

# THE IMPACT OF IS-BUSINESS ALIGNMENT PRACTICES ON ORGANIZATIONAL CHOICE OF IS-BUSINESS ALIGNMENT STRATEGIES

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## Abstract

*This study utilizes a mixed method approach to examine the relationship between IS/Business alignment practices and organizational choice of IS/business alignment strategy. To this end, the significance of six maturity factors of IS/Business alignment – governance, partnership, scope and architecture, communication, value, and skills – from the Strategic Alignment Maturity model are examined against three alignment strategies (independent, sequential, and synchronous) adopted by different organizations. Governance and partnership were found to be the most significant factors towards the evolutive process of IS/business alignment regardless of the alignment strategy. Moreover, our data shows that organizations that are most mature in partnership have a higher tendency to implement sequential integration strategy (IS strategy formulation follows and supports business strategy formulation) and not synchronous – where IS strategy formulation and business strategy formulation are done simultaneously. Follow-up group discussions with senior managers were also conducted in an attempt to identify the top management practices that advance the IS/business alignment process. The discussions revealed three management practices that considerably contribute to the process of aligning IS and business strategies: (1) the formalization of a program management process, (2) the improvement of support for hierarchies of authority, and (3) the integration of collaboration values. Those findings are discussed and future avenues of research are offered.*

*Keywords: IT/IS management, IS planning, IS/Business alignment, Maturity Models, IS Strategy.*

# 1 INTRODUCTION

IS/Business alignment enables information systems (IS) to influence the ever-changing business environment. Organizations have a keen interest in this alignment so as to realize business value (Melville et al. 2004) and improve the performance of organizations (Chan et al. 2006; El-Masri and Rivard 2010; Teo and King 1996). In research, investigating IS/Business alignment is still a challenge as the concept continues to evolve and mutate. Indeed, a complex and all-encompassing concept of IS/business alignment has been advanced by diverse schools of thoughts which resulted in fragmented progress (Bharadwaj et al. 2013; Gutierrez et al. 2008; Chan and Reich 2007). Moreover, much of the IS/business alignment research adheres to theoretical or conceptual agendas (Ciborra 1997; Mocker and Teubner 2006) and very few provides consumable research in the area. The particularity of each of these approaches do not often take into account the organizational phenomena to encompass the complex research of IS/business alignment limiting the applicability of results in practice.

While challenges undermine the value of IS/business alignment research, practice continues to envisage IS/business alignment as a vital proponent of business success. Indeed, recent surveys reveal that the IS/business alignment is a top priority for top executives (Luftman and Ben-Zvi 2010; Luftman and Derksen 2014; Orozco et al., 2015; Alenezi et al., 2015). According to Luftman and Derksen (2014), the Alignment of IS and business continues to be elusive. In an international study, the authors found that IS/business alignment continues to be is in the top ten management concerns and was ranked the top concern in Europe and worldwide in 2013 (from second most concern in 2013).

To address the issue of the elusiveness of the ITIS/business alignment concept, there has been a recent shift towards redefining it as IT and business co-evolution alignment (Bharadwaj et al., 2013, Abu-Shanab, 2015). A few attempts have been made to uncover the co-evolutionary processes along with the practices that align the IS and business strategic and operational domains (e.g., Benbya and McKelvey 2006; Bharadwaj et al., 2013; Teubner's 2007). However, this research is exploratory and consumable research that uncovers the IS/business alignment process continues to be rare. Indeed, recently the research community is pushing for more research on IS strategy and IS/business alignment that is of more relevance to practice. In a special issue on strategic management by Peppard et al. (2014), the authors advise strategic management research to move away from a macro focus towards a micro focus that "emphasizes the actual day-to-day activities, contexts, processes and content that relate to strategic outcomes". The idea that alignment can be better explained by looking into the continuous practices that organizations do to align IS with business rather than looking into the "fit" between the different types of resources they have is not new. Indeed, Galliers (2011) states that IS strategy and its alignment with business is something that organizations do rather than have. It is the evolving fusion of organizational IS-related and business-related activities that can best explain alignment (Bharadwaj 2013).

In line with the recent calls and to build a cumulative research tradition of the more recent co-evolutionary view of IS/Business alignment (see Bharadwaj et al., 2013), this study asserts that the alignment strategy is formed through the fusion of different practices adopted in the organization. We build on the argument that there is no one-size-fits-all alignment strategy that organizations can adopt. Instead, organizations use various skillsets to achieve alignment. To this end, we examine the relationship between alignment practices and alignment strategy. Specifically, the IS/business alignment maturity factors pertaining to partnership, governance, scope and architecture, value, communication, and skills from Luftman's Strategic Alignment Maturity Model (SAMM) (Luftman 2000) model were adopted to represent the alignment practices. On the other hand, three strategies (independent, sequential, and synchronous) that were previously found to support an evolutionary alignment pattern (see Teo and King 1997a, 1997b) were adopted to represent the alignment strategies. Governance and partnership were found to be the most affective factors in the evolutive process of IS/business alignment regardless of the alignment strategy. More importantly, the data analysed revealed that organizations that are more mature in IT governance are more likely to exhibit

synchronous integration strategy while organizations mature in IS/Business partnerships tend to implement a sequential integration strategy.

Our study is organized in seven sections. The following section gives an overview of the current research of IS/business alignment and outlines the antecedents and arguments behind this research. In section three we present our model. The following section describes the methodology along with the survey design and data collection. We then present our findings and follow it with a discussion as well as concluding remarks.

## **2 IS/BUSINESS ALIGNMENT**

Due to the importance of IS/business alignment to practice (see Luftman and Ben-Zvi 2010; Luftman and Derksen 2014), a large number of researchers have been drawn to examine it the past few decades. The overarching research focuses on its conceptualization (e.g., Bharadwaj et al., 2013; Henderson and Venkatraman 1993), antecedents (e.g., Harvey et al. 2012; Lee 2004; Pereira et al. 2014), and impact (e.g., Celuch et al. 2007; Yayla and Qing 2012). Alignment has been defined as “the degree of fit and integration among business strategy, IT strategy, business infrastructure, and IT infrastructure” (Henderson and Venkatraman 1989). Henderson and Venkatraman (1993) developed a strategic Alignment Model – SAM – that addresses the alignment within and across the different levels of IS and business and components (Henderson and Venkatraman 1993; 1999).

Abundant research attempted to develop an operational model for alignment. According to a recent examination of the alignment literature, 65 out of 184 articles attempted to create new scales to measure IS/Business alignment (Gerow et al. 2014). This has been criticized by the authors since there are a number of alignment operational models that are established in IS research. One of the dominant alignment models is Luftman’s Strategic Alignment Maturity Model (SAMM) (Luftman 2000). This model has been continuously evaluated and was found to be consistent and prevailing in predicting impact factors such as firm performance (see Belfo and Sousa 2013; Luftman, and Kempaiah 2007). The SAM model is based on the components of Henderson and Venkatraman’s (1993) SAM model and is operationalized in terms of alignment enablers. In this respect, Luftman’s SAMM model is a bottom-up prescriptive instrument that can be used to evaluate as well as improve an organizational maturity in aligning IS and business. The model has been evaluated in a number of research articles (e.g., Chen 2010; Khaiata and Zualkernan 2009).

### **2.1 Conceptual Confusion of IS/Business Alignment**

In information systems research, IS/Business alignment includes aligning the IT and business domains (Reich and Benbasat 1996), the IS and business plans (Kearns and Lederer 2000; Peak et al. 2005; Teo and King 1997), the IT and business goals (Campbell et al. 2005, Masa’deh et al, 2015a), the IT and business structures (Chan 2002) and the IT and business strategic orientation (Chen 2010). The literature continues to confuse concepts such as IT planning, strategic IT planning, IT strategy, etc. (Karpovsky et al., 2014). To address the problem of disintegration of relevant knowledge in alignment and advance the usefulness of alignment research in practice, contemporary schools of thoughts position IS/business alignment research within the organic and co-evolutional realms (Benbya and McKelvey 2006; Grant et al. 2009; Tallon and Pinsonneault 2011). The shift from the traditional resource-based view alignment research (e.g. Barney, 1991; Rivard et al., 2006) towards the concept of IT and business co-evolution alignment reflects a continuous practical strategizing alignment process (Bharadwaj et al., 2013). This view assumes that both organizations and their environments change continuously to attain business performance (Tallon and Pinsonneault 2011). Accordingly, the alignment of IS with business evolves over time via adaptive, dynamic and self-purposeful practices to allow firm agility (Tallon and Pinsonneault 2011). The IS/business co-evolution occurs at the individual, operational and strategic levels (Benbya and McKelvey 2006, Masa’deh et al, 2015b). The dynamics of the interactions within and across these levels is what characterizes IS/business alignment and consequently impact organizational effectiveness. More recent research employ a process-oriented approach to examine the effects of IS and business alignment (Tallon and Pinsonneault 2011).

From a process perspective, aligning IS and business has traditionally been viewed in terms of the strategic information system planning (SISP) process. SISP involves the development of the IS/IT strategy that balances the capabilities of information and IS with the business objectives (Grant et al. 2009, Masa’deh et al., 2015c). This is a strategic level process, mainly as consequence of the need to integrate the strategic plans with IS and business strategies. However, in order to convert strategy into daily business, the integration between IS structures and business needs arises at the operational level. Thus, there is a dynamic process of interaction between strategic and operational levels that literature has failed to examine. There has been a few attempts to uncover the processes and practices across the strategic and operational domains. For instance, Teubner’s (2007) study on SISP describes some of those practices albeit in a case study description format. However, consumable research that examines, at a micro-level, the alignment process of IS and business and the managerial practices that are necessary to enable such an alignment is very limited.

## 2.2 The Maturity Factors of IS/Business Alignment as Management Practices

One line of research examines IS/Business alignment from a capability maturity perspective. This perspective identifies IS/Business alignment not as a static concept but as an evolving concept of interrelated components. According to Luftman (2000), organizational alignment maturity can be examined according to six factors: communication, competency, governance, partnership, technology scope, and skills (see table 1). The model has been evaluated several times and was found to be sound. Indeed, in an empirical study of business and IT executives from 197 companies, Luftman and Kempaiah (2007) evaluated the soundness of the SAM model in measuring IS/Business and its relationship with other relevant factors. They found the model to hold well and a good predictor of firm performance. The model was also recently evaluated in a study and Belfo and Sousa (2013). The authors found the SAMM as well balanced and one of the most promising instrument in the IS/business alignment research in terms of validity.

The model identifies the management practices, or enablers, that organizations must nurture in order to mature vis-à-vis IS/business alignment. The management practices are organized under five process levels based on the extent an organization implement them. The five levels are: Initial/ad hoc, committed process, established focused process, improved/managed process, and optimized process. As an example, to be mature in aligning IS and business, an organization must mature its communication practices (from ad hoc to optimized) by improving knowledge sharing and inter- and intra-organizational learning among other enablers. These enablers are conceived managerial practices that can be implemented in practice to align business with IS. Indeed, Chen (2010) used the SAMM repository of best practices to survey 22 companies in china to evaluate their alignment maturity.

Factors	Attributes
<i>Communication</i> : this factor measures the value of exchanging ideas, information, and knowledge between the business and IT organizations allowing them to clearly comprehend the strategies, plans, risks, environments (both Business and IT) and priorities of the organization and the way to achieve them.	<ul style="list-style-type: none"> <li>• Understanding of business by IT</li> <li>• Understanding of IT by business</li> <li>• Inter/Intra-organizational learning</li> <li>• Rigidity of protocols</li> <li>• Sharing of Knowledge</li> <li>• Liaison(s) effectiveness</li> </ul>
<i>Value</i> : uses balanced measurements to demonstrate the contributions of information technology to the business in languages that the IT as well as the business units comprehend and accept.	<ul style="list-style-type: none"> <li>• Business metrics</li> <li>• IT metrics</li> <li>• Balanced metrics</li> <li>• Formal assessment reviews</li> <li>• Benchmarking</li> <li>• Service level agreements</li> <li>• Continuous improvement</li> </ul>
<i>Governance</i> : outlines the authority that makes IT related decisions and the IT and business processes that management uses at the operational, tactical, as well as	<ul style="list-style-type: none"> <li>• Business strategic planning</li> <li>• Organization structure</li> <li>• IT strategic planning</li> <li>• IT investment management</li> </ul>

Factors	Attributes
strategic levels so as to establish IT priorities and allocate the associated resources.	<ul style="list-style-type: none"> <li>• Steering committee(s)</li> <li>• Prioritization process</li> </ul>
<i>Partnership</i> : determines the relationship between the IT organization and the business organization which includes the role that IT plays in delineating the strategies of the business, the level of trust between the IT and business, and the way the organizations view each other's contribution.	<ul style="list-style-type: none"> <li>• IT program management</li> <li>• The perception of business of the value of IT</li> <li>• The style of relationship and trust</li> <li>• The role that IT plays in planning business strategies</li> <li>• The joint risks, goals, rewards, and penalties</li> <li>• Business sponsor/champion</li> </ul>
<i>Scope and architecture</i> : measures IT's provision of an infrastructure that is flexible, IT's ability to evaluate and apply emerging technologies that enables or drives changes in business processes as well as deliver valuable solutions customized meet the needs of business units internally and customer or partners externally.	<ul style="list-style-type: none"> <li>• Traditional, enables/drivers, external</li> <li>• Flexibility</li> <li>• Articulation of standards</li> <li>• Integration of architectures</li> <li>• Transparency of architectures</li> <li>• The management of emerging technology</li> </ul>
<i>Skills</i> : evaluates the practices of human resources like hiring, training, retention, feedback, performance, the encouragement of innovations and career opportunities, and the development of employee skills. This factor also assesses the change readiness of the organization, its ability to learn and to leverage new ideas.	<ul style="list-style-type: none"> <li>• Entrepreneurship and innovation</li> <li>• Style of management</li> <li>• Cultural locus of power</li> <li>• Crossover of careers</li> <li>• Hiring and retaining</li> <li>• Readiness to change</li> <li>• Political, social, trusting environment</li> </ul>

Table 1. Factors and their associated attributes that affect the maturity of IS/business alignment (Luftman 2000)

### 2.3 IS/Business Alignment Strategy

An equally important line of research on IS and business alignment falls within the boundaries of strategic IS and business planning. The relevant literature contends that IS/business alignment occurs by integrating the business and IT plans (Teo and King, 1997a). However and perhaps more importantly, the authors suggest (Teo and King, 1997a) and evaluate (Teo and King, 1997b) a staged evolutionary process of integration of IS and business strategies. This approach demonstrates an evolutionary IS-business topology based on which organizations can easily recognize their type of integration performed. Accordingly, at any point an organization exhibits one of the four following forms of alignment:

This integration process of IS and business plans is of four types:

1. Independent: where alignment occurs as a result of separate formulation of IS strategy and business strategy in which the formation processes of the two strategies are unrelated.
2. Sequential: where the IS strategy formulation follows and supports the formulation of the business strategy. This process is considered a one-way linked planning with sequential integration.
3. Synchronous: where the IS strategy formulation and business strategy formulation are done simultaneously. This process is considered a two-way linked planning with synchronous integration.
4. Full-integration: where the IS strategy formulation and business strategy formulation are done simultaneously and within the same process.

Teo and King (1997a, 1997b) found support for an evolutionary pattern of growth from no planning to full-integration although the latter was found to be extremely difficult to attain. Nevertheless to date,

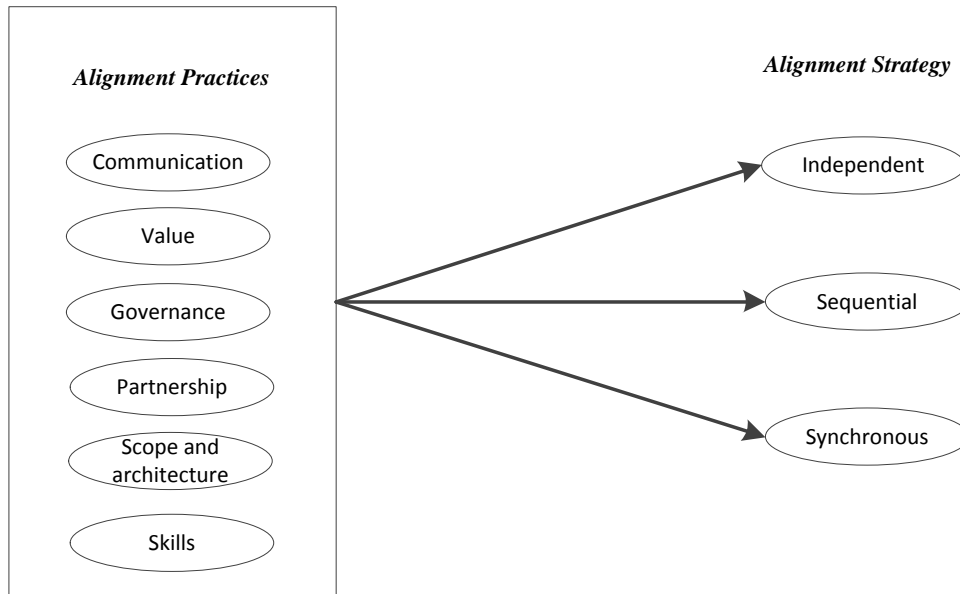
little has been uncovered pertaining to the factors that influence the choice of the alignment process and how organizations go through those different stages of growth.

### 3 MODEL

As stated earlier, our objective in this research is to examine the impact of IS/business alignment practices on the alignment strategy that unfolds (see figure 1). Accordingly, we chose the strategic alignment maturity model (SAMM) proposed by Luftman (2000) since it includes a comprehensive list of alignment practices. The justification to choose this model is as follows. First, current assessments of the alignment between IS and business either remained at the theoretical conceptualization level or were tailored to particular studies that are difficult to generalize across organizations (Gutierrez et al. 2008). On the contrary, Luftman's SAMM model is practical. It can be used to analyse the maturity of IS/business alignment in organizations using management practices that fall under six factors [*governance, scope and architecture, partnership, communication, value, and skills*] (see table 1). The Luftman's SAMM is an established model (Peppard et al. 2014) and has been validated in earlier research (e.g., Belfo and Sousa 2003; Chen 2010; Gutierrez et al. 2009; Khaiata and Zualkernan 2009; Sledgianowski et al. 2006). Prior studies validated the instrument by analysing the significance of its factors against organization size and indicate that the six factors are significant for either large, medium or small organizations (see Gutierrez et al. 2009). Secondly, the SAMM model has been enriched from previous research and is still generating research interests. While the SAMM model was originally based on the strategic alignment model (SAM) of Henderson and Venkatraman (1993), it covers other factors like value creation.

Luftman argues that more mature organizations have a higher tendency to implement such practices. In this paper, we agree with Luftman (2000) that those practices can be a measure of the organization's IT/business alignment maturity. For instance, we expect that organizations that do not specify a partnership between the IT and the business teams plan an alignment strategy in which IT and business strategies are developed independently (Independent Alignment Process). Likewise, organizations that insure flexible infrastructure or lead emerging technologies follow an alignment strategy where the IS strategy formulation and business strategy formulation are done simultaneously. We concur with the views of Galliers (2011) and Bharadwaj et al. (2013) that IS/business strategy alignment is something that organizations incessantly do rather than have. A static view of alignment maturity ignores the coevolutionary principle of alignment. Accordingly, we use the IT and business related practices that had been identified in Luftman (2000) as a group of factors that, when implemented by organizations, allow for the co-evolution of alignment between IT and business strategies to occur. In this regard, we see those practices not as a measure of alignment but as six sets of IT practices, business practices and IT/business practices that address different relevant organizational domains in communication, competency, governance, partnership, technology scope, and skills and that can be implemented to realize a specific choice of alignment strategy.

Pertaining to the alignment process, we chose the integration processes of IS and business plans described in Teo and King (1997a; 1997b) to represent the IS/business alignment strategies. Accordingly three forms of alignment – independent, sequential, and synchronous – were considered as the independent variable in our model below. One reason for our choice of Teo and King's integration processes is that it's been previously validated and established in IS research (Teo and King 1997b). Since Teo and King (1997a) stress on the fact that a pattern where full-integration planning is rarely achieved, the fourth integration strategy was therefore discarded. Our choice was also based on the premise that the co-evolution of IS/business alignment described in Bharadwaj et al. (2013) goes through a continuous implementation of practices intend to alignment IS and business strategies. The conceptualization of the integration process of IS and business plans in Teo and King (1997a, 1997b) conform to this co-evolutive view. For instance, it is expected that organizations that implement IS/business partnership related practices seek a synchronous integration process –IS strategy formulation and business strategy formulation are done simultaneously. This alignment strategy is a moving target that requires continuous adjustments in the practices that organizations implement.



N.b.: relationships depicted in dashed arrows were not evaluated

Figure 1. The IS/Business Alignment Model

## 4 METHODOLOGY

The most suitable tool to collect the necessary data was found to be a survey (Saunders et al. 2003). We chose an online survey technique as we can easily collecting response from a large audience from various geographies. We targeted top and middle manager. Specifically, the perceptions and attitudes of CEO towards IT since they are strongly related to the extent of IT use (Tallon 2000). Moreover, the perceptions of top management have been found to be crucial in recognizing how IT influences the overall performance of organizations.

### 4.1 Survey Design

We conducted a pilot test before launching the final survey. To this end, we invited managers at strategic and tactical positions to complete the survey and collected 22 responses. Their responses allowed us to identify some ambiguities and complexities in our questionnaire and helped us improve it. As a result of this preparation phase, the questionnaire was simplified to 35 questions (available upon request). The omitted questions were considered unnecessary or redundant due to their content relating to other factor models which corroborated the selection of Luftman's maturity model. The final survey was structured in two sections: (1) background and demographics and (2) factor prioritization. The first section collects the background of the participants' organization. Five questions were asked including the size, location, business sector, type of business unit, and the type of alignment strategy (i.e., level of planning integration). This demographic information allows us to perform inter-group analysis (El-Masri and Addas 2014, El-Masri and Tarhini, 2015; Tarhini et al., 2015a,b). In the second section, factor prioritization, the six maturity factors and their attributes were included so respondents rank the relevance of management practices according to their organizations. A five-point Likert scale (from least to most relevant) was used. The questionnaire consisted of 35 questions in total in order to increase response rate (Kitchenham and Pfleeger, 2003).

## 4.2 Data Collection

We sent the online survey to a number of international organizations and associations such as the London Chapter of IS Audit and Control Association (ISACA) and the Latin American and the Caribbean Chapter of the AIS (LACAIS). These associations are affiliated with IT and business professionals who hold positions at the tactical and strategic levels. A total of 161 responses were collected between January and March 2012 of which we retained and analysed 103 surveys that were completed.

Region	Respondents	Respondents (%)
Europe	35	33.98%
North and South America	20	19.42%
Oceania/Asia	3	2.91%
Africa	45	43.69%
Total	103	100%

Table 2. *Sample of respondents*

A number of tests were conducted. First, a reliability test to determine the confidence level among the six maturity factors was conducted. On the other hand, ANOVA was used as the inferential statistical test to analyse the relationships between alignment factors and alignment strategy. A level of significance  $\alpha = 0.05$  was defined and post-hoc Dunnett test analysis was specified for multiple comparisons. Moreover, two tests: (1) the assumption of homogeneity of variance test and (2) the means plots to chart the means of the conditions were included. Lastly, A one way between subjects analysis of variance was conducted.

## 5 RESULTS

The reliability test shows high confidence level among the alignment factors as the Cronbach's alphas were higher than 0.8 for all six factors (see table 3.). Accordingly, internal consistency is reached as per the Field's (2009) recommendations.

Alignment Factors	Cronbach's Alpha
Communication	0.845
Value Measurement	0.923
Governance	0.881
Partnership	0.875
Scope & Architecture	0.872
Skill	0.845

Table 3. *Reliability test of the Alignment Factors of the SAM Model*

A significance analysis is conducted between these factors and the alignment strategy [*independent, sequential and synchronous*] adopted by the 103 respondents. The distribution of all respondents regarding their alignment strategy is displayed in table 4. Likewise, the distribution of all respondents' alignment factors and management practices is shown in figure 3.



Alignment Strategy	Respondents	Respondents (%)
Independent	25	24.27%
Sequential	45	43.69%
Synchronous	33	32.04%
TOTAL	103	100%

Table 4. The distribution of respondents according to the adopted planning integration strategies

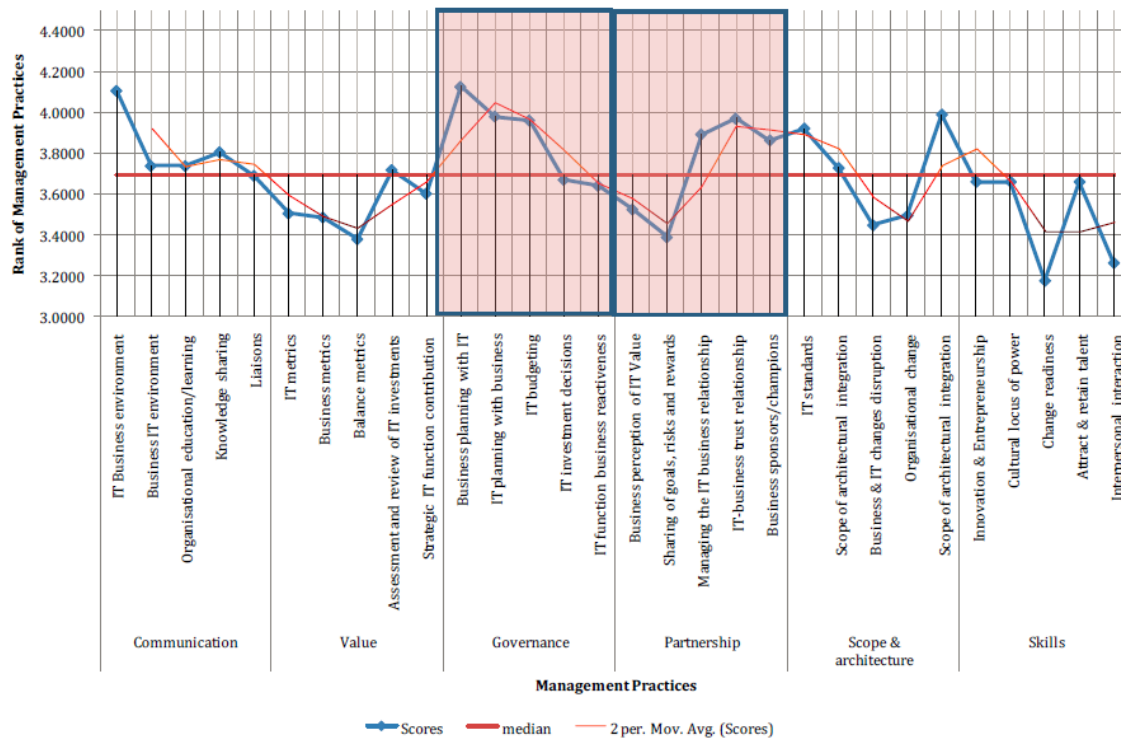


Figure 2. The Distribution of all respondents' alignment factors and management practices

Figure 2 above depicts the distribution of all respondents' alignment factors and management practices. The ANOVA result shows that governance and partnership are factors that considerably influence the process of IS/business alignment regardless of the chosen alignment strategy ( $p < 0.05$ , and  $p$  values are close to zero) (see table 5). The chi-square tests also indicate that governance and partnership are factors that considerably influence the choice of alignment strategy ( $p = 0.009$  and  $p = 0.04$ ). A one way between subjects variance analysis shows the reliability of effects of five out of six factors (governance, partnership, communication, value measurement, and skills) on IS/business planning integration. Results also suggest that governance and, to a lesser extent, partnership are factors that significantly influence the IS/business alignment process regardless of the alignment strategy. These results are consistent with the study of Belfo and Sousa (2013) who also found that governance was the dominant factor in the SAM model. Thus, the management practices involved in each factor are being evaluated against the alignment strategy identified by each respondent.

Alignment Factors	F	Sig (p value)
Governance	8.106	0.001
Partnership	5.601	0.005
Communication	5.321	0.006
Value	4.565	0.013
Skill	3.792	0.026
Scope and Architecture	2.678	0.074

Table 5. Significance of the Alignment factors

In figure 3, both partnership and governance factors depict an evolutive relevance according to higher perceptions of IS/business alignment maturity ( $p$  values close to zero;  $p = 0.001$  and  $p = 0.005$ ). The increasing implementation of governance and partnership practices among the alignment strategy reveals not only their relevance and impact on different organizations but also a positive interrelation against the described evolutionary planning pattern. To this end, this provides evidence that the partnership and governance factors have a significant impact on the IS/business alignment process notwithstanding the integration type adopted by the organization.

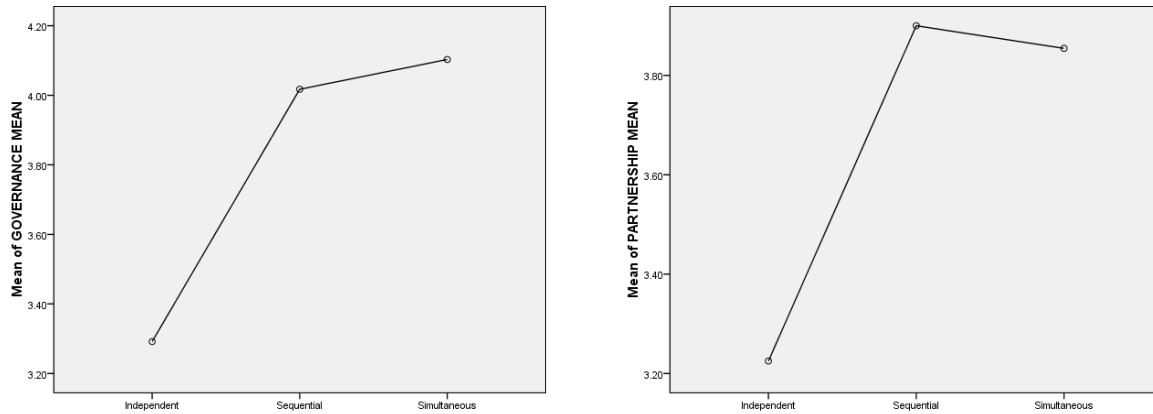


Figure 3. Alignment Strategy growth vs. Governance and Partnership Alignment factors

## 6 DISCUSSION

The recent information systems literature indicates that the IS/business alignment is a journey to an end state and not an end state by itself (Dulipovici and Robey 2013). With respect to the extant knowledge on IS/business alignment, the fragmented literature primarily treats the concepts from a macro level and does not delve into the particularities of the alignment evolution process and the practices that are necessary to enable it (Peppard et al. 2014).

There is a number of ways we can use to interpret the findings. First, we found that the governance, partnership, scope and architecture, communication, value and skills alignment factors are effective and valid components of the maturity of an organization in applying practices that drive the alignment process. Organizations that do not implement the associated alignment practices (that is the management practices under the SAMM framework listed in table 1) perceive the alignment process as independent – a strategy in which IS strategy and business strategy are unrelated. On the other hand, when organizations implement these alignment practices, they display the more purposeful sequential and synchronous alignment strategies.

Second, the results underscore the dominance of two factors, IT governance and partnership, in discriminating against the type of alignment strategies that organizations choose. While other factors are important, partnership and IT governance are the factors that express the (1) common and shared understanding of IT and business across the two domains (through partnership) as well as the (2) structure and processes necessary to implement alignment (through governance). When teams from both IT and business domains share their own goals and risks with each other, explain their value to each other, and create a trust-based relationship, they will be more likely to evolve towards a resolute alignment strategy. Shared IS-Business planning and aligned organizational structures are definite antecedents as well.

Third, and perhaps unexpected, our results show that organizations with high partnership maturity (partnership practices are greatly implemented) are more associated with the implementation of a sequential alignment strategy (IS strategy formulation follows and supports business strategy formulation) than it is with synchronous alignment strategy (where IS strategy formulation and

business strategy formulation are done simultaneously). These results challenge the existing and accepted notion that as organizations mature, they go through the stages of growth (no planning, independent, sequential, synchronous, and complete) in sequence. As figure 2 shows, organizations that are most mature in partnership exhibit sequential and not synchronous alignment strategies. We attribute such phenomenon to the fact that partnership, as a concept, evolved in recent years. It is no longer the case that IT must be aligned with business or vice versa. According to Bharadwaj et al. (2013), business has become digitized in recent years with the intersection among products, processes, and services increasing. Accordingly, one must consider IT as a subordinate of business – “a fusion between IT strategy and business strategy” (Bharadwaj et al. 2013). In this respect, partnership can no longer be perceived as a relationship between two domains but as one team working together on both the business and IT components of the organization. This merits a rethinking of IS/business partnership in the new digital age.

After the survey, the researchers contacted managers and senior manager from IS and non-IS backgrounds. The objective of gathering these professionals was to identify specific management practices out of the attributes included in the governance and partnership factors. The value from combining quantitative and qualitative methods to develop deeper insights has been often highlighted in literature (El-Masri and Rivard 2012) – more recently in Venkatesh et al. (2013). Mixed methods approaches have been used for different purposes such as to confirm (e.g. Bhattacharjee and Premkumar 2004) or to expand/complete findings (e.g. Piccoli and Ives 2003). Our objective here is to develop richer insights on IS/business alignment by expanding our findings. Accordingly, two group discussions of three persons were carried out. Attendants were asked to list three specific actions out of practices from *organization structure, IT investment management, IT strategic planning, business strategic planning, prioritization process [governance attributes] and steering committee(s)*. Additionally, attendants were asked to list three specific actions out of practices from *the role of IT in strategic business planning, business perception of IT value, shared goals, risks, rewards and penalties, relationship/trust style, IT program management, and Business sponsor/champion [partnership]*. Before consensus, they were asked to give the reasons of their proposals. Finally, they listed all proposals and ranked them. As a result, the formalization of a program management process, the improvement of support for hierarchies of authority, and the integration of collaboration values were identified as specific management actions that were the specific actions agreed to align the IS and business the processes.

## 7 CONCLUSIONS

Our study is an attempt to examine at the micro level those enablers of IS/Business alignment. As indicated by Chan and Reich (2007), research on IS/business alignment should explore the relationship between the alignment antecedents and the alignment process.

Previous research has evidenced the need of pragmatic research in IS/business alignment, mainly throughout the identification and articulation of management practices. Weill and Ross (2004) found a positive relationship between effective practices of IS structures and the level of alignment of IS and business. Tallon (2003) suggested the investigation of the impact of such management practices on the degree of alignment of IS and business and the flexibility of organizations. Yetton and Johnson (2001) also recommended the examination of forms of management structures and processes that are necessary in aligning business with IT. However, the notions of IS structures with organizational infrastructure components as function IS/business alignment have been rarely researched (Benbya and McKelvey 2006).

Even though this research stage has several limitations due to the survey and focus groups samples, it creates foundations for further research. This initial research contributes to IS/business alignment by looking at significant management practices for both strategic and operational levels. The links between strategic and operational IS/business alignment would be noticeable but considerably difficult to put in practice. The results from the survey show interesting findings for either practitioners or academics. Specifically, this initial stage aims to evince pragmatic and significant

management practices towards the process of IS/business alignment, thus contribute with structural and measurable organizational practices. The analysis of the relationship between alignment practices and alignment strategies bridge the gap between operational and strategic levels of IS/business alignment. Results show that both governance and partnership factors significantly impact the process of IS/business alignment but they include different organizational components; structural and social components respectively.

Although, governance can be referred to the formal dimension of alignment and partnership to the social dimension, both can be implemented as management actions throughout measurable and structural organizational components. In the context of the strategic maturity model proposed by Luftman, these two factors can be aggregated in specific actions. For instance, the three principal practices identified during the interviews with senior managers (program management process formalization, support of authority hierarchy improvement, collaboration value integration) were identified as aggregated actions out of partnership and governance management practices. From a pragmatic point of view, the formalization of these specific management actions can be justified and later implemented as a management baseline to support the IS/business alignment process. It also highlights the need for the research community to rethink the IS/business partnership concept in the new age of digital business and fusion between business and IS.

## References

- Abbasi, M.S., Tarhini, A., Hassouna, M. and Shah, F. (2015). Social, Organizational, Demography and Individuals' Technology Acceptance Behaviour: A Conceptual Model. *European Scientific Journal*, 11 (9), 39-68.
- Abu-Shanab, E., Abu-Shehab, R., & Khairallah, M. (2015). Critical success factors for ERP implementation: The case of Jordan. *The International Arab Journal of e-Technology*, 4(1), 1-7.
- Alenezi, H., Tarhini, A. and Masa'deh, R. (2015). Investigating the Strategic Relationship between Information Quality and E-Government Benefits: A Literature Review. *International Review of Social Sciences and Humanities*, 9 (1), 33-50.
- Benbya, H., and B. McKelvey. (2006). Using Coevolutionary and Complexity Theories to Improve IS Alignment: A Multi-Level Approach, *J Inf Technol*, 21(4), 284-298.
- Bharadwaj, A., El Sawy, O., Pavlou, P., Venkatraman, N. Digital business strategy: toward a next generation of insights. *MIS Quarterly* (37:2), 2013, 471-482.
- Bhattacharjee, A., and Premkumar, G. 2004. "Understanding Changes in Belief and attitude Toward Information Technology Usage: A Theoretical Model and Longitudinal Test," *MIS Quarterly* (28:2), pp. 229-254.
- Belfo, Fernando and Rui Dinis Sousa. "Reviewing Business-IT Alignment Instruments Under SAM Dimensions." *IJICTHD* 5.3 (2013): 18-40. Web. 18 Mar. 2015 doi:10.4018/jicthd.2013070102
- Campbell, B., R. Kay, and D. Avison. "Strategic Alignment: A Practitioner's Perspective," *Journal of Enterprise Information Management* (18:5/6), 2005, pp. 653-664.
- Chan, Y. E. "Why Haven't we Mastered Alignment?: The Importance of the Informal Organization Structure," *MIS Quarterly Executive* (1:2), 2002, pp. 97-112.
- Chan, Y. E., R. Sabherwal, and J. B. Thatcher. "Antecedents and Outcomes of Strategic IS Alignment: An Empirical Investigation," *IEEE Transactions on Engineering Management* (51), 2006, pp. 27-47.
- Chan, Y. E., and B. H. Reich. "IT Alignment: What have we Learned?" *Journal of Information Technology* (22:4), 09/18/online, 2007, pp. 297-315.
- Chen, L. 2010. "Business-It Alignment Maturity of Companies in China," *Information & management* (47:1), pp. 9-16.
- Ciborra, C. U. "De Profundis? Deconstructing the Concept of Strategic Alignment," *Scandinavian Journal of Information Systems* (9:1), 1997, pp. 57-82.
- Dulipovici, A., and Robey, D. 2013. "Strategic Alignment and Misalignment of Knowledge Management Systems: A Social Representation Perspective," *Journal of Management Information Systems* (29:4), pp. 103-126.
- El-Masri, M., and Rivard, S. 2012. "Towards a Design Theory for Software Project Risk Management Systems," in *the Proceedings of the Thirty Third International Conference on Information Systems*. Orlando, United States.
- El-Masri, M., and Rivard, S. 2010. "Specifying the Software Project Risk Construct," in *Proceedings of the Sixteenth Americas Conference on Information Systems*: Lima, Peru.
- El-Masri, Mazen, and Shamel Addas. 2014. "Determinants of IT Job Occupations: Integrating Career Anchor Theory and Social Cognitive Career Theory." in *Proceedings of the twentieth Americas Conference on Information Systems*. Savanna, United States.
- El-Masri, M., and Tarhini, A. (2015). A Design Science Approach to Gamify Education: From Games to Platforms. *Twenty-Third European Conference on Information Systems (ECIS)*, Münster, Germany. 26-29 May 2015.
- Enns, Harvey G., and Joseph J. McDonagh. "Irish CIOs' Influence on Technology Innovation and IT-Business Alignment." *Communications of the Association for Information Systems* 30.1 (2012): 1-10.
- Field, A. 2009. *Discovering Statistics Using Spss*. SAGE Publications, Limited.
- Galliers, R.D., 2011. Further developments in information systems strategising: unpacking the concept. In: Galliers, R.D., Currie, W.L. (Eds.), *The Oxford Handbook of Management Information Systems: Critical Perspectives and New Directions*. Oxford University Press, Oxford, pp. 329-345.

- Gerow, J. E., Thatcher, J. B., and Grover, V. 2014. "Six Types of It-Business Strategic Alignment: An Investigation of the Constructs and Their Measurement," *European Journal of Information Systems*).
- Grant, K., R. Hackney, and D. Edgar. *Strategic Information Systems Management*, Cengage Learning, Andover, 2009.
- Gutierrez A., Orozco-Vargas J., Papazafeiropoulou A., Serrano-Rico A.E. "Developing a Taxonomy for the Understanding of Business and IT Alignment Paradigms and Tools". In *16th European Conference on Information Systems*, Golden W, Acton T, Conboy K, van der Heijden H, Tuunainen VK (Eds.), Galway, Ireland, pp. 2472-2483, 2008, Galway, Ireland.
- Gutierrez, A., Orozco, J., Serrano, A. and Serrano A. "Using tactical and operational factors to assess Strategic Alignment: an SME study", *European and Mediterranean Conference on Information Systems*, 2005, Alicante, Spain.
- Gutierrez, A., J. Orozco, and A. Serrano. "Factors Affecting IT and Business Alignment: A Comparative Study in SMEs and Large Organisations," *Journal of Enterprise Information Management* (22:1/2), 2009, pp. 197-211.
- Henderson, J. C., and N. Venkatraman. "Strategic Alignment: Leveraging Information Technology for Transforming Organizations," *IBM Systems Journal* (3), 1993, pp. 4-16.
- Karpovsky, A., Hallanoro, M., Galliers, R.D., "The process of information systems strategizing: review and synthesis". In: Cohen, R., Topi, H., Tucker, A. (Eds.), *The CRC Handbook of Computing: Information Systems and Information Technology*, third ed., vol. II. 2014. Chapman & Hall, London.
- Kearns, G. S., and A. L. Lederer. "The Effect of Strategic Alignment on the use of IS-Based Resources for Competitive Advantage," *Journal of Strategic Information Systems* (9:4), 2000, pp. 265-293.
- Kitchenham, B., and S. L. Pfleeger (2003) "Principles of Survey Research Part 6: Data Analysis," *SIGSOFT Softw.Eng.Notes* (28:2).
- Khaiata, M., and Zualkernan, I. A. 2009. "A Simple Instrument to Measure It-Business Alignment Maturity," *Information Systems Management* (26:2), p. 138.
- Luftman, J., & Kempaiah, R. (2007). An Update on Business-IT Alignment: "A Line" Has Been Drawn. *MIS Quarterly Executive*, 6(3), 165-177.
- Luftman, J., and Ben-Zvi, T. 2010. "Key Issues for It Executives 2010: Judicious It Investments Continue Post-Recession," *MIS Quarterly Executive* (9:4), pp. 263-273.
- Luftman, J. "Assessing Business-IT Alignment Maturity", *Communications of the Association for Information Systems*, (4:14), 2000.
- Luftman, Jerry, and B. Derksen. "European key IT and management issues & trends for 2014." *CIONET Europe and Business & IT Trend Institute* (2014).
- Masa'deh, R., Obeidat, B.Y., Al-Dmour, R.H. & Tarhini, A. (2015a). Knowledge Management Strategies as Intermediary Variables between IT-Business Strategic Alignment and Firm Performance. *European Scientific Journal*, 11 (7), 344-368.
- Masa'deh, R., Tarhini, A., Al-Dmour, R. H. & Obeidat, B. Y. (2015b). Strategic IT-Business Alignment as Managers' Explorative and Exploitative Strategies. *European Scientific Journal*, 11(7), 450-470.
- Masa'deh, R., Tayeh, M., Al-Jarrah, I. M., & Tarhini, A. (2015c). Accounting vs. Market-based Measures of Firm Performance Related to Information Technology Investments. *International Review of Social Sciences and Humanities*, 9(1), 129-145.
- Melville, N., K. Kraemer, and V. Gurbaxani. "Information Technology and Organizational Performance: An Integrative Model of it Business Value," *MIS Quarterly* (28:2), 06, 2004, pp. 283-322.
- Mocker M. and Teubner A. "Information strategy – research and reality", In *Proceedings of the Fourteenth European Conference on Information Systems*, Ljungberg J, Andersson M (Eds.), Goteborg, 2006, 275-285, Goteborg.
- Orozco, J., Tarhini, A., Masa'deh, R. and Tarhini, T. (2015). A framework of IS/business alignment management practices to improve the design of IT Governance architectures. *International Journal of Business and Management*, 10(4), 1-12.

- Peak, D., C. S. Guynes, and V. Kroon. "Information Technology Alignment Planning—a Case Study," *Information and Management* (42:5), 7, 2005, pp. 635-649.
- Peppard, Joe, Robert D. Galliers, and Alan Thorogood. "Information systems strategy as practice: Micro strategy and strategizing for IS." *Journal of Strategic Information Systems* (23:1), 2014, pp. 1-10.
- Pereira, Ruben, Miguel Mira da Silva, and Luís Velez Lapão. "Business/IT Alignment through IT Governance Patterns in Portuguese Healthcare." *International Journal of IT/Business Alignment and Governance (IJITBAG)* 5.1 (2014): 1-15.
- Piccoli, G., and Ives, B. 2003. "Trust and the Unintended Effects of Behavior Control in Virtual Teams," *MIS Quarterly* (27:3), pp. 365-395.
- Reich, B. H., and I. Benbasat. "Factors that Influence the Social Dimension of Alignment between Business and Information Technology Objectives," *MIS Quarterly* (24), 2000, pp. 81-113.
- Reich, B. H., & Benbasat, I. (1996). Measuring the linkage between business and information technology objectives. *MIS quarterly*, 55-81.
- Rivard, S., Raymond, L., Verreault, D., Resource-based view and competitive strategy: an integrated model of the contribution of information technology to firm performance. *Journal of Strategic Information Systems* 15 (1), 29–50.
- Saunders, M. N. K., P. Lewis, and A. Thornhill. *Research Methods for Business Students*, Financial Times Prentice Hall, Harlow, 2003.
- Sledgianowski, D., Luftman J.N., and Reilly, R.R."Development and Validation of an Instrument to Measure Maturity of IT Business Strategic Alignment Mechanisms", *Information Resources Management Journal*, (19:3), 2006, pp. 18-31.
- Tallon, P. P. (2003). The alignment paradox. *CIO insight*, 1(47), 75-76. Tallon, Paul P. A process-oriented assessment of the alignment of information systems and business strategy: Implications for IT business value. Dissertation. University of California, Irvine, 2000.
- Tallon, P. P., and Pinsonneault, A. 2011. "Competing Perspectives on the Link between Strategic Information Technology Alignment and Organizational Agility: Insights from a Mediation Model," *Mis Quarterly* (35:2), pp. 463-486.
- Tarhini, A., Ammar, H., Tarhini, T. and Masa'deh, R. (2015a). Analysis of the Critical Success Factors for Enterprise Resource Planning Implementation from Stakeholders' Perspective: A Systematic Review. *International Business Research*, (8:4), 25-40.
- Tarhini, A., Teo, T. and Tarhini, T. (2015b). A cross-cultural validity of the E-learning Acceptance Measure (ElAM) in Lebanon and England: A confirmatory factor analysis. *Education and Information Technologies*. doi: 10.1007/s10639-015-9381-9
- Teo, T. S. H., and W. R. King. (1997a) "Integration between Business Planning and Information Systems Planning: An Evolutionary-Contingency Perspective," *Journal of Management Information Systems* (14:1), pp. 185-214.
- Teo, T. S. H., and W. R. King. (1997b) An assessment of perceptual differences between informants in information systems research. *Omega*. v25 i5. 557-566.
- Teo, T. S. H., and W. R. King. "Assessing the Impact of Integrating Business Planning and IS Planning," *Information and Management* (30:6), 9, 1996, pp. 309-321.
- Teubner, R.A.,. Strategic information systems planning: a case study from the financial services industry. *Journal of Strategic Information Systems* (16:1), 2007, pp. 105–125.
- Venkatesh, Viswanath, Susan A. Brown, and Hillol Bala. "Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems." *MIS quarterly* 37.1 (2013): 21-54.
- Weill, P., and J. W. Ross. *IT Governance: How Top Performers Manage IT Decision Rights for Superior Results*, Harvard Business School Press, Boston, MA, 2004.
- Yayla, Ali Alper, and Qing Hu. "The impact of IT-business strategic alignment on firm performance in a developing country setting: exploring moderating roles of environmental uncertainty and strategic orientation." *European Journal of Information Systems* 21.4 (2012): 373-387.
- Yetton, P. W., and K. D. Johnston. "Competing Forms of Fit in a Professional Bureaucracy: IT Management Dilemmas," *International Journal of Healthcare Management and Technology* (3:2/3/4), 2001, pp. 142-159.