of Strategic Information Systems*, 10(2), 77-99.
- Croteau, A. M., Bergeron, F., and Raymond, L. (2001). Business Strategy and Technological Deployment: Fit and Performance. *Information System and Management*, 6(4).
- Croteau, A. M., and Raymond, L. (2004). Performance Outcomes of Strategic and IT Competencies Alignment. *Journal of Information Technology* 19, 178-190.
- Das, S. R., Zahra, S. A., and Warkentin, M. E. (1991). Integrating the Content and Process of Strategic Mis Planning with Competitive Strategy. *Decision Sciences*, 22(5), 953-984.
- Decoene, V., and Bruggeman, W. (2006). Strategic Alignment and Middle-Level Managers' Motivation in a Balanced Scorecard Setting. *International Journal of Operations & Production Management*, 26(4), 429-448.
- Ding, L., Velicer, W. F., and Harlow, L. L. (1995). Effects of Estimation Methods, Number of Indicators per Factor, and Improper Solutions on Structural Equation Modeling Fit Indices. *Structural Equation Modeling*, 2, 119-143.
- DiRomualdo, A., and Gurbaxani, V. A. (1998). Strategic Intent for IT Outsourcing. *Sloan Management Review*, 39(4), 115-116.
- Dowlatabadi, H.R., Khorasani, M., Shirvan, M.K. (2014, July). Assessing the Relationship between information IT Business Strategic alignment and information Technology Effectiveness: An Empirical Investigation in the

- Bank Saderat Iran. *Arabian Journal of Business and Management Review*, 3(11), 154-165.
- Duncan, N. B. (1995). Capturing Flexibility of Information Technology Infrastructure: A Study of Resource Characteristics and Their Measure. *Journal of Management Information Systems*, 12(2), 37-58.
- Earl, M. J. (1993). Experiences in Strategic Information Systems Planning. *MIS Quarterly*, 17(1), 1-24.
- Earl, M. J., and Feeny, D. F. (1994). Is Your CIO Adding Value? *Sloan Management Review*, 11-20.
- Edmondson, A. C., Roberto, M. R., and Watkins, M. (2003). A Dynamic Model of Top Management Team Effectiveness: Managing Unstructured Task Streams. *Leadership Quarterly*, 219, 1–29.
- Ein-Dor, P., and Segev, E. (1982). Organizational Context and Mis Structure: Some Empirical Evidence. *MIS Quarterly*, 55-67.
- Emmerich, W., Aoyama, M., and Sventek, J. (2007). The Impact of Research on Middleware Technology. *ACM SIGSOFT Software Engineering Notes*, 32(1), 21-46.
- E-Sourcing. (2002, February). Information Technology on Demand: Utility Computing Marks a New Stage in the Evolution of Outsourcing, and May be the First to Fully Deliver on the Strategy's True Potential *the Chief Executive*.
- Fang, Y., Wade, M., Delios, A., and Beamish, P. W. (2007). International Diversification Subsidiary Performance, and the Mobility of Knowledge Resources. *Strategic Management Journal*, 28(10), 1053-1064.
- Faryabi, M., Fazlzadeh, A., Zahedi, B., Alizadeh Darabi, H. (2012). Alignment of Business, IT, and Its Association with Business Performance: The Case of Iranian Firms, *Journal of Business and Management*, 1(1), 15-28.
- Feeny, D., and Willcocks, L. (1998). Core IS Capabilities for Exploiting Information Technology. *Sloan Management Review*, 39(3), 9-21.
- Feeny, D. F., Edwards, B., and Simpson, K. (1992). Understanding the CEO/CIO Relationship. *MIS Quarterly*, 16, 435-447.
- Feidler, K. D., Gorver, V., and Teng, J. T. C. (1995). An Empirical Study of Information Technology Enabled Business Process Redesign and Corporate Competitive Strategy. *European Journal of Information Systems*, 4(1), 17-30.
- Ferranti, M. (2001). Gartner, Align Thyself. *CIO Magazine*, November 15.

- Fertuck, L. (1992). *Systems Analysis and Design: With CASE Tools*, Wm. C. Brown Communications Inc. *Dubuque, Iowa*.
- Fink, L., and Neumann, S. (2009). Exploring the Perceived Business Value of The Flexibility Enabled by Information Technology Infrastructure. *Information & Management*, 46(2), 90-99.
- Floyd, S. W., and Wooldridge, B. (1990). Path Analysis of the Relationship between Competitive Strategy, Information Technology, and Financial Performance. *Journal of Management Information Systems Quarterly*, 7(1), 47-64.
- Fornell, C., and Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18, 39-50.
- Galliers, R., and Leidner, D. E. (2003). *Strategic Information Management: Challenges and Strategies in Managing Information Systems (3rd Ed.)*, Oxford, UK: Butterworth-Heinemann.
- Galliers, R. D., and Sutherland, A. R. (1991). Information Systems Management and Strategy Formulation: The 'Stages of Growth' Model Revisited. *Information Systems Management*, 1, 89-114.
- Gefen, D. (2003). Tutorial Assessing Unidimensionality through LISREL: An Explanation and Example. *Communications of the Association for Information Systems* 12(2), 1-26.
- Gefen, D., and Straub, D. (2005). A Practical Guide to Factorial Validity Using PLS-Graph: Tutorial and Annotated Examples. *Communications of AIS*, 16.
- Gerbing, D. W., and Anderson, J. C. (1988). An Updated Paradigm for Scale Development: Incorporating Unidimensionality and its Assessment. *Journal of Marketing Research* 25, 186-192.
- Gibson, R. (1994). Global Information Technology Architectures. *Journal of Global Information Management*, 2(1), 28-39.
- Goldman, S. L., Nagel, R. N., and Preiss, K. (1995). *Agile Competitors and Virtual Organizations: Strategies for Enriching the Customer*, NY: Van Nostrand Reinhold Reinhold.
- Goldsmith, N. (1991). Linking IT Planning to Business Strategy. *Long Range Planning*, 24(6), 67-77.
- Goodhue, D., Lewis, W., and Thompson, R. (2006). PLS, Small Sample Size and Statistical Power in MIS Research *Proceedings of the 39th Hawaii*

- International Conference on System Sciences, IEEE Computer Society Press.*
- Grant, G. G. (2003). Strategic Alignment and Enterprise Systems Implementation: The Case of Metalco. *Journal of Information Technology*, 18, 159–175.
- Grant, R. M. (1991). The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. *California Management Review (spring)*, 114–135.
- Grembergen, W. V., and Haes, S. D. (2009). Achieving Strategic Alignment and Value. *Enterprise Governance of Information Technology*, 3, 21-.
- Grossman, R. B., and Packer, M. B. (1989). Betting the Business: Strategic Programs to Rebuild Core Information Systems. *Information Technology & People*, 5(4), 235-244.
- Gutierrez, A., Orozco, J., and Serrano, A. (2009). Factors Affecting IT and Business Alignment: A comparative study in SMEs and large organizations. *Journal of Enterprise Information Management*, 22(2), 197-211.
- Hair, J. F., Anderson, R. E., Tatham, R. L., and Black, W. C. (1998). *Multivariate Data Analysis* New Jersey: Prentice-Hall.
- Hatch, J., and Zweig, J. (2001). Strategic Flexibility: The Key to Growth. *Ivey Business Journal*, 65(4), 44-47.
- Hatzakis, T., Lycett, M., Macredie, R., and Martin, V. (2005). Towards the Development of a Social Capital Approach to Evaluating Change Management Interventions. *European Journal of Information Systems*, 14(1), 60-74.
- Henderson, J. C., Rockart, J. F., and Sifonis, J. G. (1987). Integrating Management Support Systems into Strategic Information Systems Planning. *Journal of Management Information Systems*, 4(1), 5-24.
- Henderson, J. C., and Sifonis, J. G. (1988). The Value of Strategic IS Planning: Understanding Consistency, Validity, and IS Markets. *MIS Quarterly*, 12(2), 186–200.
- Henderson, J. C., and Venkatraman, N. (1991). Understanding Strategic Alignment. *Business Quarterly, winter*, 55(3), 72-78.
- Henderson, J. C., and Venkatraman, N. (1993). Strategic Alignment: Leveraging Information Technology for Transforming Organizations. *IBM Systems Journal*, 32(1), 4-16.
- Henderson, J. C., and Venkatraman, N. (1999). Strategic Alignment: Leveraging

- Information Technology for Transforming Organizations. *IBM Systems Journal*, 38(2), 472–478.
- Hirschheim, R., and Sabherwal, R. (2001). Detours in the Path toward Strategic Information Systems Alignment. *California Management Review*, 44(1), 87-108.
- Hirschheim, R., Schwarz, A., and Todd, P. (2006). A Marketing Maturity Model for IT: Building a Customer-Centric IT Organization. *IBM Systems Journal*, 45(1), 181-199
- Hitt, M. A., Ireland, R. D., and Hoskisson, R. E. (1999a). *Strategic Management: Competitiveness and Globalization (3rd ed.)*, Cincinnati: South-Western Publishing.
- Hu, Q., and Huang, C. D. (2006). Using the Balanced Scorecard to Achieve Sustained IT-Business Alignment: A Case study. *Communications of the Association for Information Systems*, 17, 181-204.
- Huang, C. D., and Hu, Q. (2007). Achieving IT-business Strategic Alignment via Enterprise Wide Implementation of Balanced Scorecards. *Information Systems Management*, 24(2), 173-184.
- Hussin, H., King, M., and Cragg, P. (2002). IT Alignment in Small Firms. *European Journal of Information Systems*, 11(2), 108-128.
- InformationWeek (1999). Bond the New and the Old: Enterprise Architecture. *Information Week*, January 11, 108-109.
- Inmon, W. H. (1989). *Data Architecture: The Information Paradigm*, Wellesley, MA: QED Information Sciences.
- Ives, B., Jarvenpaa, S. L., and Mason, R. O. (1993). Global Business Drivers: Aligning Information Technology to Global Business Strategy. *IBM Systems Journal*, 32(1), 143-161.
- Ives, B., and Mandviwalla, M. (2004). *Key Issues Facing Information Systems Executives*: eBusiness Institute, Temple University, EU.
- Jain, A. (2007, May). *Towards a Systemic View of Organizational Dynamic IT Capability: An Empirical Assessment*, Ph.D. thesis, The University of Texas at Arlington.
- Jarvenpaa, S. L., and Ives, B. (1993). Organizing for Global Competition: The Fit of Information Technology. *Decision Sciences*, 24(3), 547–580.
- Jiao, H., Chang, C., and Lu, Y. (2008). The Relationship on Information Technology

- Capability and Performance: An Empirical Research in the Context of China's Yangtze River Delta Region *the IEEE International Conference on Industrial Engineering and Engineering Management*, pp. 872–876.
- Johnson, A. M., and Lederer, A. L. (2005). The Effect of Communication Frequency and Channel Richness on the Convergence between Chief Executive and Chief Information Officers. *Journal of Management Information Systems*, 22, 227-252.
- Joshi, M. P., Kathuria, R., and Porth, S. (2003). Alignment of Strategic Priorities and Performance: An Integration of Operations and Strategic Management Perspectives. *Journal of Operations Management*, 21, 353-369.
- Kaiser, H. F. (1974). An Index of Factorial Simplicity. *Psychometrika*, 39, 31-36.
- Kamal, M. M. (2006). IT Innovation Adoption in the Government Sector: Identifying the Critical Success factors. *Journal of Enterprise Information Management*, 19(2), 192-222.
- Kaplan, R. S., and Norton, D. P. (1992). The Balanced Scorecard - Measures That Drive Performance. *Harvard Business Review*, 70(1), 71-79.
- Kaplan, R. S., and Norton, D. P. (2004). *Strategy Map: Converting Intangible Assets into Tangible Outcomes*: Harvard Business School Press.
- Karimi, J., Gupta, Y. P., and Somers, T. M. (1996). The Congruence between a Firm's Competitive Strategy and Information Technology Leader's Rank and Role. *Journal of Management Information Systems*, 13(1), 63–88.
- Kearns, G., and Sabherwal, R. (2006/2007). Strategic Alignment between Business and Information Technology: A Knowledge-Based View of Behaviors, Outcome, and Consequences. *Journal of Management Information Systems*, 23(3), 129-162.
- Kearns, G. S., and Lederer, A. L. (2000). The Effect of Strategic Alignment on the Use of IS-Based Resources for Competitive Advantage. *Journal of Strategic Information Systems*, 9(4), 265-293.
- Kearns, G. S., and Lederer, A. L. (2003). A Resource-Based View of Strategic IT Alignment: How Knowledge Sharing Creates Competitive Advantage. *Decision Sciences*, 34(1), 1-29.
- Keen, P. G. W. (1993). Information Technology and the Management Difference: A Fusion Map. *IBM Systems Journal*, 32(1), 17-39.
- Kefi, H., and Kalika, M. (2005). Survey of Strategic Alignment Impacts on

- Organizational Performance in International European Companies. *Proceedings of the 38th Hawaii International Conference on System Sciences*, Washington, DC, USA.
- Kerlinger, F. N., and Lee, H. B. (2000). *Foundations of Behavioral Research* (4th Ed.). Holt, N: Harcourt College Publishers.
- Kettinger, W. J., Grover, V., Subanish, G., and Segars, A. H. (1994). Strategic Information Systems Revisited: A Study in Sustainability and Performance. *MIS Quarterly*, 18(1), 31-58.
- King, W. R. (1978). Strategic Planning for Management Information Systems. *MIS Quarterly*, 2(1), 27-37.
- Kline, R. B. (2005). *Principles and Practice of Structural Equation Modeling* (2nd Ed.), New York: Guilford Press.
- Labovitz, G., and Rosansky, V. (1997). *The Power of Alignment: How Great Companies Stay Centered and Accomplish Extraordinary Things*, NY: John Wiley & Sons, Inc.
- Langdon, C. S. (2006). Designing Information Systems Capabilities to Create Business Value: A Theoretical Conceptualization of the Role of Flexibility and Integration. *Journal of Database Management*, 17(3), 1-16.
- Lederer, A. L., and Mendelow, A. L. (1989). Coordination of Information Systems Plans with Business Plans. *Journal of Management Information Systems*, 6(2), 5-19.
- Lee, B., and Barua, A. (1999). An Integrated Assessment of Productivity and Efficiency Impacts of Information Technology Investments: Old Data, New Analysis and Evidence. *Journal of Productivity Analysis*, 12(1), 21-43.
- Lee, D. M. S., Trauth, E. M., and Farwell, D. (1995). Critical Skills and Knowledge Requirements of IS Professionals: A Joint Academic/Industry Investigation. *MIS Quarterly*, September, 313-340.
- Leedy, P. D., and Ormrod, J. E. (2010). *Practical Research: Planning and Design* (8th ed.), Upper Saddle River, NJ: Prentice Hall.
- Leifer, R. (1988). Matching Computer-Based Information Systems with Organizational Structures. *MIS Quarterly* 12(1), 62-73.
- Lucas, H. (1999). *Information Technology and the Productivity Paradox: Assessing the Value of Investing in IT*, New York: Oxford University Press.
- Luftman, J. (2000). Assessing Business–IT Alignment Maturity. *Communications of*

- AIS*, 14(4), 1-49.
- Luftman, J. (2003a). Assessing IT/business Alignment *Information Systems Management*, 20(4), 9-17.
- Luftman, J. (2003b). *Competing in the Information age: Align in the Sand*, New York: Oxford University Press.
- Luftman, J., and Brier, T. (1999). Achieving and Sustaining Business-IT Alignment. *California Management Review*, 42(1), 109-122.
- Luftman, J., Bullen, C., Liao, D., Nash, E., and Neumann, C. (2004). *Managing the Information Technology Resource: Leadership in the Information Age*, Upper Saddle River, NJ: Pearson Education.
- Luftman, J., and Kempaiah, R. (2007). An Update on Business-IT Alignment: A Line Has Been Drawn. *MIS Quarterly Executive*, 6(3), 165–177.
- Luftman, J., Kempaiah, R., and Nash, E. (2006). Key Issues for IT Executives 2005. *MIS Quarterly Executive*, 5(2), 81-99.
- Luftman, J., Papp, R., and Brier, T. (1999). Enablers and Inhibitors of Business-IT Alignment. *Communications of the Association for Information Systems*, 1(11), 1-32.
- Luftman, J. N. (1996). *Competing in the Information Age-Strategic Alignment in Practice*, New York: Oxford University Press.
- Luftman, J. N. (2005). Key Issues for IT Executives 2004. *MIS Quarterly Executives*, 4(2), 269–285.
- Luftman, J. N., Lewis, P. R., and Oldach, S. H. (1993). Transforming the Enterprise: The Alignment of Business and Information Technology Strategies. *IBM Systems Journal*, 32(1), 198-221.
- Mannino, M. V. (2007). *Database Design, Application, Development, and Administration* New York, NY: McGraw-Hill.
- Marwaha, S., and Willmott, P. (2006). Managing IT for Scale, Speed and Innovation McKinsey on IT *McKinsey Quarterly*, 2006 fall, 14-21.
- Masrek, M. N., and Jusoff, K. (2009). The Effect of Information Technology Infrastructure Flexibility on Intranet Effectiveness. *Comput. Inf. Sci*, 2(2), 57-67.
- Massey, A. P., Montoya-Weiss, M., and Brown, S. (2001). Reaping the Benefits of Innovative IT: The Long and Winding Road. *IEEE Transactions on Engineering Management*, 48(3), 348-357.

- McCormick, R. (1997). Conceptual and Procedural Knowledge. *International Journal of Technology and Design Education*, 7, 141-159.
- McGee, R. W. (2006). The Ethics of Tax Evasion: A case study of Opinion in Thailand 2006 *Academy of International Business Southeast Asia Regional Conference*, Bangkok.
- McKeen, J. D., and Smith, H. (2003). *Making IT Happen: Critical issues in IT Management*, Hoboken, NJ: Wiley.
- McKenney, J. L. (1995). *Waves of Change: Business Evolution through Information Technology*, Cambridge, MA: Harvard Business School Press.
- McLean, E., and Soden, J. (1977). *Strategic Planning for MIS*, New York: John Wiley & Sons.
- Meador, J. G. (1990). Building a Business Information Model. *Journal of Information Systems Management*, 7(Fall), 42-47.
- Mendelson, H., and Pillai, R. R. (1998). Clock speed and Informational Response: Evidence from the Information Technology Industry. *Information Systems Research*, 9(4), 415-433.
- Merriam-Webster (2005)*, <http://www.merriam-webster.com/>.
- Mensah, K. E. (1989). Evaluating Information Systems Projects: A Perspective on Cost-Benefit Analysis. *Information Systems Management*, 14(3), 205-17.
- Miles, R. E., and Snow, C. C. (1978). *Organizational Strategy, Structure and Process*, New York: McGraw-Hill.
- Milliman, J., Von Glinow, M. A., and Nathan, M. (1991). Organizational Life Cycles and Strategic International Human Resource Management in Multinational Companies. *Academy of Management Review*, 16, 318-339.
- Mohamed, A. (2005). AMR Predicts Merger of ERP Apps and IT infrastructure to Cut Costs. *Computer Weekly*, January 11, 2005.
- Morris, A. (2006). Assessing Pre-service Teachers' Skills for Analyzing Teaching. *Journal of Mathematics Teacher Education*, 9(5), 471-505.
- Nahapiet, J., and Ghoshal, S. (1998). Social capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management* 23(2), 245-267.
- Nelson, K. M., and Cooperider, J. G. (1996). The Contribution of Shared Knowledge to IS Group Performance. *MIS Quarterly*, 20(4), 409-429.
- Nemetz, P. L., and Fry, L. W. (1988). Flexible Manufacturing Organizations: Implications for Strategy Formulation and Organization Design. *Academy of*

- Management Review*, 13, 627-638.
- Ness, L. R. (2005). Assessing the Relationships among IT Flexibility, Strategic Alignment and IT Effectiveness: Study Overview and Findings. *Journal of Information Technology Management*, 16(2), 1-17.
- Neuman, W. L. (2008). *Social Research Methods. Qualitative and Quantitative Approaches*, USA: Pearson Education, Inc.
- Newkirk, H., Lederer, A., and Srinivasan, C. (2003). Strategic Information Systems Planning: Too Little or Too Much? *Journal of Strategic Information Systems* 12(3), 201-228.
- Newkirk, H. E., Lederer, A.L., and Srinivasan .C. (2009). Strategic Information Systems Planning, in W. R. King, (ed.), *Planning for Information Systems* NY, USA, pp. 209-231.
- Newkirk, H. E., and Lederer, A. L. (2006). Incremental and Comprehensive Strategic Information Systems Planning in an Uncertain Environment. *IEEE Transactions on Engineering Management*, 53(3), 380–394.
- Newton, R., and Rudestam, K. (1999). *Your Statistical Consultant: Answers to Your Data Analysis Questions*, Thousands Oaks, CA: Sage Publications.
- Niederman, F., Brancheau, J. C., and Wetherbe, J. C. (1991). Information Systems Management Issues for the 1990s. *MIS Quarterly*, 15(4), 475-500.
- Oh, W., and Pinsonneault, A. (2007). On the Assessment of the Strategic Value of Information Technologies: Conceptual and Analytical Approaches. *MIS Quarterly*, 31(2), 239–265.
- Palmer, J. W., and Markus, M. L. (2000). The Performance Impacts of Quick Response and Strategic Alignment in Specialty Retailing. *Information Systems Research*, 11(3), 241-259.
- Papp, R. (1998). Alignment of Business and Information Technology Strategy: How and Why. *Information Management*, 11(3/4), 6–11.
- Papp, R. (1999). Business-IT alignment: Productivity Paradox Payoff? *Industrial Management Data Systems*, 99(8), 367–373.
- Parker, M. M., Benson, R. J., and Trainor, H. E. (1988). *Information Economics: Linking Business Performance to Information Technology*, Englewood Cliffs, NJ: Prentice Hall.
- Parnas, D. L. (1972). On the Criteria to Be Used in Decomposing Systems into Modules. *Communications of the ACM*, 15, 1053-8.

- Pearlman, E., and Baker, E. H. (2005). *Measure of Alignment Predicts Success CIO Insight*, Oct. 15.
- Peppard, J., and Ward, J. (2004). Beyond Strategic Information Systems: Towards an IS Capability. *The Journal of Strategic Information Systems*, 13(2), 167–194.
- Pham, L. T., and Jordan, E. (2007). Information Technology Capability, the Effects on Organizational Performance *the 13th Asia Pacific Management Conference*. City: Melbourne, Australia pp. 261-269
- Piccoli, G., and Ives, B. (2005). Review: IT-dependent Strategic Initiatives and Sustained Competitive Advantage: A Review and Synthesis of the Literature. *MIS Quarterly*, 29(4), 747–776.
- Pita, Z., Cheong, F., and Corbitt, B. (2009). Major Issues in SISP: Insights into the Main Reason of SISP Failure *17th European Conference on Information Systems (ECIS 2009)*. City: Verona, Italy, pp. 8-10.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., and Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology* 88, 879-903.
- Porter, M. E. (1996). What is Strategy? *Harvard Business Review*, 74(6), 61–78.
- Powell, P. (1992). Information Technology Evaluation: Is it Different? *Journal of the Operational Research Society*, 43(1), 29-42.
- Powell, T. C., and Dent-Micallef, A. (1997). Information Technology as Competitive Advantage: The Role of Human, Business, and Technology Resources. *Strategic Management Journal*, 18(5), 375-405.
- Prahalad, C. K., and Krishnan, M. S. (2002). The Dynamic Synchronization of Strategy and Information Technology. *MIT Sloan Management Review*, summer 2002
- Priesmeyer, H. (1992). *Organizations and Chaos: Defining the Methods of Nonlinear Management*, Westport, CT: Quorum Books.
- Qingfeng, Z., and Daqing, Z. (2008). The Impact of IT Capability on Enterprise Performance: An Empirical Study in China *4th International Conference on Wireless Communications, Networking and Mobile Computing (WiCOM 2008)*. City: Dalian, China, pp. 1-6.
- Quinn, J. B., Baily, M. N., Herbert, G. R., Willett, D., and al., e. (1994). Information Technology: Increasing Productivity in Services; Executive Commentary.

The Academy of Management Executive, 8(3), 28.

- Rahbar, N., Zeinolabedin, N., Afiati Mehrvarz, S. (2013, April). Investigating Business-It Alignment through ITIL. *International Journal of Engineering Science and Technology*, 3(2), 322-337.
- Ranganathan, C., and Sethi, V. (2002). Rationality in Strategic Information Technology Decisions: The Impact of Shared Domain Knowledge and IT Unit Structure. *Decision Sciences*, 33(1), 59-86.
- Ravichandran, T., and Lertwongsatein, C. (2005). Effect of Information Systems Resources and Capabilities of Firm Performance: A Resourced –Based Perspective. *Journal of Management Information Systems*, 21(4), 237-276.
- Reich, B. H., and Benbasat, I. (1996). Measuring the Linkage between Business and Information Technology Objectives. *MIS Quarterly*, 20(1), 55-81.
- Reich, B. H., and Benbasat, I. (2000). Factors that Influence the Social Dimensions of Alignment between Business and Information Technology Objectives. *Management Information Systems Quarterly*, 24(1), 81-113.
- Rockart, J. F. (1979). Chief Executives Define Their Own Data Needs. *Harvard Business Review*, 57(2), 81-92.
- Rockart, J. F., Earl, M. J., and Ross, J. W. (1996). Eight Imperatives for the New IT Organization. *Sloan Management Review*, 38(1), 43-55.
- Rosa, J. (1998). CIOs Challenged by Disparate Goals. *Computer Reseller News*, 43.
- Ross, J. W., Beath, C. M., and Goodhue, D. L. (1996). Develop Long-Term Competitiveness Through IT Assets. *Sloan Management Review*, 38(1), 31-42.
- Ross, J. W., and Westerman, G. (2004). Preparing for Utility Computing: The Role of IT Architecture and Relationship Management. *IBM Systems Journal*, 43(1), 5-19.
- Sabherwal, R. (1999). The Relationship between Information System Planning Sophistication and Information System Success: An Empirical Assessment. *Decision Sciences*, 30(1), 137-167.
- Sabherwal, R., and Chan, Y. E. (2001). Alignment between Business and IS Strategies: A Study of Prospectors, Analyzers, and Defenders. *Information Systems Research*, 12(1), 11-33.
- Sabherwal, R., Hirschheim, R., and Goles, T. (2001). The Dynamics of Alignment: Insights from a Punctuated Equilibrium Model. *Organisational Science*,

12(2), 179-192.

- Sabherwal, R., and Kirs, P. (1994). The Alignment between Organizational Critical Success Factors and Information Technology Capability in Academic Institutions. *Decision Sciences*, 25(2), 301-330.
- Safiek, M. (2006). The Effect of Religiosity on Shopping Orientation: An Exploratory Study in Malaysia. *Journal of American academy of business, Cambridge, Hollywood*, 9(1), 64-74.
- Sambamurthy, V., Bharadwaj, A., and Grover, V. (2003). Shaping Agility through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms. *MIS Quarterly*, 27(2), 237-263.
- Sanchez, R. (1997). Preparing for an Uncertain Future: Managing Organizations for Strategic Flexibility. *International Studies of Management and Organization*, 27(2), 71-94.
- Sanders, N. R., and Premus, R. (2005). Modeling the Relationship between Firm IT Capability, Collaboration, and Performance *Journal of Business Logistics*, 26(1), 1-23.
- Santhanam, R., and Hartono, E. (2003). Issues in Linking Information Technology Capability to Firm Performance. *MIS Quarterly*, 27(1), 125-153.
- Sauer, C., and Yetton, P. (1997). *Steps to the Future. Fresh Thinking on The Management of IT based Organizational Transformation*, San Francisco, CA: Jossey-Bass.
- Scheel, C. (2005). Creating Economic Value Added through Enabling Technologies. *Journal of Integrated Design and Process Science*, 9(4), 41-59.
- Schilling, M. A. (2000). Toward a General Modular Systems Theory and Its Application to Inter firm Product Modularity. *Academy of Management*, 25(2), 312-334.
- Scott, G. M. (2005). Still Not Solved: The Persistent Problem of IT Strategic Planning. *Communications of the AIS*, 16, 904-936.
- Segars, A., and Grover, V. (1999). Profiles of Strategic Information Systems Planning. *Information Systems Research*, 10(3), 199-232.
- Sekaran, U. (1984). *Research Methods for Managers: A Skill-building Approach* New York: John Wiley Sons.
- Seltzer, M. (2005). Beyond Relational Databases. *Queue*, 3(3), 50-58.
- Silvius, A. J. G. (2007). Business & IT Alignment in Theory and Practice *40th*

- Hawaii International Conference on Systems Science (HICSS-40 2007)*. City: Waikoloa, Big Island, HI, USA.
- Silvius, A. J. G., De Waal, B., and Smit, J. Business and IT Alignment; Answers and Remaining Questions. *Presented at Pacific Asia Conference on Information Systems (PACIS); Association for Information Systems Year 2009. PACIS 2009 Proceedings*.
- Singh, N., Lai, K. H., and Cheng, T. C. E. (2007). Intra-organizational Perspectives on Enabled Supply Chains. *Communications of the ACM*, 50(1), 59-65.
- Sledgianowski, D. (2004). *Identification of Factors Affecting the Maturity of IT-business Strategic Alignment*.
- Smaczny, T. (2001). Is an Alignment between Business and Information Technology the Appropriate Paradigm to Manage IT in Today's Organizations? *Management Decision*, 39(10), 797-802.
- Smits, M. T., Fairchild, A. M., Ribbers, P. M. A., Milis, K., and Geel, E. V. (2009). Assessing Strategic Alignment to Improve IT Effectiveness *Proceedings of the 22nd Bled eConference*. City: Slovenia: University of Maribor, pp. 426-439.
- Spencer, R. A. (1985). Information Architecture. *Journal of Systems Management*, 36(11), 34-42.
- Stowell, F. (1995). *Information Systems Provision: The Contribution of Soft Systems Methodology*, London: McGraw-Hill.
- Straub, D. W. (1989). Validating Instruments in MIS Research. *MIS Quarterly*, 13(2), 147-169.
- Subriadi, A.P., Hadiwidjojo, D., Rahayu, M., and Sarno, R. (2013). Information Technology Productivity Paradox: A Resource-Based View and Information Technology Strategic Alignment Perspective for Measuring Information Technology Contribution on Performance. *Journal of Theoretical and Applied Information Technology*, 54 (3), 541- 552.
- Sullivan, C. H., Jr. (1982). Rethinking Computer Systems Architecture. *Computerworld Extra*, XVI, 5-10.
- Tabachnick, B. G., and Fidell, L. S. (2001). *Using Multivariate Statistics (4th ed.)*, Boston, MA: Allyn and Bacon
- Taipala, D. J. (2008). *Information Technology Outsourcing: A Study of Its Role in Strategic Alignment and the Mitigating Effect of Virtual Organization*, PhD.

- Thesis, Capella University, USA.
- Tallon P.P. (2008). Inside the Adaptive Enterprise: An Information Technology Capabilities Perspective on Business Process Agility. *Inform Technol and Manage*, 9(1), 21-36.
- Tallon, P. P. (2008). A Process-oriented Perspective on the Alignment of Information Technology and Business Strategy. *Journal of Management Information Systems*, 24(3), 231-272.
- Tallon, P. P. (2009). How Information Technology Infrastructure Flexibility Shapes Strategic Alignment: A Case Study, in W. R. e. King, (ed.), *Planning for Information Systems*. Armonk, NY, USA: M.E. Sharpe, Inc., pp. 413-443.
- Tallon, P. P., and K.L., K. (2003a). Investigating the Relationship between Strategic Alignment and IT Business Value: The Discovery of a Paradox. *University of California, Irvine*.
- Tallon, P. P., and K.L., K. (2003b). The Implications of Strategic Alignment for IT Business Value: Investigating an Alignment Paradox. *University of California, Irvine*.
- Tallon, P. P., and Kraemer, K. L. (2003c). Using Flexibility to Enhance the Alignment between Information Systems and Business Strategy: Implications for IT Business Value. *Center for Research on Information Technology and Organizations (CRITO), University of California, Irvine*.
- Tan, F. B., and Gallupe, R. B. (2006). Aligning Business and Information Systems Thinking: A Cognitive Approach. *IEEE Transactions on Engineering Management*, 53(2), 223-237.
- Tapscott, D., and Caston, A. (1993). *Paradigm shift: The New Promise of Information Technology*, New York: McGraw-Hill.
- Teece, D., Pisano, G., and Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal* 18(7), 509–533.
- Teo, T., and King, W. (1999). An Empirical Study of the Integration Business Planning and Information Systems Planning. *European Journal of Information Systems*, 8(3), 200-201.
- Teo, T. S. H., and Ang, J. A. K. (1999). Critical Success Factor in the Alignment of IS Plans with Business Plans. *International Journal of Information Management*, 19(2), 173-185.
- Teo, T. S. H., and King, W. R. (1996). Assessing the Impact of Integrating Business

- Planning and IS Planning. *Information & Management*, 30(6), 309-321.
- Teo, T. S. H., and King, W. R. (1997a). Integration between Business Planning and Information Systems Planning: An Evolutionary-Contingency Perspective. *Journal of Management Information Systems*, 14(1), 185–214.
- Teo, T. S. H., and King, W. R. (1997b). An Assessment of Perceptual Differences in Information Systems Research. *Omega International Journal of Management Science*, 25(5), 557–566.
- Thorndike, R. M. (1978). *Correlational Procedures for Research*, New York: Guilford Press.
- Tippins, M. J., and Sohi, R. S. (2003). IT Competency and Firm Performance: Is Organizational Learning a Missing Link? *Strategic Management Journal*, 24(8), 745–761.
- Tiwana, a., and Konsynski, B. (2009). Complementarities between Organizational IT Architecture and Governance Structure. *Information Systems Research*, 21(2), 288-304.
- Truch, E., and Bridger, D. (2002). The Importance of Strategic Fit in Knowledge Management *European Conference on Information Systems*. City: Gdansk, Poland, pp. 905–918.
- Turban, E., Leidner, D., Mclean, E., Wetherbe, J. C., and Volonino, L. (2009). *Information Technology for Management: Transforming Organizations in the Digital Economy, 7th ed.*, Hoboken: John Wiley.
- Venkatraman, N. (1989b). The Concept of Fit in Strategy Research: Toward Verbal and Statistical Correspondence. *Academy of Management Review*, 14(3), 423-444.
- Venkatraman, N. (1991). *IT-related Business Reconfiguration*, New York: Oxford University Press.
- Venkatraman, N. (1989a). Strategic Orientation of Business Enterprises: The Construct, Dimensionality, and Measurement. *Management Science*, 35, 942–962.
- Venkatraman, N., Henderson, J. C., and Oldach, S. (1993). Continuous Strategic Alignment: Exploiting Information Technology Capabilities for Competitive Success. *European Management Journal*, 11, 139-149.
- Viscusi, G., Thevenet, L. H., and Salinesi, C. (2008, Jun). Strategic Alignment in the Context of E-Services - An Empirical Investigation of the Instal Approach

- Using the Italian E government Initiative, Case Study *the 20th International Conference on Advanced Information Systems Engineering*. City: Montpellier, France.
- Wade, M., and Hulland, J. (2004). The Resource-Based View and Information Systems Research: Review, Extension, and Suggestions for Future Research. *MIS Quarterly*, 28(1), 107-142.
- Walter, J. T. (2010). *Prioritizing Information Technology Investments: Assessing the Correlations among Technological Readiness, Information Technology Flexibility, and Information Technology Effectiveness*, PhD. Thesis, Capella University.
- Wang, E. T. G., and Tai, J. C. F. (2003). Factors Affecting Information Systems Planning Effectiveness: Organizational Contexts and Planning Systems Dimensions. *Information & Management*, 40(4), 287–303.
- Wang, L., and Alam, P. (2007). Information Technology Capability: Firm Valuation, Earnings Uncertainty, and Forecast Accuracy. *Journal of Information Systems*, 21(2), 27-48.
- Wang, R., and Zionts, S. (1997). Use of Data Envelopment Analysis in Assessing Information Technology Impact on Firm Performance. *Annual Operations Research*, 73, 191-213.
- Ward, J., and Peppard, J. (1996). Reconciling the IT/business Relationship: A Troubled Marriage in Need of Guidance. *Journal of Strategic Information Systems*, 5(1), 37–65.
- Ward, J., and Peppard, J. (2002). *Strategic Planning for Information Systems*, West Sussex, England: John Wiley & Sons.
- Weill, P., and Broadbent, M. (1993). Improving Business and Information Strategy Alignment: Learning From the Banking Industry. *IBM Systems Journal*, 32(1), 162-179.
- Weill, P., and Broadbent, M. (1998). *Leveraging the New Infrastructure; How Market Leaders Capitalize on Information Technology*: Harvard Business School Press.
- Weill, P., Subramani, M., and Broadbent, M. (2002). Building IT Infrastructure for Strategic Agility. *Sloan Management Review*, 44(1), 57–65.
- Wooldridge, B., and Floyd, S. (1990). The Strategy Process, Middle Management Involvement, and Organizational Performance. *Strategic Management*

- Journal*, 11, 231-241.
- Yayla, A. (2008). *Antecedents of IT-Business strategic alignment and the Moderating Roles of Goal Commitment and Environment Uncertainty*, Ph.D. thesis, Florida Atlantic University, Boca Raton, FL.
- Yum, J. (2000). *The Relationship among Environmental Turbulence, Strategic Aggressiveness of Information Technology, Organizational Information Technology Capability, and Organizational Performance*, PhD. Thesis, United States International University, San Diego.
- Zahra, S. A., and Covin, J. G. (1993). Business Strategy, Technology Policy and Firm Performance. *Strategic Management Journal*, 14, 451-478.
- Zhang, J., Li, H., and Ziegelmayer, J. (2008). An Empirical Study of the Relationship between IT Infrastructure Flexibility and IT Responsiveness in SMEs: A Resource-Based Analysis *Proc. of the 14th Americas Conference on Information Systems*. City: Toronto, ON, Canada.
- Zhang, J., Li, H., and Ziegelmayer, J. (2009). Resource or Capability? A Dissection of SMES' IT Infrastructure Flexibility and its Relationship with IT Responsiveness. *Journal of Computer Information Systems*, October 2009, 46-53.
- Zhang, M., McCullough, J., and Wei, R. Y. (2004, January). Effects of Organizational Structure and Information Technology Capability on Organizational Effectiveness in Emerging Markets. *Journal of the Academy of Business and Economics*, Jan, 1-23.
- Zhang, M., and Tansuhaj, P. (2007). Organizational Culture, Information Technology Capability, and Performance: The Case of Born Global Firms. *The Multinational Business Review*, 15(3), 43-77.
- Zuboff, S. (1988). *In the Age of the Smart Machine: The Future of Work and Power*, New York: Basic Books.