

What's Next? Connecting the Past and Future of Business-IT Alignment Research

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ABSTRACT

The importance of Business-IT alignment has been well emphasized, and the topic has been a top management concern for the past four decades. The current business environment demands in response to digitalization have made Business-IT alignment even more challenging. We take on the challenge in this research by presenting a comprehensive review of the domain of Business-IT alignment, based on a conceptual model which we propose, to facilitate future theoretical work. The review brought out multiple representations of the concept of Business-IT alignment and the characterization of its antecedents, nature, and outcomes. Based on the treatment of the domain in the extant literature, we chart out possible areas of future explorations. By doing so, this research lays a foundation for continuing inquiry on Business-IT alignment and facilitating future theoretical work.

Keywords: Alignment, Business-IT Alignment, Literature Review

I . Introduction

For the last four decades, information technology (IT) executives have recognized the importance of Business-IT alignment towards addressing organization imperatives (Jonathan et al., 2020). In addition to polls that consistently rate Business-IT alignment as one of the key priorities for IT leaders (Kappelman et al., 2021), it is also one of the most researched

subjects in the information management (IS) and related realms (Benbya et al., 2019; Chan and Reich, 2007; Gerow et al., 2016; Jonathan et al., 2020). The academic community's focus on the subject has mostly been on determining how aligning business and IT creates profit for businesses. On one hand, fostering synergy between business and IT strategies has the potential to maximise profitability and create a long-term competitive edge (Baker et al., 2011).

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Failure to align, on the other hand, could result in lost resources and failed IT programmes, resulting in negative financial and operational outcomes (Chen, 2010; Mavengere et al., 2020; Ravishankar et al., 2011). Because of the pervasiveness of alignment and its future consequences, professionals and academics alike have regarded alignment as a top priority for businesses (Chan and Reich, 2007; Ilmudeen et al., 2019; Kappelman et al., 2021; Kappelman et al., 2013).

Despite such optimism around Business-IT alignment, achieving and sustaining Business-IT alignment has never been easy since the proliferation of IT (e.g., Jahnke, 2004; Shah, 2012). A report suggests that 48 percent of CIOs in US companies spent the majority of their time trying to match their IT plans with overall organizational goals (Kahre et al., 2017). The new business environment demands in relation to digitalization have made it much more difficult (Daidj, 2019). Berman (2012) describes digitalization as “a set of complementary activities-reshaping customer value propositions and transforming their operations using digital technologies for greater customer interaction and collaboration.” Digitalization and the resulting developments in the corporate world have a number of consequences for how IT is interpreted, as well as how procedures and systems are planned. In order to embrace digitalization, several firms commit to reshaping their necessary activities and carrying out re-configurations of various elements that affect Business-IT alignment (Yeow et al., 2018). As organizations grapple with becoming digital, the modifications of structures and processes without a thorough analysis can actually prove detrimental. Performance evaluations across various industries show that different organizations create unique problems for those responsible for achieving alignment goals (Dent, 2015). To this end, Chan and Reich (2007) exhorts that alignment should be studied from the

field to know how it works and find methods to enhance it. The associated tensions are imminent as some studies also report undesired consequences. For example, some inquiries have found aligned firms report no improvement, or even a decline, in performance (i.e., an alignment paradox) (Tallon and Kraemer, 2003). These studies suggest alignment can result in stagnation, strategic inflexibility, and competitive disadvantage (Benbya and McKelvey, 2006; Chen et al., 2010).

The proceeding discussions offer a preview of the importance of the topic. We also recognize that the new business environment or the “digital era” poses new sets of challenges and can open up further opportunities for the domain to flourish. An appreciation of these opportunities and challenges is key to further theoretical advancements of the domain. Researchers have also advocated for a paradigm change to understand better how to meet the complexities of IT management in general and the problem of Business-IT alignment in particular (Hinkelmann et al., 2016; Kahre et al., 2017; Manfreda and Temberger, 2019; Yeow et al., 2018). The existing reviews on Business-IT alignment are either quite dated (e.g., Aversano et al., 2012; Spósito et al., 2016; Ullah and Lai, 2013), or have a different focus of the review (e.g., Jia et al., 2018; Kurti et al., 2013; Njanka et al., 2021) and hence do not consider the new possibilities facing the digital era. Therefore, even though the literature on Business-IT alignment research is extensive and advanced, an up-to-date and systematic analysis of the domain that incorporates recent advances and trends will benefit future theoretical work. This is especially important considering the possible benefits of alignment and the ongoing practitioners’ interest.

Hence, in the manuscript, we offer a review of the domain of Business-IT alignment. The work seeks to achieve the following objectives: (1) to present a review of the literature concerning Business-IT

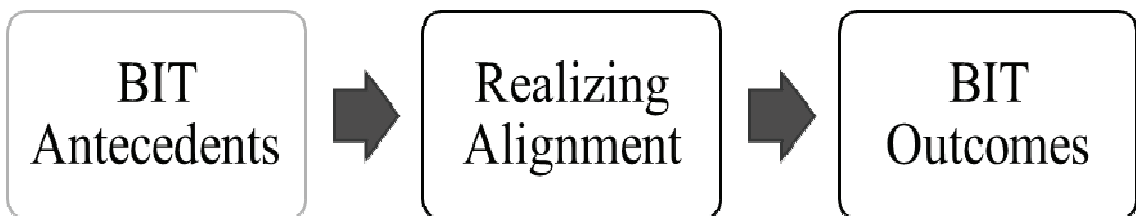
alignment, (2) to synthesize the findings of these studies, and (3) to chart out possible areas that could be addressed in future research. Towards this, we resort to a conceptual model for organizing the literature review. The findings based on the content analysis of shortlisted papers reveal various facets of Business-IT alignment pertaining to the notion, nature and characteristics, antecedents, and outcome of Business-IT alignment. Finally, based on the review, we offer possible research trajectories concerning Business-IT alignment to contribute new knowledge and promote further theoretical development of the domain. The work contributes to research by synthesizing the developments around the key concepts underlying Business-IT alignment research and can also serve as a reference document for practice.

The paper is organized as follows: In the next section, we present our conceptual model based on which we have organized the literature on Business-IT Alignment. We present our review method in the subsequent section. The review results are described next where we discuss the dominant themes along with our observations related to the Business-IT Alignment literature. Based on the findings from the review, the following section outlines several future research opportunities. In the final section, we provide a summary and implication of the presentation and also acknowledge the limitations of the essay.

II. Conceptual Model

<Figure 1> presents the conceptual model based on which we thematize the extant evidences. The conceptual model hinges on the “process” understanding of alignment referring as “*the act of aligning ...*” (Alignment, (n.d.)). The alignment is likely to be influenced by several factors, representing the enablers or drivers of alignment, which we regard as the antecedents, some of which are the drivers of Business-IT (BIT) alignment, while others pose as challenges or barriers to Business-IT (BIT) alignment. The dynamics of the antecedents (may) lead to the (desired) alignment represented in a suitable form and structure. Further, the alignment is likely to lead to specific outcomes that can be recognized.

This perspective thereby acknowledges the antecedents (enablers/drivers) influencing alignment, which in turn is contributing to various outcomes. It adopts a process viewpoint as the process of alignment is influenced by the relevant factors (posing as the antecedents); further, the alignment process also results in various outcomes of relevance. Resorting to a similar “process” viewpoint has been widespread, with multiple researchers from across domains adopting it to anchor their research endeavours (e.g., Eriksson, 2014; Men and Tsai, 2013; Nwankpa, 2015). Consequently, in Section 4, we use this “process” understanding of connecting the antecedents of Business-IT alignment to the outcomes



<Figure 1> Conceptual Model to Organize Literature Review

to provide a review of the existing evidence on Business-IT alignment literature.

III. Review Method

We initiated our search for academic literature on Business-IT Alignment based on queries in the Google Scholar search engine. We resorted to the keywords: 'IT Alignment', 'IS alignment', 'Strategic Alignment' in our search. The queries result gave us an insight into the broad range of publications and sources on the subject. Further, the number of records returned by the query is enormous (around 5,95,000 results related to publication related to the Strategic Alignment as on 2020). To narrow down, we shortlisted the following databases for conducting the search: Scopus (Elsevier) and ISI Web of Science (Thomson Reuters). These databases were chosen because they are multidisciplinary and provide access to a broad variety of academic journals and publications. We specified the year range from 1985 to 2019 as the time frame for the present study. The year 1985 was selected as the starting point as it is commonly cited as the year in which Business-IT Alignment became popularized; competitive advantage of IT (Porter and Millar, 1985), coordination of IS plans and business plans (Lederer and Mendelow, 1989), and MIT90s framework (Morton, 1991) provide the basic foundation for the future alignment research. The relevant studies for our research were identified by executing the keyword-based search query along with the other parameters (e.g., year range) in the search interface of the shortlisted databases. Furthermore, we also checked other sources like books, thesis, and websites whenever a specific content referred to these sources (as obtained from the citations) in relation to Business-IT alignment concepts. We considered the inclusion and exclusion

criteria (<Table 1>) in our search, which resulted in over 1000 hits. The papers returned by the search query were manually screened for suitability. The screening procedure included a manual review of titles and, if appropriate, abstracts to determine if the article in question addressed a Business-IT alignment problem. In case the same was still not clear, we further analysed the content of the published document in search of evidence. This process led to a shortlisting of 112 contents for full-text review.

During the review of the literature, we wanted to gain an understanding of the dominant themes in the publications. This was facilitated by using the concept matrix approach (Webster and Watson, 2002). This matrix approach of the literature review is a powerful and practical research tool that forms the initial scaffolding to help researchers identify and segregate concepts for those to be related meaningfully later on. The general layout of a concept matrix is mostly straightforward, comprising concepts as the column headers and the article listing (i.e., reference) as the row headers. If a concept is discussed in a particular reference, a tick is placed in the appropriate cell, enabling to visualize and compare the occurrences of the concepts across articles. We used a blank Excel file to develop the concept matrix accordingly. The first author took the leading role in reviewing the shortlisted papers and constructing the concept matrix, which the second author reviewed. The concept matrix was synthesized at the end, leading to the dominant themes that characterize our Business-IT alignment review. The overall review process is summarized in <Table 1>.

IV. Review of Business-IT Alignment

Here we present the dominant themes related to Business-IT literature as depicted in our conceptual

<Table 1> Review Process Snapshot

Specifics	Details
Search Descriptors <i>(Search for published content based on the criteria adopted)</i>	Data Sources: Scopus (Elsevier) and ISI Web of Science (Thomson Reuters) Keywords: 'IT Alignment', 'IS alignment', 'Strategic Alignment' Search Coverage Duration (Years): 1985 to 2019 Additional Sources Referred (based on citation evidence): Books, Thesis, and Websites
Screening Criteria <i>(Screening conditions specify the inclusion and exclusion basis and is used to screen content returned from the searching process)</i>	Basis for Inclusion: <ul style="list-style-type: none"> • The article has been written in English. • The article is accessible and describes issues that are meaningful and intuitive to follow. • The article has been cited by others unless it is a very recent article. We assume that a work cited and used by others is a hint of its usefulness.
No of Articles: Over 1000 (excluding duplicates)	Contents Excluded: Editorials, prefaces, summaries of articles and tutorials, seminar articles, workshops, and panels and poster sessions.
Shortlisting Criteria <i>(Finalizing articles for full-text review based on the appropriateness)</i>	Manual Inspection of <ul style="list-style-type: none"> • Article Title • Article Abstract • Article Introduction and Conclusion and/or Relevant Sections
No of Articles: 112	
Analysis Approach <i>(For analyzing the shortlisted articles towards identifying the relevant concepts)</i>	Content Analysis of Shortlisted Articles (Use of concept matrix approach) (Webster and Watson, 2002)
Clustering Approach <i>(Concepts identified through content analysis clustered following the conceptual model)</i>	Concepts identified from the shortlisted articles synthesized following the conceptual model: <ul style="list-style-type: none"> • BIT Antecedents • Realizing Alignment • BIT Outcomes

model (<Figure 1>). We start with realizing alignment. We then discuss the antecedents of Business-IT alignment, which is then followed by the outcomes of Business-IT alignment.

4.1. Realizing Alignment

In this section, we review the literature to recognize the concepts governing establishing Business-IT alignment in organizations. However, understanding the dynamics is incomplete unless we have also appre-

ciated the phenomena and its development over time and its associated characteristics. Accordingly, we first revisit the notion and evolution of the concept of Business-IT alignment, then explore its dimensions and levels, before examining the Business-IT alignment-specific processes and artifacts.

4.1.1. Notion of Business-IT Alignment

Business-IT alignment is about efficient and productive use of IT for business (Kohli and Grover,

2008; Schryen, 2013). Alignment has been defined and understood in the academic literature in several ways. It has been defined using distinct terms as 'matched with', 'in harmony with', 'complement each other', 'contingent upon', and 'congruent with' or more simply as 'aligned', 'fit', 'support', 'integrated', 'synergy', 'fusion', 'linked', or 'co-aligned' (Chan and Reich, 2007; Coltman et al., 2015; J. Luftman, 2003a). In <Table I> (Appendix), we provide a listing of the predominant understanding of alignment as documented in the academic literature. <Table I> listing clearly shows that the concept of Business-IT alignment has multiple representations thereby also implying that not one definition has been able to fully encapsulate the underlying concept of Business-IT alignment. The definitions show that the concept of alignment is both nebulous and ambiguous (Chan et al., 1997; Maes et al., 2000). Coltman et al. (2015) admit that none of the terms previously mentioned really have explicit ways to translate to operational action or measures. This further suggests that Business-IT alignment has been mostly perceived based on the context it is viewed from.

4.1.2. Historical Development of Business-IT Alignment

The concept of alignment originated from a body of theoretical and empirical work within business organization literature whose primary proposition is that organizational performance is the result of relationships between business and IS (Alfadhel et al., 2019). The early approaches towards Business-IT alignment were ad hoc, given the level of displeasure in business organizations regarding their viewpoint on IS departments. However, over time, the importance of maintaining relationships among business and IS departments, linking the communication gap,

aligning structure, and improving information system trust within a business organization was recognized and have become an importance preference for organization CIOs and CEOs.

The idea of alignment emerged in the early 1970's (Luftman et al., 1993), with three phases visible during the evolution (Silvius and Gijsbert, 2013). The first phase comprises of the era of information system planning (ISP), a term used for the early methods of implementing a structured planning process for IT investments and projects. These methods were developed in the 1970's and early 1980's when IT was in its nascent stage. In ISP, the alignment was one-sided i.e., IT followed business. The second phase, characterized as the era of strategic information system planning (SISP), evolved in the 1980's had two defining aspects; aligning investment in IT with business goals and exploiting IT for competitive advantage. In SISP, the alignment was two sided i.e., IT and business followed and complemented each other. This phase is often regarded as the beginning of strategic IT alignment. It saw the emergence of research on strategic IT alignment with the 'MIT90's' (Management In The 90's) programme, which added to the MIT90's Framework with the aim of investigating IT-led organisational change (Coltman et al., 2015). The third phase, evolved in the 1990's, provided new solution to the challenge of aligning IT solutions to business requirements and opportunities. This era, initiated by the Strategic Alignment Model (Henderson and Venkatraman, 1993), developed from the MIT90's Framework, was immediately embraced for mutual shaping of business plan and operations on one hand, and IT/IS plans and operation on the other (Chan and Reich, 2007).

This era continued well into the new millennium that saw extensive research and application of Business-IT alignment and its related facets leading

towards a maturity of the domain. The current era, also termed as the “digital age”, is witnessing the impact of digital technologies in every spectrum of business and society. As ongoing developments postulate a convergence between business and IT strategies as a necessity for innovation and staying competitive, this phenomenon has the potential to cause a paradigm shift in how business and IT alignment is viewed (Kahre et al., 2017). We can conclude from this evolution that over time, the domain of Business-IT alignment gained maturity with the focus shifting from the initial IT planning to IT planning and execution encompassing all the aspects of IT and organizational activities, and moving forward might witness some paradigm shifts in response to the emerging situations.

4.1.3. Dimensions of Business-IT Alignment

Dimensions point to the reference point from which the researchers look at the process of alignment. Literature records various dimensions of alignment such as Strategic or Intellectual, Structural, Social, Cultural, and Human (Chan and Reich, 2007; Schlosser et al., 2012; Ullah and Lai, 2013). The Strategic or Intellectual dimension views alignment as the extent to which the business strategy and the IT strategy are in sync with one another. Reich and Benbasat (2000) explain intellectual alignment in terms of “... *the state in which a high-quality set of inter-related IT and business plans exist*” (pp. 82). The Structural dimension views alignment as the degree of structural fit between IT and the business with the goal to achieve a congruence between IT and business structure aiming to support organizational objectives (Chan and Reich, 2007). The Social dimension of strategic alignment has been defined as “... *the state in which business and IT executives within an organizational unit understand and are com-*

mitted to the business and IT mission, objectives, and plans” (Reich and Benbasat, 1996, pp. 58). The collaboration between business staff and IT personnel across the organization is essential for the alignment (Chan and Reich, 2007). The Cultural dimension highlights the importance of organizational culture in IT alignment. Successful IS planning requires cultural fit between business and IT, and needs to be aligned with the cultural elements such as the business planning style and the top management communication style (Silvius et al., 2009; Silvius et al., 2010). Finally, the human dimension is concerned with distinct attributes of individual persons, meaning, e.g., skills, knowledge, leadership, and behaviour (Schlosser et al., 2012). In terms of alignment, it is important to see if IT employees have the ‘right’ skills and knowledge to solve business problems by developing appropriate IT platforms, applications, etc., and the business staffs are skilled to effectively use the information systems in place (Schlosser et al., 2012).

4.1.4. Levels of Business-IT Alignment

Alignment within an organization is required at all levels, including the organizational level, system level (Campbell, 2005; Floyd and Woolridge, 1990), project level (Jenkin and Chan, 2006), and the individual/cognitive level (Tan and Gallupe, 2006). The absence of that at any level can result in system implementation difficulties (Floyd and Woolridge 1990). Formal strategies are often only implemented at the upper organizational levels. Alignment at the lower strata involves translating business unit goals into personal goals (Campbell, 2005).

In recognition of this, Bleistein et al. (2006) link higher level strategic goals to lower level, explicit organizational processes to allow verifying alignments with super-ordinate goals and subordinate goals,

Jenkin and Chan (2006) examine alignment at the project level, interpreting it as the degree to which an IT project's deliverables are congruent with the organization's IT strategy and the project's objectives. Tan and Gallupe (2006), drawing parallelism with the social dimension of alignment, operationalize alignment, at its most micro-level, as shared cognition between the business and IT executives. That is, the higher the level of cognitive commonality between business and IT executives, the higher the levels of Business-IT alignment. This also reflects a view of Business-IT alignment in which IT mirrors the on-going business activities.

4.1.5. Business-IT Alignment Processes and Artifacts

Two dichotomies on Business-IT alignment can be identified from the literature: alignment at the process-level or at the firm-level, and alignment as a process or as an end-state (i.e., outcome) (Baets, 1996; Ullah and Lai, 2013; Xiang et al., 2008). Concerning process-level and firm-level analysis, the unit of analysis in alignment debates seems to favour the conceptualisation of Business-IT alignment at the process-level, with focus on the mechanism needing to be managed and updated in response to shifts in the internal and external environment (Avila et al., 2018; Dent, 2015; Jorfi et al., 2017; Panda and Rath, 2018; van de Wetering, 2016; Yeow et al., 2018; Zolper et al., 2014). Queiroz (2017) shows that the process-level and firm-level conceptualizations of IT alignment yield different conclusions when testing the relationship between alignment and performance. Tallon et al. (2000), Tallon (2007) stress the importance of focussing on the process-level over firm-level while discussing strategic alignment, the reason being implementation of business strategy is

done using a series of processes or activities.

Concerning process versus end-state, Amarilli et al. (2017) contend that the distinction between seeing Business-IT alignment as a process versus an end-state is determined by the hypothesis selected by researchers. Many who regard organizations as dynamic systems, for example, have treated Business-IT alignment as a process. Focusing on alignment as a process, Luftman (1999) presents a 6-step process to make alignment work in any organization as: set the goal and establish a team, understand the Business-IT linkage, analyse and prioritize gaps, specify the actions, choose and evaluate success criteria, and sustain alignment. Researchers have posited that alignment as a process needs to be dynamic as it does not depend only on harmonization of business strategy and IT strategy but a more complex co-alignment of strategy (both business and IT), organization, infrastructure, and processes (both organizational and IT) (Baets, 1996; MacDonald, 1991). There is also a need of paying greater attention on organizational actors' day to-day aligning activities (Karpovsky and Galliers, 2015).

Organizational turbulence and environmental dynamism result in alignment as a continual process of adjustment towards a moving target (Yeow et al., 2018), which has been observed to evolve with time (Sabherwal et al., 2001). The period of alignment is characterised by evolutionary period and succeeding revolutionary period which in turn change to evolutionary period and the cycle goes on. This can involve modifications to the existing alignment pattern, punctuated by periodic transitions to an altogether new and different pattern of alignment. At each of these stages, the alignment level is assessed and based on the feedback, next course of action is chosen (Sabherwal et al., 2001). This realignment of alignment process may involve steps like define

the problem, examine alternatives, integrate system requirements, assess the overall system performance, and re-evaluate alignment continually (Ullah and Algarni, 2017; Ullah and Lai, 2013), and can ultimately lead to sustained alignment (Luftman, 2003b).

Several models and frameworks are proposed and extended, to assist practitioners with better ways to realize Business-IT alignment (Sabherwal et al., 2001). The different treatments that lead to the Business-IT alignment artifacts rely mostly on the contingency and configurational theories. These assert that there is no one best way of organizing / leading, and that an organizational / leadership style that is effective in some situations may not be successful in others (Chenevert and Tremblay, 2009; Venkatraman, 1989). Hence, there may not be one universally superior way of realizing Business-IT alignment (Henderson and Venkatraman, 1993). The notable Business-IT alignment artifacts are summarized in <Table 2>.

In summary, the common thread that runs through the models and frameworks discussed above relates to the attainment of the goal towards leveraging the capabilities and potentialities of information technology. This follows the premise that alignment between business and IT brings organizational success leading to greater business profitability (Papp et al., 1996). A cumulative knowledge building tradition is also noticeable as the new contributions build upon and extend the extant contributions in new dimensions (Chan and Reich, 2007; Schlosser et al., 2012).

4.2. Antecedents of Business-IT Alignment

Antecedents are the factors representing the enablers or drivers of Business-IT alignment (Brown and Magill, 1994; Chan et al., 2006). They can also represent the challenges or barriers to Business-IT alignment. The antecedents are explored in order

to realize the enablers or inhibitors to Business-IT alignment initiatives in organizations and in varied contexts. In <Tables II (A, B)> (Appendix), we provide a chronological listing of these antecedents as documented in various research articles. The <Tables II (A, B)> listing shows that there exists a broad spectrum of antecedents that affect business and IT alignment. Alignment depends on a broad set of contextual factors, some of which are at the individual level (e.g., senior management and their role, employee commitment, and competencies), some are at the organizational level (e.g., organizational size, firm structure, corporate vision, and strategy), and some at the environmental level (e.g., environmental uncertainty, social influences). The presence of both enablers and inhibitors emphasizes the need for careful consideration of these in organizational planning and management activities (Abareshi, 2011).

4.3. Outcomes of Business-IT Alignment

In this section we look at some of the outcomes of Business-IT alignment. Evidences seem to concur on the fact that Business-IT alignment, in overall, affects organizational performance in a positive manner and creates value for the organization (Chau et al., 2020; Henderson and Venkatraman, 1993; Luftman, 1996; Morton, 1991). We provide a chronological listing of the outcomes of Business-IT alignment in <Table III> (Appendix). The findings, in overall, demonstrate the positive impacts of alignment on business and organizational performance, and serve as a justification to the continuing interest of academicians and practitioners on Business-IT alignment. Broadly, the literature suggests the outcomes as harmony between IT and business (Henderson and Venkatraman, 1989; Tarafdar and Grunfleh, 2010), maximize profit of IT/IS investments

<Table 2> Select Business-IT Alignment Artifacts

Identifier	Description	Observation
Technology Impact Model (Rockart and Morton, 1984)	The Technology Impact Model (TIM) describes how socio-economic and technological environments can influence organizational strategies, personnel, processes, structure, and technology. The model considers a positive impact of IT on the organizational strategy and structure.	The model considers the socio-technical systems perspective (Bostrom & Heinen, 1977) in its portrayal of the interrelationships, with the management process assuming the pivotal position. The model became an important theoretical basis for later Business-IT alignment models.
Strategic Alignment Model (SAM) (Henderson and Venkatraman, 1989)	The SAM integrates four key domains of alignment (i.e., business strategy, IT strategy, IS infrastructure and processes, organizational infrastructure and processes) into four quadrants classified into external and internal. Strategic alignment is based on two building blocks: one is the strategic fit, which defines harmony between internal and external domains, and the other is functional integration, which defines integration between business and IT domains. Thereby, the model successfully integrates the internal and external environments of an organization while simultaneously integrating IT and business functions.	The model originates in the MIT90s framework and aims to achieve strategic alignment between business and IT strategies for leveraging IT for transforming organizations. Even though the model is comprehensive, it does not consider the organizational risks.
MIT90s Framework (Morton, 1991)	The MIT90s framework presents an interrelationship among five forces: management process, structure, strategy, individual and roles, and technology as a dynamic equilibrium as the organization is subjected to influences from an external environment.	The framework, based on the TIM, serves as an initial attempt to harness the strategic power of IT. The framework contends that significant competitive advantages are possible through radical change involving IT investment if the five components are kept aligned.
Strategic Alignment Process Model (MacDonald, 1991)	The Strategic Alignment Process Model demonstrates the inter relationships between business and IT strategy, infrastructure, and processes. The model suggests that the process of achieving alignment consists of several process stages with a feedback system following at least two cycles.	The model is anchored on the MIT90s Framework. It extends the MIT90s Framework by also considering the external impacts on customers, suppliers, and markets.
Baets Extended Model (Baets, 1992)	The Baets' combined model views alignment as a process in a wider context, taking into account considerations such as competitiveness, organizational change, human resource challenges, global IT/IS platforms, and implementation processes. An extension of his model, the Baets Extended Model (Baets, 1992), considers the corporate and IT strategies in parallel to each other. Thereby it supports the view that IS strategy is evolving and	The model is based on the evaluation of the strengths and weaknesses of the existing models and combines the Strategic Alignment Process Model (MacDonald, 1991) and the enterprise-wide information model (Parker et al., 1988). The integration of corporate strategy with IS map is central to the alignment process. The extended model adds value by ensuring that organizations

<Table 2> Select Business-IT Alignment Artifacts (Cont.)

Identifier	Description	Observation
Baets Extended Model (Baets, 1992)	is an integral part of the dynamic process of defining, monitoring, and evaluating corporate strategy.	can define, adapt and improve their overall corporate strategy as needed.
Generic Framework (Maes, 1999)	The Generic Framework accommodates two attributes from SAM, structure at the horizontal level and information and communication at the vertical level. Here the strategy level deals with decisions regarding scope, core competencies, and governance. In contrast, the structure level deals with the architecture and capabilities and the operational level with processes and skills.	The framework, while extending SAM, incorporates additional functional and strategic layers. The framework is labeled generic since different roles/operations can be evaluated at different levels keeping Business-IT alignment as the goal.
Unified Framework (Maes et al., 2000)	The Unified Framework combines the management components of the generic framework and the architecture components of the IAF into a three-dimensional alignment framework, recognizing that business and IT alignment necessitates the coexistence of management and design.	The framework treats alignment as a continuous process involving management and design sub-processes and consciously and coherently interrelating all necessary components. However, these added components increase the complexity of using and applying the framework.
Reich and Benbasat Model (Reich and Benbasat, 2000)	The model recognizes the importance of the social dimension of alignment. The model follows a top-down approach and comprises of five constructs (i.e., shared domain knowledge, IT implementation success, communication between IT and business executives, and connections between business and IT planning) at three different vertical levels that influence (the social dimension of) alignment.	The model focuses on the social dimension of alignment, which other models have not considered. However, it lacks a deep analysis of the business domain within an organization.
Strategic Alignment Maturity Model (Luftman, 2000)	The Strategic Alignment Maturity Model (SAMM) focuses on the assessment of the maturity of a firm's business and IT alignment. The model prescribes six areas in order to measure organizational maturity: A) Communication; B) Competency / Value measurement; C) Governance; D) Partnership; E) Scope and architecture; and F) Skills. For each of these areas, the maturity model classifies the alignment into five levels: 1) Initial / Ad hoc process; 2) Committed process; 3) Established / Focused process; 4) Improved / Managed process; 5) Optimized process.	SAMM is a well-established and comprehensive model following a bottom-up approach starting from the factors that affect the alignment. A couple of drawbacks of the model are the complexity of applying and using the model and the need for experts to have an understanding of both business and IT.

<Table 2> Select Business-IT Alignment Artifacts (Cont.)

Identifier	Description	Observation
<p>Alignment using Balanced Scorecard (Hu and Huang, 2005)</p>	<p>The model expands the Reich and Benbasat Model (Reich and Benbasat, 2000) with the relationship management antecedent and the balanced scorecard (Kaplan and Norton, 1996) to support organizations towards achieving, managing, and sustaining alignment. Implementing the balanced scorecard as a strategic management tool positively influenced the communication between business and IT managers and the connection between business and IT planning.</p>	<p>The model uses the balanced scorecard as a management system to communicate corporate vision and strategy and enhance accountability, enable IT department to look beyond their operation, and facilitate better coordination between business and IT. However, the model lacks organizational and architectural aspects as well as modularity. The model remains complex with the balanced scorecard implementation.</p>
<p>COBIT Framework (ISACA, 2013)</p>	<p>Control Objectives for Information and Related Technology (COBIT) framework, developed by ISACA (Information Systems Audit and Control Association) (ISACA, 2013), defines a set of generic processes for the management of IT, with each process defined together with process inputs and outputs, key process-activities, process objectives, performance measures, and an elementary maturity model. COBIT also provides a set of recommended best practices for governance and control process of information systems and technology with the essence of aligning IT with business.</p>	<p>The framework enables an organization to ensure alignment between the use of Information Technology (IT) and its business goals, as it places emphasis on the business need that is satisfied by each control objective.</p>

<Table 3> Summary of the Literature Review Findings

Thematic Areas	Related To	Summary of Findings
BIT Antecedents		The literature highlights several antecedents to business and IT alignment classified as enablers and inhibitors. These antecedents can be broadly categorized in terms of the individual, organizational, or environmental focus. The initial studies mostly concentrated on identifying the enablers to Business-IT alignment. The attention later shifted to the barriers/challenges to Business-IT alignment, as some recent publications highlight. These antecedents are contingent on the organizational structure and operations at different levels of the organization.
Realizing Alignment	Business-IT Alignment - Notion	Several conceptualizations of Business-IT alignment can be identified. These conceptualizations reveal how the phenomenon and its understanding evolved with time. The proposed definitions consider various aspects linked to business and IT that are critical to the organization. This broadly suggests that the conceptualization of Business-IT alignment anchors on the context in which the alignment phenomena has been studied.
	Business-IT Alignment - Historical Development	The historical narrative indicates that Business-IT alignment approaches have matured over time from the initial ad-hoc attempts. The developments over the years have been bracketed in a number of phases hinged on the mutual interrelationship between IT and business.
	Business-IT Alignment Dimensions	The literature points to five dimensions as reference points along which the alignment process can be visualized, viz. strategic or intellectual, structural, social, cultural, and human. The literature recognizes the importance of these dimensions to achieve the necessary fit between business and IT.
	Levels of Business-IT Alignment	The coverage of Business-IT alignment levels emphasizes the need for alignment at various levels: organizational, system, project, and individual/cognitive levels. The literature acknowledges that misalignment at any level can be disastrous and accordingly examines the alignment at the chosen levels and the necessary implications.
	Business-IT Alignment Processes and Artifacts	The existing literature has considered Business-IT alignment from two perspectives - (1) at the process level or at the firm level; (2) as a process or as an end-state. Pertaining to (1), the emphasis has been more on the process-level as a mechanism to be managed. Considering (2), alignment as a process has garnered prominent attention with researchers investing in the associated steps and dynamics. The Business-IT alignment artifacts covered represent the prominent ones cited in the literature. The need for these artifacts arose from understanding the extent to which the extant artifacts contributed to the alignment and acknowledging the limitations. It is thereby not surprising to note that these models and frameworks build upon each other, thereby presenting a cumulative tradition of knowledge accumulation in the field.
BIT Outcomes		The studies focusing on Business-IT alignment outcomes mostly report positive consequences for the organization and its stakeholder. There are few instances where negative or mixed results were reported by the investigators. The variation in these results opens up opportunities for further exploration, as also emphasized in several studies.

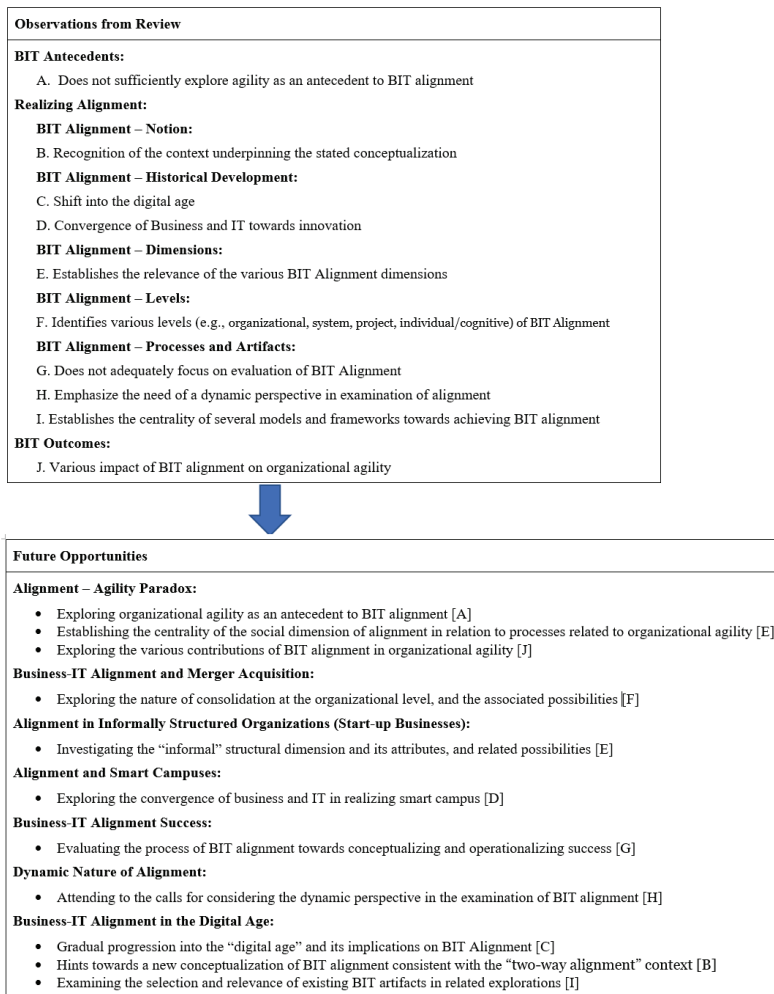
(Chan et al., 1997; Chau et al., 2020; Gerow et al., 2014; Powell, 1992; Sabherwal and Chan, 2001), growth and expansion (Chan et al., 1997; Dong et al., 2008; Luftman and Brier, 1999), and increase in organization’s competitive advantage (Avison et al., 2004; Byrd et al., 2006; Kearns and Lederer, 2003). Few studies report mixed findings (e.g., Panda and Rath 2018; Queiroz 2017; Liang et al. 2017) which can be contingent on the specific investigation contexts and serve as a basis for additional explorations of those facets.

<Table 3> summarizes the literature review find-

ings following our conceptual model (<Figure 1>).

V. Continuing with Research - Possible Explorations

With an understanding of the extant contributions related to Business-IT alignment, some opportunities can be documented. We mention some of these below. Following the delineation, in <Figure 2>, we provide an interpretive framework where we link these future opportunities to the observations from the literature



<Figure 2> Interpretive Framework

related to Business-IT alignment for the benefit of the readers.

5.1. Business-IT Alignment and the Organizational Context

5.1.1. Alignment - Agility Paradox

The alignment-agility paradox is the unexpected consequence of Business-IT alignment that results in

rigidity due to dependencies on resources and embeddedness of IT processes (Imgharene et al., 2018; Liang et al., 2017). The arguments explaining the paradox can be viewed from three perspectives. The first viewpoint considers organizational agility as an enabler to Business-IT alignment and investigates its importance in achieving the alignment. Jorfi et al. (2017), for example, conclude that companies with agility are expected to achieve Business-IT alignment. Isal et al. (2016) explore the impacts of IT infrastructure agility

components (i.e., connectivity, modularity, compatibility, and IT personnel flexibility) on Business-IT alignment. The findings reveal that only compatibility has a positive and significant impact on Business-IT alignment out of these four components.

The second viewpoint explains the paradox considering the social dimension of alignment, which is yet to receive sufficient attention (Liang et al., 2017; Schlosser et al., 2015; Zolper et al., 2014). This establishes the centrality of the processes related to organizational agility towards effectively achieving alignment in the present tumultuous market conditions (Zhou et al., 2018).

The third viewpoint investigates the contribution of Business-IT alignment in organizational agility. As reported in <Table III> (Appendix), Panda and Rath (2018) observe a positive impact of alignment on organizational agility (reported in terms of business process and market responsive agilities). In presence of uncertainties, alignment demonstrated more impact on the market responsive agility. The findings by Liang et al. (2017), however, differs to some extent as the authors observe only social alignment to facilitate organizational agility, while intellectual alignment to impede it. In addition to this, the relationship between operational alignment and organizational agility, even though featuring in a few research inquiries (Rahimi et al., 2016; Wagner, 2014; Zhou et al., 2018), has not also been explored in detail. The existing inquiries can serve as the foundation to explore the paradox and its dimensions in future research projects.

5.1.2. Business-IT Alignment and Merger Acquisition

Mergers and acquisitions (M&A) are transactions in which the ownership of organizations, other busi-

ness organizations, or their operating units are transferred or consolidated with other entities. From a legal point of view, a merger is a legal consolidation of two entities into one, whereas an acquisition occurs when one entity takes ownership of another entity's stock, equity interests or assets. M&A can allow enterprises to grow or downsize, and change the nature of their business or competitive position. The consolidation will have some ramification on the Business-IT alignment contexts in the respective organizations. Baker and Niederman (2014) observe that alignment between business and IT is critical to the effectiveness of mergers and acquisitions in managing firm integration. Research focusing on the levels of Business-IT alignment is yet to consider the implications of this consolidation at the organizational level. The related inquiries can explore the same and consider the consequences on the other associated levels (e.g., system, process, and individual) and the associated processes, thereby opening up future research possibilities related to Business-IT alignment in M&A.

5.1.3. Alignment in Informally Structured Organizations

Research endeavours exploring the structural dimensions of Business-IT alignment has mainly focused on the formal structure (Abareshi, 2011; Muhammad, 2009). Formal organizations are enduring, static and hierarchical in operation and structure (Chan and Reich, 2007). Formal structure provides a more convenient, easily accessible ambience for study and their alignment results can be often easily assessed and measured. However, Chan (2001) suggests that the informal structure needs greater attention owing to its importance in improving IT alignment and organizational performance. Chan (2002),

in his investigation of organizations having formal or informal structures, finds that informal organization structures play a far more critical role than expected in improving IS performance.

Research explorations concentrating on Business-IT alignment issues can explore the “informal” structural dimension and its attributes, and their contribution to the alignment. In developing nations without proper employment opportunities, we also observe start-up businesses established by skilled youths resorting to entrepreneurship to make a career (Gupta, 2008; Prabhu and Jain, 2015). Most of these start-ups are characterized by informal structures (Robbins et al., 2013) and resort to extensive use of information technology to run the business (Elia et al., 2020; Jin et al., 2017). Hence explorations around informal structures can also concentrate on this sector and contribute to the knowledge base through focussed inquiries, for example, investigating the alignment characteristics, assessing and measuring alignment, exploring the relevant strategies in the alignment context, and many more.

5.2. Alignment and Smart Campuses

The current era is witnessing a shift towards smart computing that is concerned with the methods and technologies to create systems, applications, and new services that meet the needs of society. The growing importance of the phenomena serves as a paradigm shift to the evolution of the Business-IT alignment domain, focusing on the convergence of business and IT towards supporting the broader societal needs (Kahre et al., 2017). The smart campus provides such a canvas to examine the necessary convergence and the alignment considerations.

Malatji (2017) defines a smart campus as a campus that makes intelligent interaction with all the stake-

holders and the physical environment that surrounds it. A smart campus integrates ICT (Information and Communication Technology) and embeds various levels of intelligence, enabling ubiquitous teaching and learning environment (Muhamad et al., 2017). A smart campus model can be viewed as an alignment of the “business” or organizational (university/institution) context and the “IT” or technological backbone/platform context. Obviously, a seamless integration of both contexts is necessary to realize a smart campus. In the literature on smart campus, there are acknowledgements of impediments when traditional campus plans to transform into a smart campus design (Alghamdi and Shetty, 2016; Pagliaro et al., 2016). Smart campus faces challenges from decentralized IT departments (Sarkar and Young, 2011) which calls for the integration of different services (Hirsch and Ng, 2011). These IT governance issues negatively affect IT alignment, which could lead not only to a reduction in organizations’ performance but also to an erosion in their agility and market competitiveness (Alghamdi and Sun, 2017). These arguments showcase the exploration possibilities towards achieving the necessary convergence and can be the subject of future research inquiries.

5.3. Business-IT Alignment Success

Assessing the success of information systems is a widely popular topic in IS and allied disciplines. The important of IS in the used contexts also necessitates the need to conduct inquiries to form an understanding that relates to the success of these information systems. The dominant inquiries following this discourse have tried to provide a comprehensive understanding of IS success by identifying, describing, and explaining the relationships of concepts that determine the most critical dimensions of success along

which information systems are commonly evaluated (Delone and McLean, 2003; DeLone and William, 1992; Gable et al., 2008; Petter et al., 2013). The conceptualization of IS success often takes into account the process understanding by which information systems are first created, containing various features. These features are used by the users and managers who form their belief regarding the utility of these systems, and these individual impacts collectively results in organizational impacts (Delone and McLean, 2003). Considering the domain of Business-IT Alignment, the process of alignment leading to a status of alignment opens up opportunities for a conceptualization and assessment of success. The extant inquiries on the domain, even though dealing with issues related to measuring alignment (Khaiata and Zualkernan, 2009; Luftman, 2003), or exploring the process components of the alignment and its dynamics (e.g., Luftman, 1999; Sabherwal et al., 2001) has not devoted attention on this front.

5.4. Dynamic Nature of Alignment

Traditionally alignment has been viewed as static or an end-state outcome, often matching one business strategy with the corresponding IT strategy. The other perspective stresses on the dynamic nature of alignment attributing it as a process (Baker and Jones, 2008). Presently IT alignment has become more complex and dynamic since organizations introduce changes to adapt and cope themselves to the extremely changing business context (Avila and Garcés, 2017). Moreover, such changes are often not properly forecasted or countered by corresponding flexible IT strategies (Jorfi et al., 2017) which in turn derails the process of alignment. Though a few isolated studies have dealt with dynamic alignment in small and medium enterprises (Afandi, 2017; Purnama and Subroto,

2016), a focussed emphasis on the dynamic nature of alignment is still missing in the extant evidence. This gives a scope for examining the dynamic nature of business alignment (Zhang et al., 2018) and also attending to the concerns related to sustaining alignment over time and in turbulent conditions (Ohlsson et al., 2016; Peppard and Campbell, 2014). Research inquiries can be designed as longitudinal studies that can observe this process of alignment over time, addressing relevant concerns as defined by the problem in concern, and also proposing interventions strategies which may be appropriate. Apart from contributing to the process theoretical perspective underlying the phenomena under consideration, these inquiries are expected to add richness to the domain of Business-IT alignment through their treatment of the dynamic facets of the phenomena.

5.5. Business-IT Alignment in the Digital Age

The digital era is altering corporate norms. Digital innovations are rapidly influencing our daily lives, and more so in the corporate world (Collin, 2015). Given the changes we are witnessing in the “digital age”, Business-IT alignment needs to be extended to take new digital modes of IT provision into account. There is a need to better understand the challenges and implementation means that are used by companies to establish and advance a digital IT unit. New players enter the market, leveraged by cutting-edge technology that shakes up the solid and recognized companies (Herbert, 2017; Peppard and Ward, 2016; Rogers, 2016; Venkatraman, 2017). With the constant diffusion of digital technologies, each industry also faces its own challenges and threats. According to Jonathan et al. (2020), being in this alignment equation is challenging for digitalization in general and digital

strategy formulation in particular. This is because companies continue to struggle to express their digital strategy in today's complex world characterised by rapid changes in technology and consumer demand.

Understanding the role of enterprise architecture models and frameworks, and intelligent IT systems in facilitating the elicitation, execution, and evaluation of practices enabling Business-IT alignment are also receiving attention from scholars (Jonathan et al., 2020). Recent publications articulate the need to go beyond the traditional understanding of Business-IT alignment. As organizations increasingly digitize their business models and start to recognize the differential value of IT, researchers have postulated the necessity of a "two-way alignment" (Coltman et al., 2015) between business and IT (Bharadwaj et al., 2013). Organizations that possess digital options but are unable to leverage these assets through their processes, will likely fail to capitalize on digital opportunities (Coltman et al., 2015; El Sawy et al., 2010; Woodard et al., 2013). These findings, taken together, suggest a new notion of alignment where the organizational capabilities and the constituent processes act as a mean for IT to create value. New governance and alignment mechanisms need to be developed and established to achieve a good Business-IT alignment under these changed conditions. The alignment should also be achieved in the mind-set of IT leaders and IT personnel to adopt a business and customer perspective instead of a merely technical oriented view (Rae, 2015). Explorations dealing with these can help to understand the nexus between digitalization and the Business-IT alignment context.

In terms of the theoretical underpinnings, the existing explorations resorted to the prominent frameworks and models as discussed above in their inquiries. As information technology expands beyond facilitating business (Lusch and Nambisan, 2015), some issues

require more intense deliberations. Researchers may investigate structures, processes, and governance frameworks in organizations that are best suited to achieving alignment or which new alignment viewpoints are supported by digital strategies. Opportunities also exist in adapting other theoretical underpinnings from related domains in Business-IT alignment explorations. This is becoming particularly important as the dominant perspective on alignment is being questioned and, in some cases, overturned (Coltman et al., 2015). These explorations can also relate to some of the driving forces that are shaping the digital ecosystem, for example, competitive rivalry, technological dynamism, and instability (El Sawy et al., 2010; Pagani, 2013), while developing explanations on how alignment might be achieved, thereby creating value for the organizations.

VI. Conclusion

The importance of Business-IT alignment has been recognised over the last four decades. In this paper we present a review of research on Business-IT alignment with the objective of uncovering the future possibilities. We organize the literature review based on a conceptual model that we propose. The evidence revealed the understanding of the facets related to the notion, antecedents, nature, and outcome of Business-IT alignment. Finally based on the treatment of the domain in the extant literature, we could chart out possible areas of future exploration and contribute new knowledge to the domain of Business-IT alignment.

Our review contributes to both theory and practice that warrant a mention here. Research contributions to the domain of Business-IT alignment have been significant till now. The essay reveals the under-

standing and developments around some of the pertinent concepts related to Business-IT alignment. The evidence suggests that the perception of this multi-dimensional phenomenon has been mostly context-driven. The treatment of Business-IT alignment has been mostly process-driven while acknowledging the dysfunctionalities characterizing the organization and its environment. A number of artifacts could be identified which are proposed across years to serve as vehicles for realizing Business-IT alignment in practice. The antecedents of Business-IT alignment resembled a very broad spectrum contingent on the organizational characteristics (e.g., structure, operations, etc.). The outcomes of alignment in terms of the impact on the business and organization have been mostly positive, even though some variations, depending upon the focus of the research, were evident. With this, we are able to provide an up-to-date presentation of the domain, thereby facilitating researchers and practitioners. The current era also opens up new possibilities and poses several challenges for the domain. Towards this, we delineate several future research topics for possible explorations. These are expected to crystallize into new research projects, thereby promoting further theoretical work in the domain. Finally, by going through the review, the practitioners can be aware of the developments and possibilities around Business-IT alignment. This is expected to prepare them better for dealing with the impending challenges. For example, any alignment initiative at organizations can weigh the pros and cons of the available Business-IT alignment artifacts before a final commitment. On the positive side, from the review, the practitioners can also appreciate the gamut of contributions of Business-IT Alignment, whose realization may be possible and can carry out

the necessary planning.

There are some limitations that need to be acknowledged. To begin, the validity of the publications that comprised our literature review may be called into question. By limiting our search to just two databases, we risk losing out on papers that are important to the goals of this study. Given that each outlet has its own set of goals and priorities, this selection is bound to have an effect on the contributions of this research. Second, the publications that comprise our analysis are the product of using our search keywords in the short-listed channels. Even though we took great care in crafting the search query and also considered other relevant referenced documents based on the list of citations, we cannot conclude that the search results will return all articles related to Business-IT alignment. As an instance, an article may use the keyword "convergence" to address how the business and IT aspects of an organization may be linked, but such an article will not get identified in our study as the specific keyword is not a part of the search query that was used during the article retrieval process. Business-IT alignment has been conceptualised differently as a process that transcends IS and other associated fields, resulting in the use of different words to describe it. Recognizing these limitations, subsequent reviews may use alternative approaches to address the aforementioned shortcomings. We hope that in this article, we have appropriately represented the current state of research on Business-IT alignment as well as the potential future trajectory of research. The ideas, discussion, and research issues set forth in this essay are expected to stimulate interest and future work on Business-IT alignment in IS and allied disciplines.

<References>

- [1] Abareshi, A. (2011). The antecedents of IT-business alignment in manufacturing firms. *International Journal of Business Information Systems*, 8(3), 322-337.
- [2] Abdolvand, N., and Sepehri, M. M. (2016). Antecedents of strategic information systems alignment in Iran. *Journal of Global Information Technology Management*, 19(2), 80-103.
- [3] Afandi, W. (2017). The impact of strategic IT-business alignment: evidence from Saudi private small and midsize enterprises. *International Journal of Business and Social Science*, 8(10), 48-63.
- [4] Alaceva, C., and Rusu, L. (2015). Barriers in achieving business/IT alignment in a large Swedish company: What we have learned? *Computers in human behavior*, 51, 715-728.
- [5] Alfadhel, S., Liu, S., and Oderanti, F. (2019). Business and information system alignment theories built on egovernment service practice: An holistic literature review. *Application of Decision Science in Business and Management*. <https://doi.org/10.5772/intechopen.88755>
- [6] Alghamdi, A., and Shetty, S. (2016). Survey toward a smart campus using the internet of things. *4th International Conference on Future Internet of Things and Cloud (FiCloud)*.
- [7] Alghamdi, H., and Sun, L. (2017). Business and IT alignment in higher education sector. *International Journal of Technology and Engineering Studies*, 3(1), 01-08.
- [8] Alignment. ((n.d.)). Merriam-Webster, Retrieved from <https://www.merriam-webster.com/dictionary/alignment>
- [9] Amarilli, F., Van Vliet, M., and Van Den Hooff, B. (2017). An explanatory study on the co-evolutionary mechanisms of business IT alignment. *Proceedings of the International Conference on Information Systems (ICIS)*.
- [10] Aversano, L., Grasso, C., and Tortorella, M. (2012). A literature review of Business/IT Alignment Strategies. *Procedia Technology*, 5, 462-474.
- [11] Avila, O., and Garcés, K. (2017). Change management support to preserve business-information technology alignment. *Journal of Computer Information Systems*, 57(3), 218-228.
- [12] Avila, O., Goepf, V., and Kiefer, F. (2018). Addressing alignment concerns into the design of domain-specific information systems. *Journal of Manufacturing Technology Management*, 29(5), 726-745.
- [13] Avison, D., Jones, J., Powell, P., and Wilson, D. (2004). Using and validating the strategic alignment model. *The Journal of Strategic Information Systems*, 13(3), 223-246.
- [14] Baets, W. (1992). Aligning information systems with business strategy. *The Journal of Strategic Information Systems*, 1(4), 205-213.
- [15] Baets, W. R. (1996). Some empirical evidence on IS strategy alignment in banking. *Information & management*, 30(4), 155-177.
- [16] Baker, E. (2004). Leading alignment. *CIO Insight*, 1(45), 19-20.
- [17] Baker, E. W., and Niederman, F. (2014). Integrating the IS functions after mergers and acquisitions: Analyzing business-IT alignment. *The Journal of Strategic Information Systems*, 23(2), 112-127.
- [18] Baker, J., and Jones, D. (2008). A theoretical framework for sustained strategic alignment and an agenda for research.
- [19] Baker, J., Jones, D., Cao, Q., and Song, J. (2011). Conceptualizing the dynamic strategic alignment competency. *Journal of the association for information systems*, 12(4), 299-322.
- [20] Beehr, T. A., Glazer, S., Fischer, R., Linton, L. L., and Hansen, C. P. (2009). Antecedents for achievement of alignment in organizations. *Journal of Occupational and Organizational Psychology*, 82(1), 1-20.
- [21] Benbya, H., Leidner, D. E., and Preston, D. (2019). MIS Quarterly Research Curation on information

- systems alignment research curation team. *MIS Quarterly Research Curations*, 1-19.
- [22] Benbya, H., and McKelvey, B. (2006). Using coevolutionary and complexity theories to improve IS alignment: A multi-level approach. *Journal of Information Technology*, 21(4), 284-298
- [23] Berman, S. J. (2012). Digital transformation: Opportunities to create new business models. *Strategy & Leadership*, 40(2), 16-24.
- [24] Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., and Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS quarterly*, 37(2), 471-482.
- [25] Bleistein, S. J., Cox, K., and Verner, J. (2006). Validating strategic alignment of organizational IT requirements using goal modeling and problem diagrams. *Journal of Systems and Software*, 79(3), 362-378.
- [26] Bostrom, R. P., and Heinen, J. S. (1977). MIS problems and failures: A socio-technical perspective. Part I: The causes. *MIS quarterly*, 1(3), 17-32.
- [27] Bricknall, R., Darrell, G., Nilsson, H., and Pessi, K. (2007). Aligning IT strategy with business strategy through the balanced scorecard. *IEEE, Proceedings of the 40th Annual Hawaii International Conference on System Sciences (HICSS'07)*.
- [28] Broadbent, M., and Weill, P. (1993). Improving business and information strategy alignment: Learning from the banking industry. *IBM systems journal*, 32(1), 162-179.
- [29] Brown, C. V., and Magill, S. L. (1994). Alignment of the IS functions with the enterprise: Toward a model of antecedents. *MIS quarterly*, 371-403.
- [30] Byrd, T. A., Lewis, B. R., and Bryan, R. W. (2006). The leveraging influence of strategic alignment on IT investment: An empirical examination. *Information & management*, 43(3), 308-321.
- [31] Campbell, B. (2005). Alignment: Resolving ambiguity within bounded choices. *Pacific Asia Conference on Information Systems, Bangkok, Thailand*.
- [32] Chan, Y. E. (2001). Information systems strategy, structure and alignment. *Strategic Information Technology: Opportunities for competitive advantage* (1st ed. pp. 56-81). Hershey, PA: Idea Group Publishing.
- [33] Chan, Y. E. (2002). Why haven't we mastered alignment? The importance of the informal organization structure. *MIS Quarterly Executive*, 1(2), 97-112.
- [34] Chan, Y. E., Huff, S. L., Barclay, D. W., and Copeland, D. G. (1997). Business strategic orientation, information systems strategic orientation, and strategic alignment. *Information systems research*, 8(2), 125-150.
- [35] Chan, Y. E., and Reich, B. H. (2007). IT alignment: What have we learned? *Journal of Information Technology*, 22(4), 297-315.
- [36] Chan, Y. E., Sabherwal, R., and Thatcher, J. B. (2006). Antecedents and outcomes of strategic IS alignment: an empirical investigation. *IEEE Transactions on engineering management*, 53(1), 27-47.
- [37] Chau, D. C. K., Ngai, E. W. T., Gerow, J. E., and Thatcher, J. B. (2020). The Effects of Business-IT Strategic Alignment And IT Governance on Firm Performance: A Moderated Polynomial Regression Analysis. *MIS quarterly*, 44(4), 1679-1703.
- [38] Chen, D. Q., Mocker, M., Preston, D. S., and Teubner, A. (2010). Information systems strategy: Reconceptualization, measurement, and implications. *MIS quarterly*, 34(2), 233-259.
- [39] Chen, L. (2010). Business-IT alignment maturity of companies in China. *Information & management*, 47(1), 9-16.
- [40] Chenevert, D., and Tremblay, M. (2009). Fits in strategic human resource management and methodological challenge: Empirical evidence of influence of empowerment and compensation practices on human resource performance in Canadian firms. *The International Journal of Human Resource Management*, 20(4), 738-770.
- [41] Collin, J. (2015). Digitalization and Dualistic IT. In J. Collin, K. Hiekkanen, J. J. Korhonen, M. Halén, T. Itälä, and M. Helenius (Eds.), *IT Leadership in*

- Transition: The Impact of Digitalization on Finnish Organizations* (pp. 29-34). Aalto University School of Science.
- [42] Coltman, T., Tallon, P., Sharma, R., and Queiroz, M. (2015). Strategic IT alignment: Twenty-five years on. *Journal of Information Technology*, 30(2), 91-100.
- [43] Cragg, P., King, M., and Hussin, H. (2002). IT alignment and firm performance in small manufacturing firms. *The Journal of Strategic Information Systems*, 11(2), 109-132.
- [44] Daidj, N. (2019). Strategic and business-IT alignment under digital transformation: Towards new insights? In *Business Transformations in the Era of Digitalization* (pp. 93-105). IGI Global.
- [45] De Haes, S., and Van Grembergen, W. (2015). *Enterprise Governance of Information Technology: Achieving Alignment and Value, Featuring COBIT 5*. Springer.
- [46] DeLone, W. H., and McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9-30.
- [47] DeLone, W. H., and William, H. (1992). Determinants of success for computer usage in small firms. *MIS quarterly*, 3(1), 60.
- [48] Dent, A. (2015). Aligning IT and business strategy: An Australian university case study. *Journal of Higher Education Policy and Management*, 37(5), 519-533.
- [49] Dong, X., Liu, Q., and Yin, D. (2008). Business performance, business strategy, and information system strategic alignment: An empirical study on Chinese firms. *Tsinghua Science & Technology*, 13(3), 348-354.
- [50] El-Mekawy, M., Rusu, L., Perjons, E., Sedvall, K. J., and Ekici, M. (2015). Strategic and tactical business-IT alignment barriers in organizations acting in Sweden. *International Journal of IT/Business Alignment and Governance (IJITBAG)*, 6(2), 31-55.
- [51] El-Mekawy, M. S. A. (2016). *From Theory to Practice of Business-IT Alignment: Barriers, an Evaluation Framework and Relationships with Organisational Culture* [Stockholm University]. Stockholm.
- [52] El Sawy, O. A. (2003). The IS core IX: The 3 faces of IS identity: connection, immersion, and fusion. *Communications of the Association for Information Systems*, 12(1), 39.
- [53] El Sawy, O. A., Malhotra, A., Park, Y., and Pavlou, P. A. (2010). Research commentary—seeking the configurations of digital ecodynamics: It takes three to tango. *Information systems research*, 21(4), 835-848.
- [54] Elia, G., Margherita, A., and Passiante, G. (2020). Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process. *Technological Forecasting and Social Change*, 150, 119791.
- [55] Eriksson, T. (2014). Processes, antecedents and outcomes of dynamic capabilities. *Scandinavian Journal of management*, 30(1), 65-82.
- [56] Feeny, D. F., Edwards, B. R., and Simpson, K. M. (1992). Understanding the CEO/CIO relationship. *MIS quarterly*, 435-448.
- [57] Floyd, S. W., and Woolridge, B. (1990). Path Analysis of the relationship between competitive strategy, information technology, and financial performance. *Journal of Management Information Systems*, 7(1), 47-64.
- [58] Gable, G. G., Sedera, D., and Chan, T. (2008). Re-conceptualizing information system success: The IS-impact measurement model. *Journal of the association for information systems*, 9(7), 18.
- [59] Gbangou, L. P. D., and Rusu, L. (2016). Factors hindering business-IT alignment in the banking sector of a developing country. *Procedia Computer Science*, 100(100), 280-288.
- [60] Gerow, J. E., Grover, V., and Thatcher, J. (2016). Alignment's nomological network: Theory and evaluation. *Information & management*, 53(5), 541-553.
- [61] Gerow, J. E., Grover, V., Thatcher, J. B., and Roth, P. L. (2014). Looking toward the future of IT-business

- strategic alignment through the past: A meta-analysis. *MIS quarterly*, 38(4), 1059-1085.
- [62] Goedvolk, J., de Bruin, H., and Rijnsbrij, D. (1999). Integrated architectural design of business and information systems. *The Second Nordic Workshop on Software Architecture (NOSA'99)*.
- [63] Gupta, V. (2008). An inquiry into the characteristics of entrepreneurship in India. *Journal of International Business Research*, 7, 53.
- [64] Henderson, J. C., and Venkatraman, H. (1993). Strategic alignment: Leveraging information technology for transforming organizations. *IBM systems journal*, 32(1), 472-484.
- [65] Henderson, J. C., and Venkatraman, N. (1989). Strategic alignment: A framework for strategic information technology management.
- [66] Herbert, L. (2017). *Digital Transformation: Build Your Organization's Future for the Innovation Age*. Bloomsbury Publishing Plc.
- [67] Héroux, S., and Fortin, A. (2016). The influence of IT governance, IT competence and IT-business alignment on innovation. *Cahier de recherche*, 4, 38.
- [68] Hinkelmann, K., Gerber, A., Karagiannis, D., Thoenssen, B., Van der Merwe, A., and Woitsch, R. (2016). A new paradigm for the continuous alignment of business and IT: Combining enterprise architecture modelling and enterprise ontology. *Computers in Industry*, 79, 77-86.
- [69] Hirsch, B., and Ng, J. W. P. (2011). Education beyond the cloud: Anytime-anywhere learning in a smart campus environment. *International Conference for Internet Technology and Secured Transactions*.
- [70] Hu, Q., and Huang, C. D. (2005). Aligning IT with firm business strategies using the balance scorecard system. System Sciences, 2005. *HICSS'05. Proceedings of the 38th Annual Hawaii International Conference on*.
- [71] Ilmudeen, A., Bao, Y., and Alharbi, I. M. (2019). How does business-IT strategic alignment dimension impact on organizational performance measures. *Journal of Enterprise Information Management*, 32(3), 457-476.
- [72] Imgharene, K., Doumi, K., and Baina, S. (2018). Toward a model of agility and business IT alignment. *International Conference on Big Data, Cloud and Applications*.
- [73] ISACA. (2013). *COBIT® 5: Enabling Information* (S. D. Haes, C. Betz, B. Peeters, and D. Steuperaert, Eds.). Isaca. www.isaca.org.
- [74] Isal, Y. K., Pikarti, G. P., Hidayanto, A. N., and Putra, E. Y. (2016). Analysis of IT infrastructure flexibility impacts on IT-Business strategic alignment. *Journal of Industrial Engineering and Management (JIEM)*, 9(3), 657-683.
- [75] Jahnke, A. (2004). Sound Off: Why Is Business-IT Alignment So Difficult? CIO, Retrieved from <https://www.cio.com/article/2439612/sound-off---why-is-business-it-alignment-so-difficult.html>
- [76] Jenkin, T. A., and Chan, Y. E. (2006). Exploring the IS project alignment construct, Queen's School of Business working paper.
- [77] Jia, Y., Wang, N., and Ge, S. (2018). Business-IT alignment literature review: A bibliometric analysis. *Information Resources Management Journal (IRMJ)*, 31(3), 34-53.
- [78] Jin, F., Wu, A., and Hitt, L. (2017). Social is the new financial: How startup social media activity influences funding outcomes. *Academy of Management Proceedings*.
- [79] Jo, Y. S., Lee, J. H., and Kim, J. M. (2010). Influential factors for COBIT adoption intention: An empirical analysis. *International Journal of Contents*, 4(4), 79-89.
- [80] Jonathan, G. M., and Hailemariam, K. S. (2020). Intra-organisational barriers to business-IT alignment. *International Journal of Innovation in the Digital Economy (IJIDE)*, 11(3), 22-36.
- [81] Jonathan, G. M., Rusu, L., and Perjons, E. (2020). Business-IT alignment in the era of digital transformation: Quo Vadis? *Hawaii International Conference on System Sciences (HICSS)*. Maui, Hawaii, USA.
- [82] Jorfi, S., Nor, K. M., and Najjar, L. (2017). An

- empirical study of the role of IT flexibility and IT capability in IT-business strategic alignment. *Journal of Systems and Information Technology*, 19(1/2), 2-21.
- [83] Kahre, C., Hoffmann, D., and Ahlemann, F. (2017). Beyond business-IT alignment-digital business strategies as a paradigmatic shift: A review and research agenda. *50th Hawaii International Conference on System Sciences*. Hawaii, USA.
- [84] Kappelman, L., Maurer, C., McLean, E. R., Kim, K., Johnson, V. L., Snyder, M., and Torres, R. (2021). The 2020 SIM IT Issues and Trends Study. *MIS Quarterly Executive*, 20(1), 69-107.
- [85] Kappelman, L., McLean, E., Luftman, J., and Johnson, V. (2013). Key issues of IT organizations and their leadership: The 2013 SIM IT trends study. *MIS Quarterly Executive*, 12(4), 227-240.
- [86] Karpovsky, A., and Galliers, R. D. (2015). Aligning in practice: From current cases to a new agenda. *Journal of Information Technology*, 30(2), 136-160.
- [87] Kearns, G. S., and Lederer, A. L. (2003). A resource based view of strategic IT alignment: How knowledge sharing creates competitive advantage. *Decision Sciences*, 34(1), 1-29.
- [88] Kerr, D. S., and Murthy, U. S. (2013). The importance of the CobiT framework IT processes for effective internal control over financial reporting in organizations: An international survey. *Information & management*, 50(7), 590-597.
- [89] Khaiata, M., and Zualkernan, I. A. (2009). A simple instrument to measure IT-business alignment maturity. *Information Systems Management*, 26(2), 138-152.
- [90] Khther, R. A., and Othman, M. (2013). Cobit framework as a guideline of effective it governance in higher education: A review. *International Journal of Information Technology Convergence and Services*, 3(1), 21.
- [91] Kohli, R., and Grover, V. (2008). Business value of IT: An essay on expanding research directions to keep up with the times. *Journal of the association for information systems*, 9(1), 23.
- [92] Kurti, I., Barolli, E., and Sevrani, K. (2013). Critical success factors for business-IT alignment: A review of current research. *Romanian Economic and Business Review*, 8(3), 79.
- [93] Lainhart IV, J. W. (2000). COBIT™: A methodology for managing and controlling information and information technology risks and vulnerabilities. *Journal of Information Systems*, 14(s-1), 21-25.
- [94] Lederer, A. L., and Mendelow, A. L. (1989). Coordination of information systems plans with Business Plans. *Journal of Management Information Systems*, 6(2), 5-19.
- [95] Liang, H., Wang, N., Xue, Y., and Ge, S. (2017). Unraveling the alignment paradox: How does business—IT alignment shape organizational agility? *Information Systems Research*, 28(4), 863-879.
- [96] Lin, F., Guan, L., and Fang, W. (2010). Critical factors affecting the evaluation of information control systems with the COBIT framework: A study of CPA firms in Taiwan. *Emerging Markets Finance and Trade*, 46(1), 42-55.
- [97] Luftman, and Brier, T. (1999). Achieving and sustaining business-IT alignment. *California Management Review*, 42(1), 109-122.
- [98] Luftman, J. (2000). Assessing business-IT alignment maturity. *Communications of the Association for Information Systems*, 4, Article 14.
- [99] Luftman, J. (2003a). Assessing IT/business alignment. *Information Systems Management*, 20(4), 9-15.
- [100] Luftman, J. (2003b). Strategic alignment as a process. In J. N. Luftman (Ed.), *Competing in the Information Age: Align in the Sand* (Second ed., pp. 381-394). Oxford: Oxford University Press.
- [101] Luftman, J., Lyytinen, K., and ben Zvi, T. (2015). Enhancing the measurement of information technology (IT) business alignment and its influence on company performance. *Journal of Information Technology*, 32(1), 26-46.
- [102] Luftman, J., Papp, R., and Brier, T. (1999). Enablers and inhibitors of business-IT alignment. *Communications of the AIS*, 1(3es), 1.

- [103] Luftman, J. N. (2003). *Competing in the Information Age: Align in the Sand*. Oxford: Oxford University Press.
- [104] Luftman, J. N., Lewis, P. R., and Oldach, S. H. (1993). Transforming the enterprise: The alignment of business and information technology strategies. *IBM Systems Journal*, 38(1), 198-221.
- [105] Lusch, R. F., and Nambisan, S. (2015). Service innovation: A service-dominant logic perspective. *MIS quarterly*, 39(1), 155-176.
- [106] MacDonald, H. (1991). The strategic alignment process. In S. Morton and S. Michael (Eds.), *The Corporation of the 1990s: Information Technology and Organizational Transformation* (1th ed., pp. 310-322). Oxford: Oxford Press.
- [107] Maes, R. (1999). *A Generic Framework for Information Management*. Universiteit van Amsterdam, Department of Accountancy & Information Management.
- [108] Maes, R., Rijsenbrij, D., Truijens, O., and Goedvolk, H. (2000). *Redefining Business-It Alignment Through A Unified Framework*. Universiteit Van Amsterdam/Cap Gemini White Paper.
- [109] Malatji, E. M. (2017). The development of a smart campus-African universities point of view. *2017 8th International Renewable Energy Congress (IREC)*.
- [110] Manfreda, A., and Štemberger, M. I. (2019). Establishing a partnership between top and IT managers. *Information Technology & People*, 40(2), 16-24.
- [111] Masa'deh, R. E. (2009). Antecedents and Outcomes of IT-Business Strategic Alignment: An Empirical Study of Jordanian Public Shareholding Firms.
- [112] Mavengere, N., Pekkola, S., and Stefanidis, A. (2020). *BUSINESS-IT ALIGNMENT, THE STRUGGLE CONTINUES* UK Academy for Information Systems Conference Proceedings, Retrieved from <https://aisel.aisnet.org/ukais2020/9>
- [113] Men, L. R., and Tsai, W. H. S. (2013). Toward an integrated model of public engagement on corporate social networking sites: Antecedents, the process, and relational outcomes. *International Journal of Strategic Communication*, 7(4), 257-273.
- [114] Morton, M. S. S. (1991). *The Corporation of the 1990s: Information Technology and Organizational Transformation*. Oxford University Press on Demand.
- [115] Motjolo-pane, I., and Brown, I. (2004). Strategic business-IT alignment, and factors of influence: a case study in a public tertiary education institution. *Proceedings of the 2004 Annual Research Conference of the South African Institute of Computer Scientists and Information Technologists on IT Research in Developing Countries*.
- [116] Muhamad, W., Kurniawan, N. B., and Yazid, S. (2017). Smart campus features, technologies, and applications: A systematic literature review. *2017 International Conference on Information Technology Systems and Innovation (ICITSI)*.
- [117] Muhammad, M. R. (2009). Antecedents of IT alignment in public sector: Case of E-Syariah implementation in Malaysia. *UK Academy for Information Systems Conference Proceedings 2009*.
- [118] Nadler, D. A. (1983). A general diagnostic model for organizational behavior: Applying a congruence perspective. In E. E. L. A. L. W. P. J. R. Hackman (Ed.), *Perspectives on behavior in organizations* (pp. 112-124). McGraw-Hill.
- [119] Naidu, S. (2015). *Alignment of Information Technology Strategizing Practices and Organizational Goals*. University of Pretoria. Pretoria, South Africa.
- [120] Njanka, S. Q., Sandula, G., and Colomo-Palacios, R. (2021). IT-business alignment: A systematic literature review. *Procedia Computer Science*, 181, 333-340.
- [121] Nwankpa, J. K. (2015). ERP system usage and benefit: A model of antecedents and outcomes. *Computers in Human Behavior*, 45, 335-344.
- [122] Ohlsson, J., Han, S., Hultin, M., and Rosengren, B. (2016). How to achieve sustainable business IT alignment: Designing a circular organizational structure at SAAB. *System Sciences (HICSS), 2016 49th Hawaii International Conference on*.

- [123] Pagani, M. (2013). Digital business strategy and value creation: Framing the dynamic cycle of control points. *MIS quarterly*, 37(2), 617-632.
- [124] Pagliaro, F., Mattoni, B., Gugliermenti, F., Bisegna, F., Azzaro, B., Tomei, F., and Catucci, S. (2016). A roadmap toward the development of Sapienza Smart Campus. *16th International Conference on Environment and Electrical Engineering (EEEIC)*.
- [125] Panda, S., and Rath, S. K. (2018). Strategic IT-business alignment and organizational agility: from a developing country perspective. *Journal of Asia Business Studies*, 12(4), 422-440.
- [126] Papp, R., Luftman, J., and Brier, T. (1996). Business and IT in harmony: Enablers and inhibitors to alignment. *Americas Conference on Information Systems-Ais/Icis*.
- [127] Parker, M. M., Benson, R. J., and Trainor, H. E. (1988). *Information Economics: Linking Business Performance to Information Technology*. Prentice Hall Englewood Cliffs, NJ.
- [128] Peppard, J., and Campbell, B. (2014). The co-evolution of business/information systems strategic alignment: An exploratory study. *Manuscript for Journal of Information Technology Special Issue Strategic IT Alignment: Twenty Five Years On*.
- [129] Peppard, J., and Ward, J. X. (2016). *The Strategic Management of Information Systems: Building a Digital Strategy*. John Wiley & Sons.
- [130] Petter, S., DeLone, W., and McLean, E. R. (2013). Information systems success: The quest for the independent variables. *Journal of Management Information Systems*, 29(4), 7-62.
- [131] Powell, T. C. (1992). Organizational alignment as competitive advantage. *Strategic Management Journal*, 13(2), 119-134.
- [132] Prabhu, J., and Jain, S. (2015). Innovation and entrepreneurship in India: Understanding jugaad. *Asia Pacific Journal of Management*, 32(4), 843-868.
- [133] Preston, D. S., and Karahanna, E. (2009). Antecedents of IS strategic alignment: A nomological network. *Information systems research*, 20(2), 159-179.
- [134] Purnama, C., and Subroto, W. T. (2016). Competition intensity, uncertainty environmental on the use of information technology and its impact on business performance Small and Medium Enterprises (SMEs). *International Review of Management and Marketing*, 6(4), 984-992.
- [135] Queiroz, M. (2017). Mixed results in strategic IT alignment research: A synthesis and empirical study. *European Journal of Information Systems*, 26(1), 21-36.
- [136] Rae, B. (2015). Tackling the rise of bimodal IT and "two-speed ITSM", Retrieved from <https://www.axelos.com/news/blogs/february-2015/tackling-the-rise-of-bimodal-it-and-two-speed-it-sm>
- [137] Rahimi, F., Møller, C., and Hvam, L. (2016). Business process management and IT management: The missing integration. *International Journal of Information Management*, 36(1), 142-154.
- [138] Ravishankar, M. N., Pan, S. L., and Leidner, D. E. (2011). Examining the strategic alignment and implementation success of a KMS: A subculture-based multilevel analysis. *Information Systems Research*, 22(1), 39-59.
- [139] Reich, B. H., and Benbasat, I. (1996). Measuring the linkage between business and information technology objectives. *MIS quarterly*, 55-81.
- [140] Reich, B. H., and Benbasat, I. (2000). Factors that influence the social dimension of alignment between business and information technology objectives. *MIS quarterly*, 81-113.
- [141] Reynolds, P., and Yetton, P. (2015). Aligning business and IT strategies in multi-business organizations. *Journal of Information Technology*, 30(2), 101-118.
- [142] Ridley, G., Young, J., and Carroll, P. (2004). COBIT and its Utilization: A framework from the literature. *Proceedings of the 37th Annual Hawaii International Conference on System Sciences, 2004*
- [143] Ridwansyah, R., and Rusu, L. (2020). Social barriers in business-IT alignment in a public organization

- in Indonesia. *International Journal of Innovation in the Digital Economy*, 11(2), 55-66.
- [144] Robbins, S. P., DeCenzo, D. A., and Coulter, M. (2001). *Fundamentals of Management*. Upper Saddle River, New Jersey: USA.
- [145] Rockart, J. F., and Morton, M. S. (1984). Implications of changes in information technology for corporate strategy. *Interfaces*, 14(1), 84-95.
- [146] Rogers, D. L. (2016). *The Digital Transformation Playbook: Rethink Your Business for the Digital Age*. Columbia: Columbia University Press.
- [147] Sabegh, M. A. J., and Motlagh, S. M. (2012). The role and relevance of IT governance and IT capability in Business-IT alignment in medium and large companies. *Business and Management Review*, 2(6), 16-23.
- [148] Sabherwal, R., and Chan, Y. E. (2001). Alignment between business and IS strategies: A study of prospectors, analyzers, and defenders. *Information Systems Research*, 12(1), 11-33.
- [149] Sabherwal, R., Hirschheim, R., and Goles, T. (2001). The dynamics of alignment: Insights from a punctuated equilibrium model. *Organization Science*, 12(2), 179-197.
- [150] Sabherwal, R., and Kirs, P. (1994). The alignment between organizational critical success factors and information technology capability in academic institutions. *Decision Sciences*, 25(2), 301-330.
- [151] Salim, J., and Seman, E. A. A. (2013). Antecedents factors affecting alignment and its impact to organizational performance in universities. *Proceedings of the International Conference on Business Administration, Marketing and Economics*.
- [152] Sandusky, W. B. (2018). *Investigation into Barriers Preventing IT-Business Strategic Alignment in Medium-Sized Manufacturing Organizations in the Midwest Region of the United States of America*. Capella University.
- [153] Sarkar, P., and Young, L. (2011). Sailing the Cloud: A case study of perceptions and changing roles in an Australian university. *The European Conference on Information Systems*.
- [154] Schlosser, F., Beimborn, D., Weitzel, T., and Wagner, H. T. (2015). Achieving social alignment between business and IT: An empirical evaluation of the efficacy of IT governance mechanisms. *Journal of Information Technology*, 30(2), 119-135.
- [155] Schlosser, F., Wagner, H. T., and Coltman, T. (2012). Reconsidering the dimensions of business-IT alignment. In *2012 45th Hawaii International Conference on System Sciences* (pp. 5053-5061). IEEE.
- [156] Schniederjans, M., and Cao, Q. (2009). Alignment of operations strategy, information strategic orientation, and performance: An empirical study. *International Journal of Production Research*, 47(10), 2535-2563.
- [157] Schryen, G. (2013). Revisiting IS business value research: What we already know, what we still need to know, and how we can get there. *European Journal of Information Systems*, 22(2), 139-169.
- [158] Seyal, A. H., Poon, S. H., and Tajuddin, S. (2016). A Preliminary Evaluation of ICT Centers Performance Using COBIT Framework: Evidence from Institutions of Higher Learning in Brunei Darussalam. *International Conference on Computational Intelligence in Information System*.
- [159] Shah, H. (2012). *As CIO, what is the# 1 challenge that keeps you worried all the time*. LinkedIn.
- [160] Silvius, and Gijsbert, A. J. (2013). *Business and IT alignment in context*. Utrecht University.
- [161] Silvius, A. (2007). Exploring differences in the perception of business and IT alignment. *Communications of the IIMA*, 7(2), 21.
- [162] Silvius, A. G., De Haes, S., and Van Grembergen, W. (2009). Exploration of cultural influences on Business and IT alignment. *System Sciences, 2009. HICSS'09. 42nd Hawaii International Conference on*.
- [163] Silvius, A. G., Smit, J., and Driessen, H. (2010). *The Relationship between Organizational Culture and the Alignment of Business and IT*. AMCIS.
- [164] Spósito, M. A. F., Neto, A. C. D., and da Silva

- Barreto, R. (2016, April). Business-IT alignment research field-A systematic literature review. In *International Conference on Enterprise Information Systems* (Vol. 2, pp. 549-558). SCITEPRESS.
- [165] Tallon, P. P. (2007). A process-oriented perspective on the alignment of information technology and business strategy. *Journal of Management Information Systems*, 24(3), 227-268.
- [166] Tallon, P. P., and Kraemer, K. L. (2003). Investigating the relationship between strategic alignment and IT business value: the discovery of a paradox. *Creating Business Value with Information Technology: Challenges and Solutions. Hershey* (pp. 1-22). PA: Idea Group Publishing.
- [167] Tallon, P. P., Kraemer, K. L., and Gurbaxani, V. (2000). Executives' perceptions of the business value of information technology: a process-oriented approach. *Journal of Management Information Systems*, 16(4), 145-173.
- [168] Tan, F. B., and Gallupe, B. (2006). Aligning business and information systems thinking: A cognitive approach. *IEEE Transactions on Engineering Management*, 53(2), 223-237.
- [169] Tarafdar, M., and Qrunfleh, S. (2010). Examining tactical information technology: Business alignment. *Journal of Computer Information Systems*, 50(4), 107-116.
- [170] Teo, T. S., and King, W. R. (1996). Assessing the impact of integrating business planning and IS planning. *Information & management*, 30(6), 309-321.
- [171] Ullah, A., and Algarni, F. (2017). Business and information technology re-alignment through managing business process. *Journal of Software*, 12(9), 695-708.
- [172] Ullah, A., and Lai, R. (2013). A systematic review of business and information technology alignment. *ACM Transactions on Management Information Systems (TMIS)*, 4(1), 1-30.
- [173] van de Wetering, R. (2016). Modeling alignment as a higher order nomological framework. *International Conference on Business Information Systems*.
- [174] Venkatraman, N. (1989). The concept of fit in strategy research: Toward verbal and statistical correspondence. *Academy of management review*, 14(3), 423-444.
- [175] Venkatraman, N. (1989). Strategic orientation of business enterprises: The construct, dimensionality, and measurement. *Management science*, 35(8), 942-962.
- [176] Venkatraman, V. (2017). *The Digital Matrix: New Rules for Business Transformation through Technology*. Greystone Books.
- [177] Wagner, H. T. (2014). Evolvement of business-IT alignment over time: A situated change perspective. *47th Hawaii International Conference on System Sciences*.
- [178] Webster, J., and Watson, R. T. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS quarterly*, 26(2), xiii-xxiii.
- [179] Wong, T. C., Ngan, S. C., Chan, F. T., and Chong, A. Y. L. (2012). A two-stage analysis of the influences of employee alignment on effecting business-IT alignment. *Decision Support Systems*, 53(3), 490-498.
- [180] Woodard, C. J., Ramasubbu, N., Tschang, F. T., and Sambamurthy, V. (2013). Design capital and design moves: The logic of digital business strategy. *MIS quarterly*, 37(2), 537-564.
- [181] Xiang, Y., Wu, X., and Hu, B. (2008). Strategic alignment methods based on demands classification of information technology. *Advanced Management of Information for Globalized Enterprises, 2008. AMIGE 2008. IEEE Symposium on*.
- [182] Yayla, A. A., and Hu, Q. (2009). *Antecedents and Drivers of It-Business Strategic Alignment: Empirical Validation of a Theoretical Model*. ECIS.
- [183] Yeow, A., Soh, C., and Hansen, R. (2018). Aligning with new digital strategy: A dynamic capabilities approach. *The Journal of Strategic Information Systems*, 27(1), 43-58.
- [184] Zhang, M., Chen, H., Li, X., and Lyytinen, K. (2018).

- Evolution of business-IT alignment: A conceptual model and intervening changes From resource allocation. *IEEE Access*, 6, 9160-9172.
- [185] Zhou, J., Bi, G., Liu, H., Fang, Y., and Hua, Z. (2018). Understanding employee competence, operational IS alignment, and organizational agility: An ambidexterity perspective. *Information & Management*, 55(6), 695-708.
- [186] Zolper, K., Beimborn, D., and Weitzel, T. (2014). The effect of social network structures at the business/IT interface on IT application change effectiveness. *Journal of Information Technology*, 29(2), 148-169.

Appendix

<Table > Alignment Definitions

Authors	Concept Definition	Context	Measurement/ Results	Level of Analysis	Alignment Model
Broadbent and Weill (1993).	The process of alignment between business and IT is the degree to which it is enabled, supported and stimulated by information technology strategies.	Business-IT Alignment (BITA) in Banking Industry	Identification of organizational policies and practices that contribute to alignment	Firm-wide	Strategic Alignment Model
Teo and King (1996).	Alignment is the method whereby the IT strategy is derived from the business strategy.	Integration of Business Planning and IS planning in firms	BP-ISP planning integration and their challenges	Multiple firms	N/A
Henderson and Venkatraman (1999).	Alignment is the degree of fit and integration between business strategy, information technology strategy, business infrastructure, and information technology infrastructure.	Strategic Alignment in firms	Four dominant alignment perspectives emerging from Strategic Alignment Model	Multiple firms	Strategic Alignment Model
Lufman et al. (1999).	Alignment is the extent to which IT and business liaise when formulating their mission statements, their objectives, and their strategic plans, and whether these are supported by the information technology strategy	Study of activities that assist or hinder in achieving alignment	6 enablers and 6 inhibitors of alignment	Multiple firms	N/A
Lufman and Brier (1999).	Alignment focuses on different business organizational activities, that is, the activities that need to be performed to achieve the goals of the organization.	Alignment is defined by the relationship that exists between the 12 SAM components	6 step approach to strategic alignment as a process	Multiple firms	Strategic Alignment Model
Lufman (2000).	Business-IT alignment refers to applying Information Technology (IT) in an appropriate and timely way, in harmony with business strategies, goals and needs.	5 levels of strategic alignment maturity from Initial/Ad Hoc Process to Optimized Process	Identification of 6 components of strategic alignment maturity criteria	Multiple Firms	Strategic Alignment Maturity Model
Reich and Benbasat (2000).	Business-IT alignment refers to the degree to which the IT mission, objectives and plans support and are supported by the business mission, objectives and plans	Study of the factors that influence the social dimension of alignment between business and IT objectives	Identification of four factors that would influence alignment which was operationalized in short-term and long-term alignment	Multiple Firms (Insurance)	Reich & Benbasat Model

<Table > Alignment Definitions (Cont.)

Authors	Concept Definition	Context	Measurement/ Results	Level of Analysis	Alignment Model
Chan (2002).	Alignment focuses on the fit between the priorities and activities of the IS function and those of the business unit.	Study of alignment from the strategic and structural perspectives	The informal organizational structure is more important to IS alignment than commonly recognized	Multiple firms	N/A
Campbell (2005).	Alignment is the process where business and IT work together to achieve a common business goal.	Study of alignment with the ambiguity surrounding the business strategies that are actually in use	IS managers response to ambiguity around 'Locus of Control' and Locus of Comprehension'	Multiple firms	N/A
Silvius (2007).	Business and IT Alignment is the degree to which the IT applications, infrastructure and organization, the business strategy and processes enables and shapes, as well as the process to realize this.	Explores the differences in perception of BIA between business executives and IT executives	Assesses maturity levels of alignment based on the SAMM components	Multiple firms	Strategic Alignment Maturity Model
Xiang et al. (2008).	Business-IT alignment is the process that helps business organizations understand their goals according to the influence of technology on organizational strategy through the development of a reasonable IT strategy	Addresses alignment in different industries that have their different demands on IT	Describes strategic alignment method based on information technology demand classification	Multiple firms	Strategic Alignment Model
Ullah and Lai (2013).	Business-IT alignment is the optimized synchronization between dynamic business objectives /processes and respective technological services provided by IT.	Systematic Literature Review	Review Paper	N/A	N/A
Luftman et al. (2015).	Business-IT alignment refers to the coordination and harmonization of activities across the business and the IT domain in ways that add business value	The study formulates and operationalizes a formative construct rooted in the theory of dynamic capabilities and defines the scope and nature of activities that contribute to alignment	The 6 components of SAMM positively influences alignment which in turn enables positive performance	Multiple firms	Strategic Alignment Maturity Model

<Table II (A)> Business-IT Alignment Antecedents (Enablers)

Author	Context	Methodology	Level of Analysis	Sample	Identified Antecedents
Feeny et al. (1992).	Examine the two-way relationship between CEO and CIO in exploiting the IT capabilities	Interviews	Organizational	CEO-CIO pairs from 14 organizations	Strong CEO/CIO relationship CEO's IT knowledge and experience (participation in IT executive seminars, IT project success, perceives and understands the critical role of IT). CIOs emphasize on consultative Leadership and Creativity. CEO's and CIO's career background in their respective fields CIO accurately perceives the CEO's views on business and IT, and integrates IT with business planning Both CEO and CIO can use IT as an agent of business transformation
Brown and Magill (1994).	Development of a model of antecedents for Business-IT Alignment (BITA)	Interviews and surveys	Organizational	46 IS and general managers	Corporate vision and strategy Overall firm structure Culture - business unit autonomy Strategic IT role Senior management of IT Senior executive support for IT
Lufman et al. (1999).	Investigation into the enablers and inhibitors of BITA	Survey	Individual	1051 executives with different positions	IT's involvement in strategy development IT understands business Business - IT partnership Well-prioritized IT projects IT demonstrates leadership.
Reich and Pembasat (2000).	Study of factors affecting social dimension of alignment	Interviews, Documents (Planning, minutes, strategy)	Organizational	Multiple (10) firms; Executives	Shared domain knowledge IT implementation success Communication between business and IT executives Connection between business and IT planning processes

<Table II (A)> Business-IT Alignment Antecedents (Enablers) (Cont.)

Author	Context	Methodology	Level of Analysis	Sample	Identified Antecedents
Chan (2002).	Study of alignment from the strategic and structural perspectives	Case study	Organizational	Multiple (8) firms	Strong working relationship between CEO and CIO Closely linked business and IS plans IS personnel's participation in business planning Establishment of cross functions teams/task forces.
Mojtopane and Brown (2004).	Study of factors influencing BITA in an organization	Case Study	Organizational	Single firm	Business Planning and IS Planning integration Rational Adaptation in Strategic IS Planning IT Managerial resources IT implementation success
Chan et al. (2006).	Identification of the antecedents and outcomes of Strategic IS Alignment	Surveys	Individual	470 leadership holders	Shared domain knowledge Planning sophistication Prior IT success Organizational size Environmental uncertainty
Chan and Reich (2007).	Review of the extant literature on alignment	Literature Review	N/A	N/A	Corporate culture Shared knowledge Prior experience with IT Leadership approaches Planning processes Communication styles IT unit structure
Yayla and Hu (2009).	Study of the antecedents and drivers of BITA	Survey	Individual	169 business administrators	Shared domain knowledge Successful IT history Relationship management
Preston and Karahanna (2009).	Examining the antecedents of IS strategic alignment	Survey	Individual	243 CIO - Top management team pairs	Relationship /Partnership between CIO-TMT CIO-TMT communication, participation, and planning Shared CIO-TMT understanding CIO characteristics, attributes, and abilities Track record of IS department/CIO

<Table II (A)> Business-IT Alignment Antecedents (Enablers) (Cont.)

Author	Context	Methodology	Level of Analysis	Sample	Identified Antecedents
Beehr et al. (2009).	Study of the antecedents for achieving alignment in a manufacturing company	Survey	Individual	7359 employees	Communication about goals and objectives Employee enhancement and managerial effectiveness Organizational commitment and satisfaction
Masadeh (2009).	Study of the antecedents and outcomes of BITA in Jordanian public shareholding firms	Survey	Individual	152 business and IT managers	Interaction between business and IT managers Association between business and IS plans Shared knowledge between business and IT managers Environmental uncertainty
Muhammad (2009).	Study of the antecedents for BITA	Case Study	Organizational	Single firm	Shared domain knowledge Centralization of IT decision making Formalization of IT planning Stakeholder relationships
Tarafdar and Qrunfleh (2010).	Examination of the aspects and outcomes of tactical BITA	Interviews	Organizational	Multiple (4) firms	Communication of IS strategy across all levels Governance Matching the skills of IT professionals with dynamic business-driven IT requirements Sourcing IT professional's role Project related
Abareshi (2011).	Study of the antecedents of BITA in manufacturing firms	Survey	Individual	1012 CEOs	Management support ICT capabilities
Sabegh and Motlagh (2012).	Study of the relevance of IT governance and IT capability in BITA	Survey	Individual	136 business & IT managers and executives	Performance measurement knowledge sharing IT architecture IT infrastructure

<Table II (A)> Business-IT Alignment Antecedents (Enablers) (Cont.)

Author	Context	Methodology	Level of Analysis	Sample	Identified Antecedents
Wattel (2012).	Study of the antecedents to BITA in healthcare environment	Case study	Organizational	Single firm	Organizational culture Shared knowledge Prior experience with IT Leadership Planning processes Communication Change readiness
Wong et al. (2012).	Analyzing the effect of employee alignment on effecting BITA	Survey	Individual	121 non-executive level employees	Employee alignment (trust, communication, commitment, knowledge)
Salim and Seman (2013).	Antecedents of BITA and their impact on organizational performance in universities	N/A	N/A	N/A	Strategic (shared domain knowledge, IT involvement in strategic planning, strategic planning process) Structural (organizational integration, IT sophistication, IT implementation process, governance, organizational size, scope and architecture) Social (environmental turbulence, IT success track record, communication, shared understanding, institutional environment) Cultural (IT management sophistication, top management support on IT, IT management resource, leadership involvement)
Abdolvand and Sepehri (2016).	Examining the relevance of antecedents of strategic IS alignment in Iran	Survey	Organizational	169 IT and Business managers and executives from (alumni of 6 universities in Iran)	Shared understanding between IT and business Top management support IT department capabilities Organizational plan Frequent rotation of executives in organizational structure Poor understanding of IT for growing Lack of support by the business in IT initiatives continuation

<Table II (B)> Business-IT Alignment Antecedents (Inhibitors)

Author	Context	Methodology	Level of Analysis	Sample	Identified Antecedents
Lederer and Mendelow (1989).	Investigation into challenges of coordination between IS plans and business plans	Interviews	Organizational	20 IS executives	Unclear or unstable business mission, objectives and priorities Lack of communication Absence of IS management from business planning process Unrealistic expectations and lack of sophistication of user management Overall firm structure Culture - business unit autonomy Strategic IT role Senior management of IT
Luftman, Papp, and Brier (1999).	Investigation into enablers and inhibitors of Business-IT Alignment (BITA)	Survey	Individual	1051 executives with different positions	IT/business lack close relationships IT does not prioritize well IT fails to meet its commitments IT does not understand business Senior executives do not support IT IT management lacks leadership
Alaceva and Rusu (2015).	Study of barriers that affect BITA in a Swedish company	Case Study	Organizational	Single firm	Low understanding of counterpart's environment Poor communication Unclear specifications Limited cooperation Lack of mutual commitment and support
El-Mekawy et al. (2015).	Study identifying barriers for achieving and sustaining BITA	Case study and Survey	Organizational	Multiple (3) firms and a survey of 74 practitioners	Lack of IT input during business strategic planning One-sided relationship because IT is not seen as a strategic partner IT and business metrics and objectives are not clearly linked Value of IT is perceived low (Poor demonstration of IT value) IT architecture is complicated ... not easy to make it flexible Communication goes through informal networks Insufficient knowledge to communicate with the other part

<Table II (B)> Business-IT Alignment Antecedents (Inhibitors) (Cont.)

Author	Context	Methodology	Level of Analysis	Sample	Identified Antecedents
El-Mekawy et al. (2015).	Study identifying barriers for achieving and sustaining BITA	Case study and Survey	Organizational	Multiple (3) firms and a survey of 74 practitioners	Low level of IT architecture understanding at the business Tense relationship between business and IT The different systems are not optimized to be used together Delay in task execution
Ghangou et al. (2016).	Study of factors hindering BITA in the banking sector	Case study	Organizational	Multiple (4) firms (commercial banks)	Lack of time to acquire new knowledge Insufficiency of cross-sectional trainings Dependency on telecom operators Heavy workload of staff
Sandusky (2018).	Exploration of the impediments to BITA in medium-sized enterprises	Case study	Organizational	Single firm	Reluctance to hire more personnel Categories of social barriers related to issues pertaining to communication, trust, and confidence between business and IT Lack of IT resources Overcommit of the resources available
Jonathan and Hailermariam (2020).	Study of intra-organisational barriers to BITA	Case study	Organizational	Single firm	Limited business and IT understanding by IT Ineffective communication protocol Lack of knowledge sharing arrangement Lack of formal metrics to measure IT value Limited benchmarking practices Lack of collaboration between business and IT Strategic role of IT not recognised IT expected to assume all risks and viewed as cost Limited IT architecture transparency IT is slow to respond to changes needed Department needs prioritised with limited integration Lack of time for personal skills development Inefficient utilisation of IT personnel Lack of formal skills development programme across the bank IT recruitment practice solely based on technical expertise

<Table II (B)> Business-IT Alignment Antecedents (Inhibitors) (Cont.)

Author	Context	Methodology	Level of Analysis	Sample	Identified Antecedents
Mavengere et al. (2020).	Examining the reasons for why BITA is challenging to organisations	Case Study	Departmental	Single firm	Human tensions and strained work relationships Knowledge silos Self-centred management Technology does not matter (so less investment) Organisational change resistance Technology as a burden Resources inflexibility Sectoral ego
Ridwansyah and Rusu (2020).	Study of social barriers in BITA in a public organization in Indonesia	Case study	Organizational	Single firm	

<Table III> Outcomes of Business-IT Alignment

Article	Stated Outcomes
Venkatraman (1989).	Growth (sales gain and market share gain) and Profitability
Sabherwal and Kirs (1994).	Positive effect of alignment on perceived IT success and organizational performance of academic institutions (e.g., reputation, teaching effectiveness)
Teo and King (1996).	Positive effect of IS and business planning alignment on firm performance (e.g., return on investment, sales revenue) and reduces organization, implementation, database, hardware and cost problems
Chan et al. (1997).	Positive effect of alignment on market growth and innovation, negative effect on reputation and financial performance
Sabherwal and Chan (2001).	Positive effect of alignment on firm performance (e.g., reputation, return on investment, net profits), improved business performance, increased effectiveness of IT function
Cragg et al. (2002).	Positive effect of alignment on firm performance (profitability, sales growth, financial resources, public image and client loyalty)
Kearns and Lederer (2003).	Positive effect of alignment on firm competitive advantage (e.g., IT is to lower costs or differentiate products)
Avison et al. (2004).	Maximises return on IT investment, achieves competitive advantage through IS, provides direction and flexibility to react to new opportunities.

<Table III> Outcomes of Business-IT Alignment (Cont.)

Article	Stated Outcomes
Chan et al. (2006).	Positive effect of alignment on firm performance (e.g. reputation, return on investments) and academic institution performance (e.g. student demand, student quality)
Dong et al. (2008).	Business Performance (Growth and Profitability), IS performance (satisfaction and Impact)
Schniederjans and Cao (2009).	Significant positive relationship between alignment and business performance is supported. Managers' (GMs and OMs) tenure is found to moderate this relationship.
Tarafdar and Qrumfleh (2010).	Successful implementation of planned applications, Execution of IT-enabled aspects of business strategy, Increased credibility of the IT function, Increased business value from IT projects.
Baker et al. (2011).	The ability to achieve a high degree of alignment between its IT (strategy) and business (strategy) is a source of competitive advantage.
Gerow et al. (2014).	Performance, Productivity, Customer benefit and Financial Performance.
Reynolds and Yetton (2015).	Functional alignment creates value at the corporate level by developing IT-based competencies, structural IT alignment creates value through effective governance controlling the allocation of decision rights over IT strategies, temporal alignment creates value by maximizing IT flexibility over the investment cycle: IT flexibility increases the IT options available to respond to market changes.
Héroux and Fortin (2016).	At higher level of Business-IT alignment positive impact (moderating effect) on product and process innovation.
Afandi (2017).	Positive impact of six alignment types described in SAM on financial performance.
Liang et al. (2017).	Positive impacts on organizational inertia and Business-IT coordination. Mixed impacts on organizational agility (social alignment facilitates agility, however, intellectual alignment impedes agility).
Queiroz (2017).	Reports mixed findings. Business-IT alignment along with the choice of strategic orientation of firms determines whether improved performance is realised.
Panda and Rath (2018).	Positive effect of alignment on agility (studied as business process and market responsive agilities), and alignment is more effective on business process agility than market responsive agility. However, in a highly uncertain environment, alignment has more effect on market responsive agility but not on business process agility.
Chau et al. (2020).	Reports positive relationship between alignment and performance for proactive organizations. In addition, effective IT governance in proactive organizations is found to positively moderate the curvilinear relationship between alignment, misalignment, and firm performance.

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