

CRITICAL SUCCESS FACTORS FOR BUSINESS – IT ALIGNMENT: A REVIEW OF CURRENT RESEARCH

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Abstract

Business-IT alignment still remains one of the three main research streams in IS literature, and from 1994 it constantly ranks among the top three concerns of CIOs. While a lot of research has been published around business-IT alignment in the last three decades, a number of models have been proposed to structure the concept into various dimensions and levels. However, only a few studies have been made regarding the critical success factors. Moreover, we were unable to find any systematically consolidated evidence in this regard. This is a major gap because research is collaborative venture and each researcher build on what have been found and understood before. After searching some of the most comprehensive science databases such as ScienceDirect, JStore, ACM Digital Library, SpringerLink we could identify only six articles on the matter. Using the model proposed by Schlosser et al. (Schlosser, et al., 2012) to structure the alignment concept, our results show that most of the identified CFSs are related to individual skills and knowledge of IT and business executives.

Keywords: critical success factor, business-IT alignment, literature review, human dimension, social dimension, intellectual dimension.

JEL Classification: M10, M15, M16

1. Introduction

Business-IT alignment has drawn researchers' attention since the mid '70 (McLean & Soden, 1976). At an early stage, this often meant existence of a linkage between the business plan and the IT plan (Keen & Scott Morton, 1978). Nowadays, business-IT alignment generally refers to applying IT in a proper and timely fashion, harmonized with business needs, goals and strategies (Luftman, et al., 1999). After all these years, it still remains as one of the three main research streams in IS literature (Tanriverdi, et al., 2010) and from 1994 it constantly ranks among the top three concerns of CIOs (Luftman & Kempaiah, 2007; Luftman & Ben-Zvi, 2011). This continuously and increasingly interest in business-IT alignment derives from the fact that it is considered as the basic principle to realize business value from IT

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(Henderson & Venkatraman, 1993; Kearns & Lederer, 2000). Among the most important are; increased IS usage, IS effectiveness and efficiency, higher (business and IT) flexibility, and improved business performance (Chan & Reich, 2007). While a lot of research has been published around business-IT alignment (Walentowitz, 2012; Schlosser, et al., 2012), a number of models have been proposed to structure the concept into various dimensions and levels (Chan, et al., 2006; Luftman & Kempaiah, 2007; Chan & Reich, 2007). Schlosser et al (2012) in their work review the existing conceptualizations of the business-IT alignment construct and present a categorization by making a clear distinguish between the organizational level on the one hand, and the nature of alignment on the other hand. Their model presents three horizontal organizational layers - strategic, cross-domain, operational - and three vertical dimensions regarding the content of alignment: human, social, and intellectual.

Relevant studies, from both academics and practitioners, have pointed out various factors that affect business-IT alignment (Teo & Ang, 1999; Luftman, et al., 1999; Reich & Benbasat, 2000). These limited numbers of areas that management needs to pay special attention to enhance the chances for achieving and improving alignment are known as critical success factors (Rockart, 1979). Luftman, et al. (1999) pointed out that most of CFSs can serve both as enablers and inhibitors of business-IT alignment. Therefore, having a holistic picture on CFSs is an imperative and paramount for organizations aiming for better business-IT alignment. Due to their importance, CSFs are widely researched (Tan, et al., 2007) and applied in many organizations in different perspectives; from a single project to the whole organization strategic direction (Esteves de Sousa, 2004). However in the area of business-IT alignment, few CSFs studies have been undertaken. Despite the fact that some empirical evidence exist on critical success factors for business-IT alignment, still we were unable to find any systematically consolidated evidence in this regard. This is a major gap because research is collaborative venture and each researcher build on what have been found and understood before (Vom Brocke, et al., 2009).

In many research areas results are not considered valid until they have been repeated and independently verified (Landa, et al., 2011). A structured literature review that classifies the results and compiles evidence in a certain domain can be very valuable (Vom Brocke, et al., 2009; Webster & Watson, 2002). First, such a review represents “the state of the field”, and provides a point of reference for others conducting future research on the subject (Webster & Watson, 2002). Second, it adds to the knowledge base of the research subject supporting the progress, as it facilitates theory development, pinpoints heavily researched areas and identifies research gaps (Webster & Watson, 2002). Third, structured reviews usually have a major impact on applied disciplines as they help transferring scientific knowledge into practice more effectively (Fettke, et al., 2010; Goeken & Patas, 2010). And finally, the compilation of empirical evidence can support and inform the design process and its results within the design science paradigm (Fettke, et al., 2010; Hevner, et al., 2004).

These arguments support our research objective to structure and analyze the existing empirical evidence in CFS that need to be considered by top management in their endeavor to achieve and sustain business-IT alignment. We draw on the model presented by Schlosser et al (Schlosser, et al., 2012) to categorize our findings.

By doing so, we will show which CFS are mostly investigated to affect business-IT alignment and which needs to be reconfirmed. To identify the desired empirical evidence, we perform a structured literature review. To our knowledge this is the first attempt to structure the literature on this research subject.

The rest of this paper is structured as follows: the following section gives a brief overview on the key concepts of business-IT alignment and CFSs and their adoption on business-IT alignment. Subsequently we describe the literature selection process and discuss our findings. Finally we offer the concluding remarks and present, some limitations and future directions in the subject.

2. Background

2.1. Business-IT Alignment dimensions

Alignment focuses on the activities that management performs to achieve interconnected goals throughout the organization. Business-IT alignment as defined by Reich & Benbasat (1996) is “*the degree to which the IT mission, objectives, and plans support and are supported by the business mission, objectives, and plans*”. Business-IT alignment, which is an important goal of IT governance, is one of the three main research streams in IS literature (Tanriverdi, et al., 2010) and also constantly ranks among the top three concerns of CIOs (Luftman & Kempaiah, 2007; Luftman & Ben-Zvi, 2011). Kearns & Lederer (2000) argue that is important to make a distinction between Business-IT and IT-Business alignment. While the first signifies IT management’s understanding of business strategy (Reich & Benbasat, 1996) the later ensures that the business plan reflects the experience and knowledge of the organization utilizing IT based resources, and indicate better top management understanding and commitment (Bensaou & Earl, 1998).

As the research around business-IT alignment has become progressively more mature in the last three decades, slightly different concepts and conceptualizations have emerged (Walentowitz, 2012; Schlosser, et al., 2012). A number of models have been proposed to structure the concept of alignment into various dimensions and levels (Henderson & Venkatraman, 1993; Maes, 1999), including measures to assess alignment maturity (Luftman & Kempaiah, 2007) and examine different outcomes as well as interdependencies to other IT constructs (Chan, et al., 2006). The proposed models and, subsequently their extensions, lay out several dimensions like strategic, structural, intellectual, social, and cultural alignment. Schlosser et al. (2012) revisit the existing conceptualizations of the business-IT alignment construct and present a reconciled categorization by clearly drawing the line between the organizational levels and the nature of alignment. Based on the Strategic Alignment Model (SAM) (Henderson & Venkatraman, 1993), their construct recognizes three horizontal organization layers at which organizational levels alignment can and should be assessed: strategic, cross-domain and operational layer. Next, based on the work of Reich & Benbasat (2000) and Chan & Reich (2007) they enhance their model adding three vertical dimensions regarding the content of alignment: human, social, intellectual dimension.

In essence, the **intellectual dimension** is concerned with artifacts that are purposefully created and most often formally documented and materialized by the business and/or IT personnel. From an IT perspective, it includes the whole area of technology (hardware and software components), closely related to the technology assets (Ross, et al., 1996) and the technological IT resources (Melville, et al., 2004). In addition, the structural elements like committees, meetings, plans, roles and rights, documents, etc... are classified into this dimension as well (Schlosser, et al., 2012).

The core of **social dimension** is concerned about the socially organized human behavior that exists “beyond” a single actor thus encompassing relationships, mutual understanding, but also cultural issues and informal structure. It captures and encapsulates all aspects that affect the work relationship between business and IT. Therefore, soft factors like mutual trust and respect, informal communication, and culture comprise the primary elements in this dimension (Schlosser, et al., 2012).

Contrary to the social collectivism that social dimension refers to, the **human dimension** relate to the distinct attributes of individuals e.g., skills, knowledge, leadership, and behavior. From the alignment point of view it is important that IT employees are equipped with ‘proper’ skills and knowledge to resolve business problems. However, business employees are required to possess the appropriate proficiency in order to effectively use the information systems already deployed. Furthermore, some basic understanding about IT on the business side is valuable to facilitate effective communication and enable business employees to be aware of the opportunities that arise from current and future information systems (Schlosser, et al., 2012).

**Table no. 1: Business-IT alignment dimensions and content
as proposed by Schlosser et al. (2012)**

Human Dimension	Social Dimension	Intellectual Dimension
• Business skills and knowledge of IT executives/employees • IT skills and knowledge of business executives/employees • Leadership skills of business and IT executives • Managerial capabilities of business and IT executives • Commitment • Behavior and attitudes towards “other side”, respectively • Technical skills and knowledge of IT employees • Managerial skills of business and IT employees	• Shared understanding of business and IT executives/employees • Mutual trust and respect between business and IT executives/employees • Cultural fit between business and IT executives/employees • Work relationships between business and IT executives/employees • Informal structures between business and IT at executive/employee level • Common language	• Alignment of business and IT strategy/goals/plans/... • IT architecture alignment • IT standards and platforms alignment • Alignment of business and IT structures (rights and roles, reporting, committees, formal meetings, (de)centralization, ...) • SIS alignment • IT project portfolio alignment • Shared applications • IT infrastructure alignment • IT project alignment • Alignment of IS and processes • IT services alignment • Procedures/workflow alignment

2.2. CFS for business-IT alignment

Critical Success Factors emerged as a need to simplify (Simon, 1957) and reduce (Hodge & Reid, 1971) the criteria and variables that need to be considered and balanced (Belton & Stewart, 2001) for strategic decisions which typically are not simple, with clear objectives, boundaries and considerations but rather a complex “mess” (Ackoff, 1979). Daniel (1961) was the first to discuss the success factors concept. Based on his work, Rockart (1979) developed the concept of critical success factors and popularize it for determining the executive information needs. According to him (pg.85) they are “*the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization*” (Rockart, 1979). He argues that CFS are specific to individual managers on a given time and context, so they are subject to change. In a later work Bullen and Rockart (1981) hinted at the usefulness of the method as a component of strategic planning for information systems or technology. The original concept of CFSs quickly gained acceptance among both academics and practitioners and was used in a variety of industries (Bergeron & Bégin, 1989).

Because of their importance, CSFs are widely researched (Tan, et al., 2007) and applied in many organizations in different perspectives; from a single project to the whole organization strategic direction (Esteves de Sousa, 2004). CSFs are used by organizations to provide constant focus on a limited number of factors that help to define and ensure the success of the business until they are successfully achieved. This helps both the organization and its personnel to understand the key areas in which to invest their resources and time.

However in the area of business-IT alignment, few CSFs studies have been undertaken though its importance for harnessing the power and opportunities of IT to provide long-term benefits for businesses has become critical (Weill & Woodham, 2002). Luftman, et al. (1999) in their work pointed out that most of CFSs can serve both as enablers and inhibitors of business-IT alignment. Therefore having a holistic picture on CFSs is an imperative and paramount for any organization to achieve and improve business-IT alignment.

3. Literature Selection

As we previously mentioned there are only few studies concerning critical success factors on business-IT alignment. These studies provide some empirical evidence on CFSs but still none provides any systematically consolidated evidence in this regard. Hence, we couldn't identify any previous all-encompassing CSFs list for successful business-IT alignment and therefore the preparation of the construct considered existing CSF related studies.

Following the recommendation of Webster and Watson (2002), first we conducted a direct search for relevant articles published in journals until June 2012 in the following scientific databases: JStore, ScienceDirect, SpringerLink and ACM Digital Library to identify the key articles. In literature, alignment has been also called fit and linkage (Chan & Reich, 2007) while for critical success factors the terms key

success factors is used (Freund, 1988) as well. Therefore we searched the above databases using search phrases such as: “critical success factors”, “strategic alignment”, “strategic fit”, “success factors”, “key factors”, “strategic linkage” in title, abstract, subject terms or author supplied keywords. Reviewing search results and excluding irrelevant articles (Table no. 3) we could compile a list of 3 articles. Next, we followed by performing a review of the articles cited in our list of key articles. This didn’t provide us any new article to add to the previous list. To complete our literature selection we also performed a forward search using Google Scholar. In this step we searched for articles that cite our previously identified key articles. We could identify 3 more articles to add to our list from this search. Our final list included the following articles (Table 2):

Table no. 2: List of articles included in the review and the selection process

Nr	Article	Search type
1	Teo & Ang (1999), Critical success factors in the alignment of IS plans with business plans	Direct
2	Luftman, J. N., Papp, R. & Brier, T (1999), Enablers and Inhibitors of Business-IT Alignment	Forward
3	Reich, B. H. & Benbasat, I (2000), Factors That Influence the Social Dimension of Alignment between Business and Information Technology Objectives	Direct
4	Khandelwal, V. K (2001), An empirical study of misalignment between Australian CEOs and IT managers	Direct
5	Nfuka, E. N. & Rusu (2010), Critical Success Factors for Effective IT Governance in the Public Sector Organisations in a Developing Country: The Case of Tanzania	Forward
6	Aggarwal, H. (2010), Critical Success Factors in IT Alignment in Public Sector Petroleum Industry of India	Forward

The following table presents the queries we run against the databases and the size of result for each query.

Table no. 3: Results of direct phrase search in journals’ databases as of June 2012

Search query	Database	Results Size
TITLE-ABSTR-KEY(Critical success factor) and ALL(Strategic Alignment)	ScienceDirect (Journals)	77
TITLE-ABSTR-KEY(Critical success factor) and TITLE-ABSTR-KEY(Strategic Fit)		6
TITLE-ABSTR-KEY(Critical success factor) and TITLE-ABSTR-KEY(Strategic Linkage)		2
TITLE-ABSTR-KEY(success factors) and TITLE-ABSTR-KEY(Strategic Alignment)		11
TITLE-ABSTR-KEY(success factors) and TITLE-ABSTR-KEY(Strategic Fit)		19

Search query	Database	Results Size
TITLE-ABSTR-KEY(success factors) and TITLE-ABSTR-KEY(strategic linkage)		10
TITLE-ABSTR-KEY(Key factors) and TITLE-ABSTR-KEY(Strategic Alignment)		11
TITLE-ABSTR-KEY(Key factors) and TITLE-ABSTR-KEY(Strategic Fit)		13
TITLE-ABSTR-KEY(key factor) and TITLE-ABSTR-KEY(strategic linkage)		14
(ab:(critical success factor) AND (strategic alignment)) AND (cty:(journal) AND ty:(fla))	Jstore (Journals)	1
(ab:(critical success factor) AND (strategic fit)) AND (cty:(journal) AND ty:(fla))		10
(ab:(critical success factor) AND (strategic linkage)) AND (cty:(journal) AND ty:(fla))		2
(ab:(success factor) AND ab:(Strategic Alignment)) AND (cty:(journal) AND ty:(fla))		2
(ab:(success factor) AND ab:(Strategic fit)) AND (cty:(journal) AND ty:(fla))		1
(ab:(success factor) AND ab:(Strategic linkage)) AND (cty:(journal) AND ty:(fla))		0
(ab:(key factor) AND ab:(Strategic Alignment)) AND (cty:(journal) AND ty:(fla))		2
(ab:(Key factor) AND ab:(Strategic fit)) AND (cty:(journal) AND ty:(fla))		0
(ab:(Key factor) AND ab:(Strategic linkage)) AND (cty:(journal) AND ty:(fla))		1
"critical success factor" and "Strategic alignment"	SpringerLink (Journals)	7
"critical success factor" and "Strategic fit"		2
"critical success factor" and "Strategic linkage"		0
"success factor" and "Strategic alignment"		14
"success factor" and "Strategic fit"		5
"success factor" and "Strategic linkage"		0
"key factor" and "Strategic alignment"		9
"key factor" and "Strategic fit"		5
"key factor" and "Strategic linkage"		0
"critical success factor" "Strategic alignment"	ACM (Journal or Proceedings)	22
"critical success factor" "Strategic fit"		4
"critical success factor" "Strategic linkage"		0
"success factor" "Strategic alignment"		52
"success factor" "Strategic fit"		8
"success factor" "Strategic linkage"		0
"key factor" "Strategic alignment"		33
"key factor" "Strategic Fit"		5
"key factor" "Strategic linkage"		0

4. Classifying CFSs

In this section we discuss the critical success factors identified using the model proposed by Schlosser et al., (2012).

A. Human dimension

4.1. IT skills and knowledge of business executives

IT skills and knowledge of business executives is identified as critical success factor in most of the selected literature (Teo & Ang, 1999; Luftman, et al., 1999; Burn & Szeto, 2000; Khandelwal, 2001; Nfuka & Rusu, 2010; Aggarwal, 2010). A wide range of organizational processes and activities are top management responsibility (Mintzberg, 1975). Information technology investments for the future is one of the most challenging tasks they are facing (Weill, et al., 2002). While in the past business executives could afford to delegate, ignore or avoid IT decisions (Jarvenpaa & Ives, 1991), nowadays this is not possible in most sectors and industries (Peterson, 2004; Van der Zee & De Jong, 1999; ITGI, 2003; Babcock, et al., 1995).

Being knowledgeable about IT is critical for business executives as the resources in any organization are limited and IT investments are usually not only a costly undertaking but bear also a high degree of risk for failure (The Standish Group, 2009). Such knowledge about IT encompasses the prospective and limitations of organization's IT infrastructure, competitors' usage of IT and the opportunities offered by emerging technologies for the improvement of organization's business (Armstrong & Sambamurthy, 1996).

The lack of IT knowledge and culture of business executives makes it rather difficult for them to evaluate IT investments and have more reasonable prospects of what investments in IT can or cannot realize. Business executives have to understand that IT can not be a cure to all organizational problems. Rather, IT should be viewed as a resource to be deployed thoughtfully to support or influence business strategies in terms of streamlining business operations, reengineering business processes, forging electronic links with suppliers and customers, etc... (Teo & Ang, 1999).

4.2. Top management commitment

Top management commitment has gained a broad consensus in the literature as being critical for success in business-IT alignment (Teo & Ang, 1999; Luftman, et al., 1999; Nfuka & Rusu, 2010; Aggarwal, 2010). Having an executive sponsor who is both sufficiently committed to invest time and effort in guiding information systems development, and has a realistic understanding of the capabilities and limitations of the system is key to success of IS (Poon & Wagner, 2001). Top management commitment will translate into proactive cooperation (Morgan & Hunt, 1994), the provision of resources necessary for IT plan implementation and support for corresponding organizational changes (Ang & Teo, 1997; Luftman, et al., 1999). The level of top management commitment influences the level of support provided by the functional managers (Lucas, et al., 1990; Belassi & Tukel, 1996) and the behavior

of the users as well (Lucas, et al., 1990). People are to be influenced more from top management behavior than their saying. Finally, top management commitment is an important element in managing the change brought about by ICT projects (Milis & Mercken, 2002). Commitment will ensure that business works together with IT, which will be characterized by enthusiasm and positive demonstrations of support for IS efforts (Enns, et al., 2001; Cohen & Toleman, 2006).

4.3. Business skills and knowledge of IT executives

Business skills and knowledge of IT executives implies that it is no longer sufficient for IT management to be concerned only about the technical aspects of the IT function. (Teo & Ang, 1999; Luftman, et al., 1999; Khandelwal, 2001; Nfuka & Rusu, 2010). The focus of IT managers on the technological issues rather than enterprise-wide business issues is causing misalignment between business and IT (Khandelwal, 2001). According to Teo and Ang (1999) IT management knowledge about business is even more important than top management knowledge about IT and is a key factor in facilitating greater alignment between business and IT planning. The degree of IT deployment in business strategies and value chain activities is significantly influenced by such knowledge as well. Business skills and knowledge cover business strategies, organizational work processes, products and services, industry's recipes for success, and competitors' strengths, weaknesses and potential actions (Armstron & Sambamurthy, 1996).

In the last decade IT understanding of the business has been crucial to organizations (Luftman, et al., 1999). IT executives risk operating in isolation if their focus is about technology only and risk of becoming excluded, because that is not where the business units reside (Enns, et al., 2001). IT failures can be avoided if IT management has a better understanding on business management's objectives and such knowledge is essential for IT executives to make their contribution to the organization (Lederer & Burky, 1988). They are expected to be knowledgeable about the business and to play an important part in business strategy formulation and implementation. Lack of such knowledge and skills is likely to be a significant inhibitor to the firm's ability to use IT strategically. It may also negatively affect the reputation of the IT function in being only technically-focused rather than business-focused. (Teo & Ang, 1999; Luftman, et al., 1999).

4.4. Leadership skills of IT executives

IT executives play a critical role in the ability of an organization to derive business value for IT. It is through leadership that they can most significantly influence the impact of IT on organizational performance (Teo & Ang, 1999; Luftman, et al., 1999; Nfuka & Rusu, 2010; Aggarwal, 2010; Preston, et al., 2008). Innovation and creative ideas can often be a source of competitive advantage and can make existing ways of doing things obsolete. By coming out with creative ideas for the strategic use of information technology, IT management demonstrates the strategic relevance of IT to the organization (Teo & Ang, 1999). Frequently the

important leadership role that IT can play is only recognized after a competitor has applied IT innovatively. IT innovation is occurring at an increasing rate across all industries (Luftman, et al., 1999) and as most of organizations are still characterized by relatively lower awareness on available ICT opportunities, IT executives' skills and competencies to bring such understanding and required actions convincingly to top management is critical (Nfuka & Rusu, 2010).

4.5. Technical skills and knowledge of IT employees

Teo and Ang (1999) argue that the quality of IT personnel is critical for many organizations. IT staff must be sophisticated enough to interact with top management and be able to master the technologies required for the IS development and implementation (Poon & Wagner, 2001). Keeping up the pace with the advances in information technology enable IT employees to put forward better and more appropriate proposals for applications to support business objectives and strategies. Deploying such applications properly may result crucial to the organizations' long term survival. Furthermore, past research has shown that capitalizing on new advances in IT can often give the firm a competitive edge. The sustainability of such competitive advantage relies on many other factors such as whether the organization continues to innovate as well as the strengths and weaknesses of competitors. Failure of IT staff to keep up with advances in IT can adversely affect perception of the IT department and morale of IS staff (Teo & Ang, 1999).

B. Social dimension

4.6. Mutual trust and respect between business and IT executives

Trust plays a key role on the relationships between individuals and organizational groups. Mutual trust is defined as the expectation shared by the business and IT executives that they will meet their commitments to each other (Dasgupta, 1988). Groups work better together in an atmosphere of mutual trust based on mutual commitment and a stable long-term partnership (Anderson & Weitz, 1992).

Teo and Ang (1999) argue that top management needs to have confidence in the IT department in order to be committed to the strategic use of IT. The lack of trust would result in inappropriate allocation of resources (in terms of funds, personnel, etc.) from top management for the planning and development of strategic IT applications. In addition, those who are respected are more likely to get involved in activities that are well outside their sphere of influence. Those who are not respected tend to get left out, either by not being invited onto senior committees or by not being involved in discussions about important business issues (Reich & Benbasat, 2000). Furthermore, if top management has confidence in the capabilities of the IT department to deliver appropriate systems that are essential for the successful

implementation of organization's strategies, the role of the IT department is more likely to be elevated from a supporting role to a more strategic one (Teo & Ang, 1999).

Finally, all the factors that affect business-IT alignment are important, but none of them matters if there is not an atmosphere of open and honest communications (Luftman, et al., 1999) and no one can mandate meaningful communication between individuals or groups. Thus, it is up to the IT people to earn the right to play a meaningful role in management forums (Reich & Benbasat, 2000).

4.7. Business – IT Partnership

Past studies have long considered effective working relationship between business and IT executives as critical (Broadbent & Weill, 1993) and a key success factor (Earl & Feeny, 1994; Lepore, 2000). Partnership gauges the relationship between a business and IT organization, including IT's role in defining the business's strategies, the degree of trust between the two organizations, and how each perceives the other's contribution (Luftman & Kempaiah, 2007).

Luftman et al. (1999) argued that both IT and non-IT executives see the need for business – IT partnership in the strategy formulation process as it is easier to achieve alignment when cross-functional teams, including IT, create enterprise strategies. Teo and Ang (1999) note that business management needs to recognize that if business goals and objectives are not made known to IT management, IT management will find it difficult to create IT plans to support business strategies. Past studies have shown evidence for a significant correlation between the quality of communication of strategic business plans and the extent of strategic IS planning (Calhoun & Lederer, 1990). However, having a high quality business plan is not enough. It is crucial for these plans to be communicated and made available to IT management. Business-IT partnership enables joint decision on criteria used to evaluate and prioritize the appropriate IT to be developed and implemented in support of the organization's business goals and objectives (Teo & Ang, 1999). Moreover, Nfuka and Rusu (2010) suggest that business-IT partnership shouldn't be only encouraged but also facilitated and supported among IT and user departments.

4.8. Shared understanding of business and IT executives

A fundamental premise of information systems in organizations is that they must serve business users' needs. Hence, it is essential to ensure that IT applications are developed according to users' requirements (Teo & Ang, 1999). The process of translating users' business requirements into technical requirement for information systems requires that both parties understand each-others' language. Misunderstandings between IT and the business can lead to inaccuracies in the interpretation of requirements and can create feelings of distance resulting in intergroup conflict (Nelson & Coopridge, 1996).

Shared understanding requires both IT and business executives, at a deep level, to understand and be able to participate in the others' key processes and to respect

each other's unique contribution and challenges (Reich & Benbasat, 2000). Therefore it becomes important to remove barriers and create a collaborative environment between IT and business as well as to increase their ability to work towards attainment of common goals (Nelson & Coopridge, 1996).

Reich and Benbasat (2000) noted that the most important direct predictor of alignment was a high level of communication between IT and business executives. Through frequent communication, business users become more knowledgeable about IT, while IT departments become more knowledgeable about the business. This will greatly facilitate partnership between business and IS management, understand each other's goals, problems and limitations, and consequently improve the use of IT to create business value for the organization (Teo & Ang, 1999). Participants create and share information with each other to reach a mutual understanding, thus over time they converge or diverge from each other in their mutual understanding of a certain topic (Rogers, 1986). Also, field results show that a high level of shared understanding may moderate the expected negative influence of a low level of IT implementation success as both parties understand and respect each other's contribution and trust that each is giving their best effort (Reich & Benbasat, 2000).

C. Intellectual dimension

4.9. Alignment of business and IT strategy/goals/plans/...

Having a clear and deep understanding of business goals and how IT goals and process support those goals is important for any organization trying to improve its business-IT alignment. Every organization should own clear business goals and a related business strategy, communicated to and adopted by the entire organization. However, data from the field account that in practice this is not always the case (Van Grembergen, et al., 2005; Benson, et al., 2004).

Ideally, the business plan and information systems plan, both products of the corporate planning function, should be linked by mapping IT strategies directly to one or more business strategies in a manner that optimizes the return to the organization (King, 1978; Calhoun & Lederer, 1990). By aligning the business plan and the IT plan, information resources support business objectives and take advantage of opportunities for the strategic use of information systems (McLean & Soden, 1977; McFarlan, 1984; Zviran, 1990; Premkumar & King, 1992).

Nfuka and Rusu (2010) argue that just having the business and IT plans *per se* is not enough. Further improvement to have and align business-IT strategies and cascade them down in an organization is critical for business-IT alignment and can lead to more widespread use of IT (Henderson & Venkatraman, 1993; Nfuka & Rusu, 2010).

4.10. IT Success

The problem of IT's inability to meet its commitments has plagued businesses since the introduction of the modern computer systems. Information systems that fail to satisfy users' needs are frequently underutilized and are a waste of the organizations' valuable resources. Business executives and end-users become increasingly upset that projects are late and over budget. Recent studies suggest that only 32% of IT succeed (finished in time, within budget and satisfying requirements) and this rate gets even lower for bigger projects (The Standish Group, 2009). While most of the problems with projects that fail are not technical, still they have a significant impact on the credibility of IT department and the confidence line managers have in the competence of IT departments (Lucas, 1975). The quality of services provided by the IT personnel play a crucial role in determining business users' working relationships with IT department (Senn, 1978; Brown, 1991). Luftman et. al (1999) noted that failure of IT department to meet its commitment is mostly the result of not adhering to basic project management disciplines, and not having a business-IT relationship that facilitates business participation in all aspects of the project. Hence, if business executives do not have good perceptions of the IT department due to poor track record, it becomes more difficult for them to share and formulate business strategies jointly with the IT department (Teo & Ang, 1999). Reich and Benbasat (2000) argue that IT department success will influence the communication between business and IT executives. Accordingly failed or failing IT projects would result in finger-pointing, reduced levels of communication, and low levels of business-IT alignment (Reich & Benbasat, 2000).

Table no. 4: Critical Success Factors dimensions and relevance

Nr.	Human Dimension	Teo & Ang 1999	Luftman et al. 1999	Reich & Benbasat 2000	Khandelwal 2001	Nfuka & Rusu 2010	Aggarwal 2010
1	IT skills and knowledge of business executives	•	•		•	•	•
2	Top management commitment	•	•			•	•
3	Business skills and knowledge of IT executives	•	•		•	•	
4	Leadership skills of IT executives	•	•			•	•
5	Technical skills and knowledge of IT employees	•					

Nr.	Social Dimension						
1	Shared understanding of business and IT executives	•		•			
2	Mutual trust and respect between business and IT executives	•	•	•			•
3	Business - IT Partnership	•	•			•	
Nr.	Intellectual Dimension						
1	Alignment of business and IT strategy/goals/plans/...					•	•
2	IT Success	•	•	•			

5. Conclusion

Business-IT alignment has shown on researchers' agenda since the mid '70 and it still remains as one of the three main research streams in IS literature. In last three decades it constantly ranks among the top three concerns of CIOs (Luftman & Kempaiah, 2007; Luftman & Ben-Zvi, 2011) and it is seen as a basic premise to achieve business value from IT (Henderson & Venkatraman, 1993; Kearns & Lederer, 2000). However, only few studies have investigated the critical success factors that need to be considered by top management in their endeavor to improve and sustain business-IT alignment. Results show that most of the critical success factors identified by researchers are related to the human dimension. This asks for the organizations to put more efforts on developing the individual skills and knowledge of its employee, especially on the IT skills and knowledge of business executives. Business-IT alignment is a collaborative undertaking. Neither business nor IT can achieve any progress without the cooperation and commitment of the other. Accordingly, creating a social environment of mutual trust based on mutual commitment and a stable long-term partnership between them would greatly improve their respective work and collaboration with each other.

6. Limitation and future research

Most of articles included in this review are mainly researched through the views of senior managers. Thus the view of managers at tactical and operational level, that reflects the reality people face in day-to-day implementation of the strategies are not considered. While the identified CFSs can serve the strategic level it is important to have a clear view and understanding on the CFSs on the tactical and operational level.

Not all factors are equal and some have a much greater influence on success than others (Pinto & Mantel, 1990). Reich and Benbasat (2000) found that a high level of shared understanding would moderate the expected negative influence of a low level of IT implementation success as both parties understand and respect each other's' contribution and trust that each is giving their best effort. Based on these arguments it would be of great interest to investigate and understand the effect of one dimension's CFSs onto the other dimensions' CFSs and vice versa.

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