STATEGY, BUSINESS AND INFORMATION SISTEM'S ALIGNMENT: A REVIEW OF LITERATURE

STUDENT: SILVIU UNGUREANU

TUTOR: RAFAEL LAPIEDRA ALCAMÍ

MASTER IN MANAGEMENT

SRO011 - MASTER'S THESIS

ACADEMIC YEAR: 2018/2019

Index

Table Index

Figure Index

Acknowledgements

I would like to express my deepest gratitude to several people for the help and support provided in the preparation and the support of this thesis:

Rafael Lapiedra Alcami for his delightful classes and the passion he has for the It procedures and studies. Moreover, that passion made me investigate deeply studies about the topic presented in this project and find out the way to translate it to the business environment.

Maria Teresa Martinez Fernandez, for her faith in the results I could obtain in the Master in Management and that motivation made me be a better student that I never imagined. Consequently, that motivation provided me enough courage to do this project and learn the maximum.

1. Abstract

The IT is key in the digital era, and the organizations in order to succeed in the globalization environment should be focused in the alignment between the information systems and their organization as a whole. Consequently, the way the companies are approaching the topic is continuously evolving, and as the company in order to keep the pace of the rapid changes, departments are becoming more and more agile. Moreover, the role of IT is evolving having an impact in customer service, sales and the most important business strategy (Newman, 2016).

The objective of this literature review, is to analyze studies related to IT alignment, check the conclusions of the selected reports included and the classify the them depending on the typology of alignment specified in each one of them.

To conclude, the report (Gerow, Tratcher and Grover, 2014) explains 6 definitions of alignment depending on various factors and it will help to expand the topic of alignment . Consequently, this project is a literature review of reports related to alignment, using the keywords.

Key words: "business strategy", "information systems" and "strategic alignment".

1.2   Introduction

The project is an academic review of the reports related to IT planning, business strategy and strategic alignment. The enterprise should try to find the alignment between the information system and the business strategy in order to make the enterprise's performance better. In consequence, this academic review is going to select reports using the base data named ABI/INFORM and the search software *Proquest* (ProQuest, 2019). Moreover, the database provided by UJI, allowed the access to the best journals and reports related to the topic "alignment".

The key word used in order to find the articles talking about the alignment between the IS planning, the business strategy and the effects on the performance of the enterprise. The keywords are "business strategy", "information systems" and "strategic alignment" and the article review have been evaluated by experts and the period of publication of the article is between 2008 and 2019.

The competitive and turbulent business environment, had provided a difficult circumstance for the majority of the enterprises, then their intentions should be focused in aligning Information Technology (IT) with business goal (Elmorshidy, 2013). The enterprises can purchase expensive information systems in order to check and implement business objectives, but the IT should contribute positively to the creation of new business strategies, then align with the business objectives.

In order to the better understanding the topic in the table 1 are going to be explained some concepts are going to be defined. Moreover, the literature is so extensive and the importance, of the achievement of the alignment between IT and business strategy have proven to be an interesting tool and guide in order to survive in the turbulent environment (Reynolds and Yetton, 2015). As it can be seen in the table 1, the topic of alignment had been studied extensively and the experts have been developing typologies and models in order to explain the topic (Table 1).

Table 1: Definition of IT/IS alignment

Authors	Definition of IT/IS alignment
(Sabherwal and Ye, 2001) (Preston DS and Karahanna E, 2009)	The extent of fit or congruence between business strategy and IT strategy.
Karpovsky and Galliers, (2015)	Alignment not as a static end-state but as a continuous, ongoing process of aligning involving a series of activities resulting in adjustments in various dimensions and across various organizational levels. Also, the concept implies aligning practice broadly as all activities that may contribute to tightening links between IT and business across an organization.
(Henderson and Venkatraman, 1993)	An ongoing process of mutual adaption in which IT responds to changes in business strategy and business strategy responds to changes in IT strategy.
(Henderson and Venkatraman, 1993)	Introduction IT-business strategic alignment is defined as the fit between IT strategy and business strategy in organizations.
(Tan FB and Gallupe RB, 2006)	Alignment is the linking of IT and business strategies.
(Cragg and Tagliavini, 2007)	Fit between IT and business infrastructures and processes.
(Porra, Hirschheim and Park, 2005)	Simultaneous integration of business strategy, IT strategy, business infrastructure, and IT infrastructure.
Reynolds and Yetton, (2015).	IT functional alignment models address the relationship between business strategy and functional level IT strategy
Reynolds and Yetton, (2015).	Structural alignment explain the relationship between corporate and SBU level strategies and how they interact to create value.

(Nadler D and Tushman M, 1980)	The degree to which the needs, demands, goals, objectives, and/or structure of one component are consistent with the needs, demands, goals, objectives, and/or structure of another component

Source: Own Elaboration

As seem in the table 1, there are many definitions related to the topic of alignment, also different typologies of alignment. The studies analyzed below will provide more information in order to understand better the topic and the effects on the performance of the enterprise. There are many models that purpose one goal, continually return to the business, all the investments related in project, capital, service support, maintenance and many others (Elmorshidy, 2013). The win-risk related to the design and implementation of IT systems aligned with the organization as a whole is high and the studies should offer a positive link between IT and business objectives.

The aim of the different reports included in this literature review are included in the (table 2), helping to prove different hypothesis related to alignment or in some cases review literature about the topic "alignment".

Table 2: Aim of the report[1]

Year	Title	Authors	Aim
2012	The impact of IT-business strategic alignment on firm performance in a developing country setting: exploring moderating roles of environmental uncertainty and strategic orientation.	Ali Alper Yayla Qing Hu	Test and fill the gaps in explaining the alignment-performance relationship, investigating the effects of the moderating roles and strategic orientation.
2013	Aligning IT With Business Objectives: A Critical Survival And Success Factor In Today's Business.	Elmorshidy Ahmed	Review of the current research models and introduces some new theoretical framework for aligning IT with business objectives.

---

[1] The

2014	Six types of IT-business strategic alignment: an investigation of the constructs and their measurement.	Jennifer E. Gerow, Jason Bennett Thatcher Varun Grover	Emphasizing the importance of demarcating the six alignment types that are sometimes confused in the literature into a single, unified model. Also, providing reports on the development of definitions and measurements of these six types of alignment including alignment between IT and business strategies.
2015	Aligning business and IT strategies in multi-business organizations.	Peter Reynolds Philip Yetton	This paper draws on resource-based theory and path dependence to model functional, structural, and temporal IT strategic alignment in MBOs[2].
2015	Aligning in practice: from current cases to a new agenda.	Anna Karpovsky Robert D. Galliers	Analyze the extant literature on the topic leads to the identification and classification of aligning activities that are being undertaken in practice.
2016	Business Process and Information Technology Alignment: Construct Conceptualization, Empirical Illustration, and Directions for Future Research.	Paul P. Tallon Magno Queiroz Tim Coltman Rajeev Sharma	Conceptualize alignment between IT and business strategy at the process level, taking into consideration the lens of IT shortfall (a lack of IT support for business activities) and IT slack (having more IT than needed to support current business activities)

---

[2] Multi-business organizations

2017	Mixed results in strategic IT alignment research: a synthesis and empirical study	Magno Queiroz Management	Investigate whether firm and process-level conceptualizations of IT alignment, leads to different conclusions about the effect of alignment on performance.
2018	Conceptualizing the Dynamic Strategic Alignment Competency.	Jeff Baker Donald R Jones Qing Cao Jaeki Song	Conceptualize and quantify the strategic alignment by building a Dynamic Capabilities Framework.

1.3 Theoretical framework

The articles analyzed offered different definitions, structures and typologies of alignment. In this chapter the study (Gerow, Tratcher and Grover, 2014) is going to be explain in detail, in order to classify the rest of reports included, by the typology of alignment they are speaking of, or taking conclusion about. Also, we are going to expose some definitions in order to better understand the complexity of the topic.

1.3.1 Six types of IT-business strategic alignment: an investigation of the constructs and their measurement (Gerow, Tratcher and Grover, 2014)

The paper (Gerow, Tratcher and Grover, 2014) , the study is going to be summarized in this part of the project and it will provide a classification guide in order to determine the typology of alignment the reports included in this literature review are analyzing. Moreover, the report will be the main theoretical "mine" of information due to the importance of the project and it provides a deeper though, helping the understanding of this complex and broad topic.

The IT-business strategic alignment has been studied in many reports, primarily focusing in the how and if whether the alignment between it and business generated value for the firm. Moreover, the cultivation of the alignment between business and IT could generate a sustainable competitive advantage and profitability. However, it also can end up in a failure wasting IT initiatives and resources and providing expense to the financial outcome of the enterprise (Gerow, Tratcher and Grover, 2014).

For instance, some researchers had found positive effects between alignment and performance, but some had found a negative or non-conclusive effect related to the topic. Consequently, the report (Gerow, Tratcher and Grover, 2014) tries to solve the inconsistent definitions of alignment that produced several problems related to the topic after analyzing the literature:

1- It is impossible achieve the adequacy and certainty of alignment measures is the alignment's concept is not well defined.
2- The confusion generated should be reduced, caused by the ambiguity referring to what should be included or excluded in the topic of alignment. Consequently, the different types of alignment should be defined well specified.
3- To conclude the measurements taken may not be adequate because the alignment is not well-defined.

In order to check the veracity of the conclusion mentioned the report (Gerow, Tratcher and Grover, 2014) analyzed more than "175 published alignment studies in journals, conferences, and dissertations, more than 115 employed some type of questionnaire". Moreover, only the 25% of the studies mentioned used (Venkatraman, 1985) scale "STROBE" (Strategic Orientation of Business Enterprises)[3] and/or (Chan *et al.*, 1997) STROEPIS[4] (Strategic Orientation of the Existing Portfolio of Information Systems).2

The conceptual model (figure 1), provided by (Venkatraman, 1985) , presented some problems because "no one theoretical framework or argument can be cited to support all of its hypotheses, separate studies have examined the links between business strategy and performance"(Chan *et al.*, 1997). Then, the report (Chan *et al.*, 1997), taking as a base the STROBE model provided by (Venkatraman, 1985) used 4 measurement instruments (figure 2) in order to reduce the hypothesis guessing, halo effects between others… emerging the key informant that report both dependent and independent constructs.

Figure 1 Conceptual Model

Legend:
⟶ Path between research constructs
---→ Alignment calculation based on Business Strategic Orientation and
IS Strategic Orientation Scores
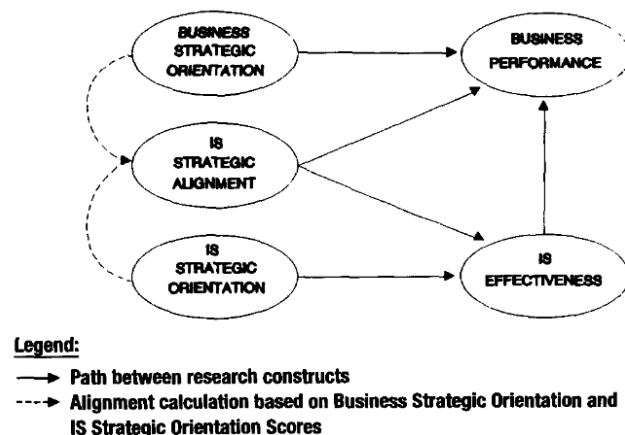
Source: (Venkatraman, 1985)(Chan *et al.*, 1997)

---

[3] STROBE (Strategic Orientation of Business Enterprises), "The general pattern of various means employed to achieve the business goals, with a particular emphasis on the business-unit level of the organizational hierarchy" (Venkatraman, 1986). The fundamental assumption of STROBE is a multidimensional construct can be achieved by two different ways. One way to achieve it, *a priori* deriving the different dimensions of the construct based on the theoretical support. The other way *a posteriori,* thought factor analysis or other analytic techniques.

2STROEPIS (Strategic Orientation of the Existing Portfolio of Information Systems), the "strategy evident in IS investment decisions and deployment as contrasted with documented IS strategy"(Mintzberg, 1978).

Figure 2: Measurement instrument

Measurement Instruments	Key Informants
1. Realized Business Strategy	Chief Executive Officers
2. Business Performance	Chief Financial Officers
3. IS Effectiveness	Vice Presidents of end user, mission critical departments
4. Realized IS Strategy	Executives familiar with the information systems used in the business unit—frequently the Chief Information Officers but, in several companies, knowledgeable end users[1]

Source:(Chan *et al.*, 1997)

Summarizing the objective of the study: "build upon an existing alignment framework to define, construct, and statistically evaluate operational measures of the different types of alignment and their relationship with financial performance"(Gerow, Tratcher and Grover, 2014). Therefore, the study has to face the literature that do not shared a specific understanding of alignment, providing inconsistencies in their definitions and create a definitions and measurements on alignment and their relationship to the financial performance.

The alignment model of (Henderson and Venkatraman, 1999) (Figure3) helps as base of the creation of 6 new definitions of alignment and designed a SAM[5] model (Gerow, Tratcher and Grover, 2014): **business alignment, cross domain alignment** (business strategy to IT infrastructure and processes), **cross domain alignment** (IT strategy to business infrastructure and processes), **intellectual alignment, IT alignment, Operational alignment.**

---

[5] Strategic Alignment Model, described two main dimensions strategic fit and functional integration (Henderson and Venkatraman, 1993)

Figure 3: Henderson & Venkatraman's Strategic alignment model
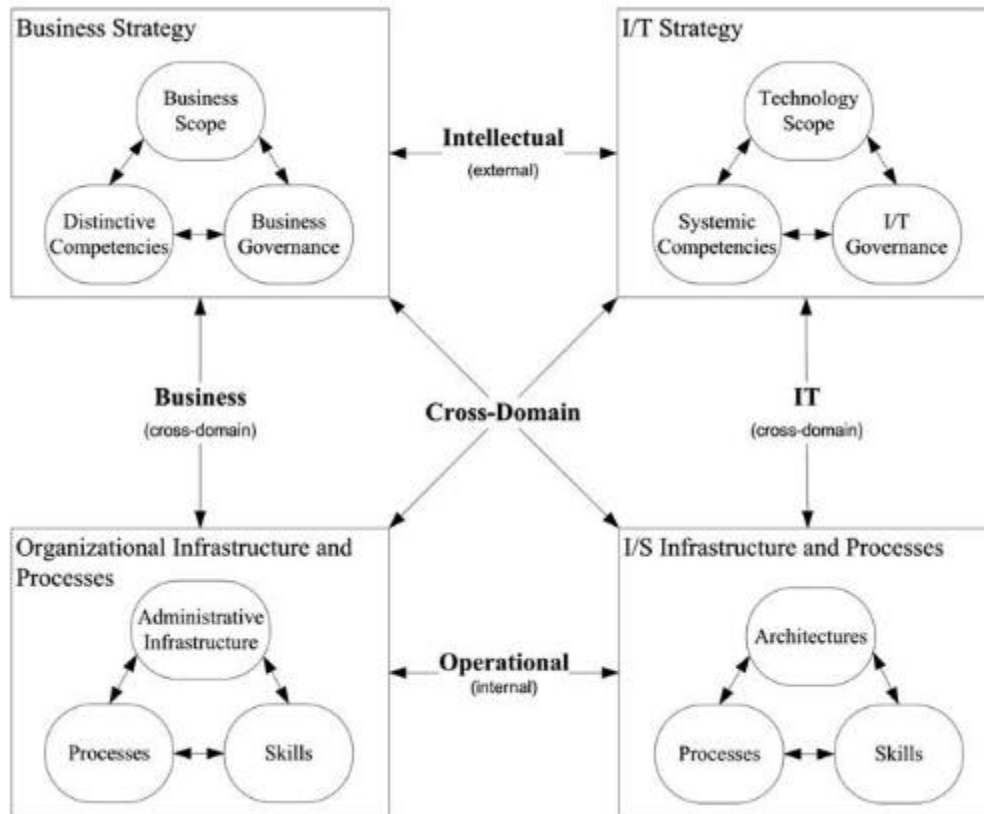
Source: (Henderson and Venkatraman, 1999)

The literature had provided different types of alignment, potentially compromising the organizational power of SAM (Figure 3), the author (Gerow, Thatcher and Grover, 2014) seek to test empirically the practical relevance of SAM. Moreover, (Henderson and Venkatraman, 1993) were among the initial reports to discuss as continuous and dynamic process the IT alignment, needed for the firms in order to adapt to changing environment. Furthermore, SAM model remains a relevant tool, providing guidance, thanks to which a flexible level of alignment enables opportunities for the enterprise in dynamic marketplaces.

In order to give full potential to SAM's model, the authors (Gerow, Thatcher and Grover, 2014) created a pool of items for the different type of alignment, identifying the acceptable items as well as creating new items in order to fit the construct definition in the SAM model. The creation of the new definitions satisfy what appears to be, required by the literature due to the complexity of the topic "alignment", more and more diverse definitions and reports related had appeared over the years.

1. Definition of alignment

The authors (Gerow, Tratcher and Grover, 2014) created a different pool of items in order to relate them to each one of the types of alignment, and choose the potential acceptable items from existing scales and the creation of new ones in order to fit the new definitions. Then, the creation of alignment definitions required new measurement scales and the authors seek for validity.

Firstly, the **Business alignment** is defined as, "refers to the level of alignment in the BUSINESS and is the degree to which the higher level, externally focused business strategies are aligned with the lower level, internally focused business infrastructure and processes" (Gerow, Tratcher and Grover, 2014). Moreover, simplifying the definition, the business alignment is the degree of alignment in which the business strategies are aligned with the business infrastructure and processes (Figure 4).

Figure 4: Business alignment
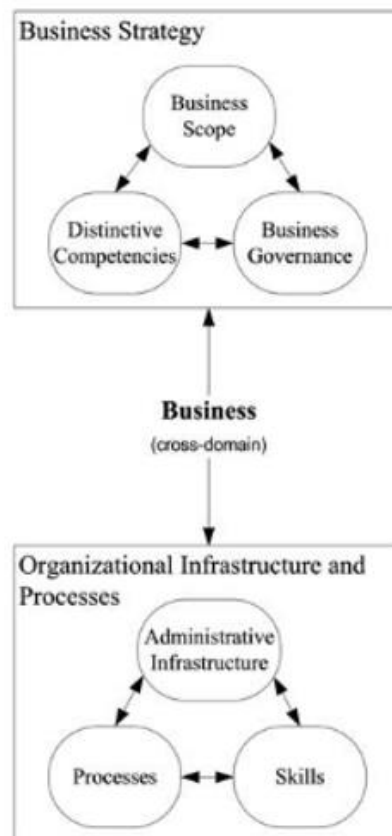
Source: (Henderson and Venkatraman, 1999)

Another alignment defined, **operational alignment,** how business infrastructure are processes are aligning internally, with the IT processes and infrastructure (Gerow, Tratcher and Grover, 2014).

Secondly, the operational alignment is defined as, "Refers to the lower level, internally focused OPERATIONAL level of alignment and deals with how the business infrastructure and processes align with the IT infrastructure and processes" (Gerow, Tratcher and Grover, 2014). Then, the operational alignment, how business infrastructure are processes are aligning internally, with the IT processes and infrastructure (Figure 5).

Figure 5: Operational Alignment
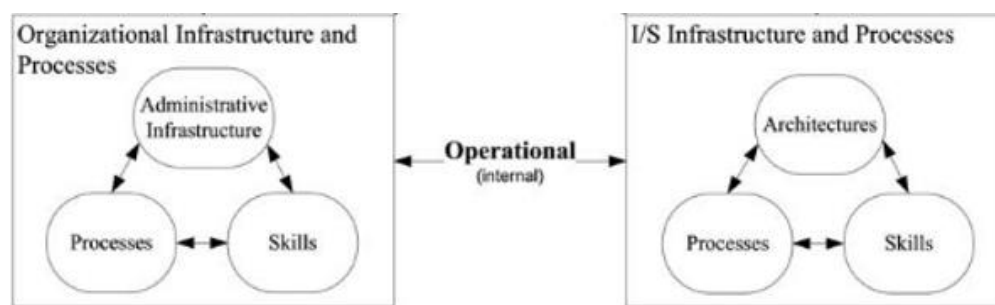
Source: (Henderson and Venkatraman, 1999)

One remarkable think, is that the management ability to integrate processes of the business, infrastructure and IT affect this alignment (Gerow, Tratcher and Grover, 2014). Consequently, the integration mention before is more important rather the aligning different set of strategies.

To conclude, the operational alignment is composed (figure 3) by the activities (product/IT development), procedures (work flow and customer service), systems (data center operations), policies (employee hiring or security) and structure (centralization vs decentralization).

Thirdly, the **intelligent alignment** (King, 1978), defined as a link in one-way direction where the IT design is intended to support business strategy, link between organization's "strategy set" to an MIS "strategy set". Moreover, (Gerow, Thatcher and Grover, 2014) defined this typology of alignment as " Refers to the higher level, externally focused STRATEGIC level of alignment and deals with how business strategy supports and is supported by the IT strategy".

Figure 6: Intelligent alignment
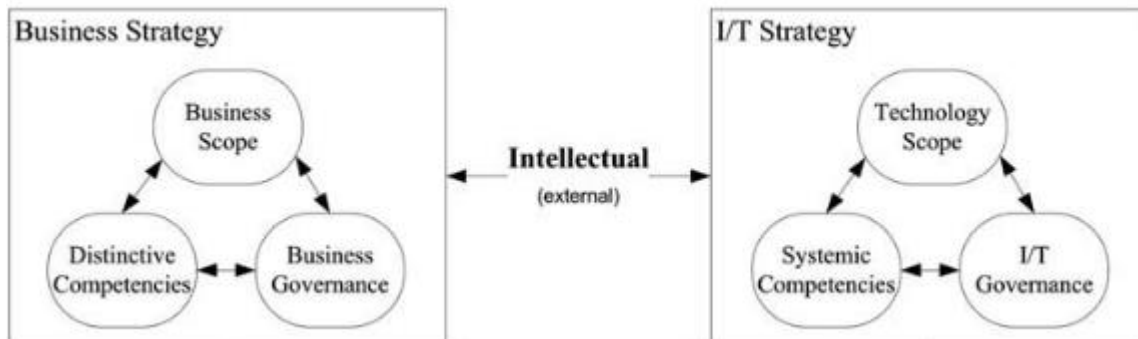
Source: (Henderson and Venkatraman, 1999)

Fourthly, the **Cross domain alignment** (Gerow, Thatcher and Grover, 2014), is considered a holistic view by the literature, because is considering infrastructure and strategy simultaneously (Henderson and Venkatraman, 1999). The predecessor of the cross domain alignment (Henderson and Venkatraman, 1993), created four unique combination of the concept: strategy execution, competitive potential, technology transformation and service level.

Next, in this paragraph is going to be described in a greater manner the cross domain alignment. The impact of the business strategy in the IT infrastructure, called **strategy execution** (Henderson and Venkatraman, 1993), however is constrained business alignment. Moreover, the impact of the infrastructure is affected by the business strategy is called **technology transformation**, however is constrained by the IT strategy. Another typology of cross domain alignment, called **competitive potential**, where the IT strategy is being affected by the business strategy, but is constrained by the business alignment. To conclude, the last typology of alignment is **service level**, where the business infrastructure is affected by IT strategy, but is constrained by the IT alignment.

To conclude, the description of the different alignment typologies created by (Gerow, Tratcher and Grover, 2014), the cross domain is going to be summarize (due the complexity to understand exactly the definition, without changing their original meaning, the definition is going to be the quoted):

1- "Cross-domain alignment (**business strategy to IT infrastructure and processes**), refers to all aspects of BRIDGING higher level, externally focused strategies with lower level, internally focused infrastructure and processes. This includes how the business

strategy aligns with the IT infrastructure and processes" (Gerow, Tratcher and Grover, 2014).

2- "Cross-domain alignment (**IT strategy to business infrastructure and processes**), refers to all aspects of BRIDGING higher level, externally focused strategies with lower level, internally focused infrastructure and processes. This includes how the IT strategy aligns with the business infrastructure and processes"(Gerow, Tratcher and Grover, 2014).

Figure 7: Cross domain alignment
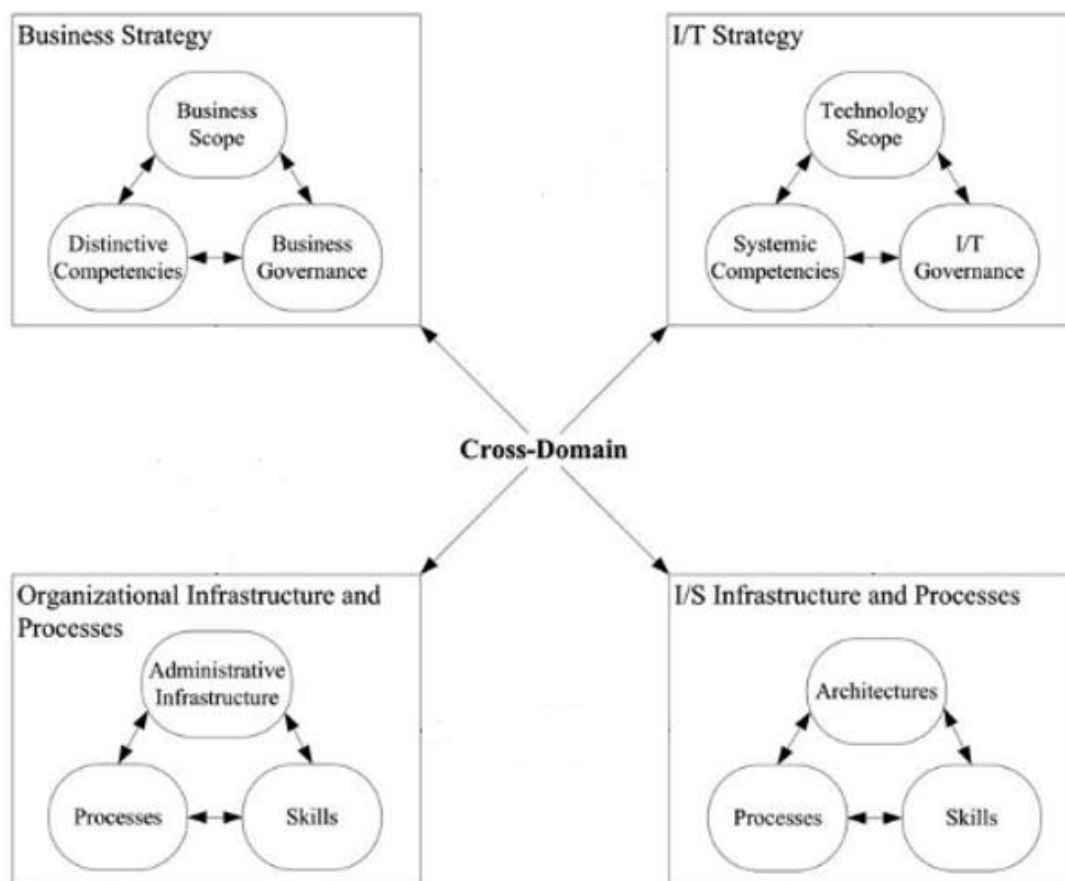
Source: (Henderson and Venkatraman, 1999)

2. Measurements of the study

The authors in order to measure the different forms of alignment identified in SAM, implement wide instrument of development stages. Starting, the authors created a pool of items for the different items related to the alignment types acceptable from the existing scales as well as create new items that fit the new alignment construct. In order to do so, the authors compared two different approaches related to the item creation: the domain sampling (Nunnally, 1967) and cognitive processing (Karabenick *et al.*, 2007).

Next, the two methodologies of item are going to be explained. The "domain sample" is the process of defining a construct (domain being established though conceptual definition) and later on, select the items that best capture the established domain (Nunnally, 1967).

The other methodology, called the "cognitive processing approach" "conceptualizes the thought-process between the item presentation and response through probing and cognitive interviewing of potential participants" (Karabenick *et al.*, 2007). Moreover, this methodology takes a gestalt approach[6] and targets the perceptions of potential participants and capturing elements of the environment used in the created construct (alignment definitions).

3. Research

The authors of the report (Gerow, Tratcher and Grover, 2014), hired the services of a well-known data collection service (Research now[7]) to survey the chosen CIO's after the verification of their jobs and identities. The enterprise was selected their CIO panel was composed of 2000 professionals across US including IT' s director, vice president and chief technology officer. Moreover, the CIO is an important player in the alignment decisions related to IT, take into consideration the external environment and know it very well due the position and the position help to assess the firm's alignment level (Carter, Grover and Tratcher, 2011). To conclude, there were 140 questionnaires completed and that represented a response rate of 13% of the total questionnaires sent.

---

[6] The gestalt approach is a school of thought that look in the human as a whole (Kelly, 2019), the mind tend to perceive the objects as a greater whole and each part as a component of a complex system.
[7] Research Now is an enterprise providing research services, "recruit consumers, business professionals, and hard-to-reach individuals as members of our research panels" (*Dynata*, 2019)

The report realized a reliability test, convergent validity, and discriminant validity analyses in order to check the alignment constructs created and take conclusion related to them. Moreover, a predictive alignment, ensuring that the constructs demonstrate that the relationship of the alignment's construct are consistent with the theory.

Another, internal analysis taken in the study, was establishing control variable in order to control the noise and making the study more rigorous: firm age, firm type, IT department size, IT spending, IT department.

4. Conclusions and contribution to the literature

The report provided clarity and refined the definitions of the alignment, using the item development process (Gerow, Tratcher and Grover, 2014). Besides, the existing literature do not offer an alignment definition hard to distinguish conceptually, thus this study expanded the definitions of the alignment.

The alignment refinement of this study will help this study to analyze theoretically the literature chosen and provide a deeper though and review. Also, the creations of a more comprehensive and cleaner definition help studies liker mine, helping cover more clearly the broad literature related to this topic.

The last contribution of this study, is providing an overall instrument to measure the different types of alignment using the known instruments, adapt appropriate items and creating new items using the cognitive processing approach.

The motivation of the report (Gerow, Tratcher and Grover, 2014) was to help or facilitate the development of future projects and report related to the alignment topic. Firstly, the report using as a base the SAM model (Henderson and Venkatraman, 1993) in order to build the six alignment definition creating a robust alignment framework. The difference between this report in the literature is the alignment between the content and the components (i.e., strategy vs infrastructure and processes).

Secondly, the creation of the alignment definition required operational measures in order to check each definition. Then, thankfully too the overall alignment measures, the future reports could and will be able to draw conclusions providing a

To conclude, in order to explore the alignment paradox and the empirical validity of SAM, the authors tested alignment-performance relationship (Gerow, Tratcher and Grover, 2014).

Moreover, the test of the relationship between cross-domain alignment (Henderson and Venkatraman, 1993) offering a positive relationship positively related to financial performance.

1.3.2   Other theories and definitions related to the topic

In this chapter, some definitions and theory related to the alignment topic is going to be revealed, getting deeper in this complex topic. Moreover, it is needed to provide different theory related in order to avoid the focus in the main report included in this project (Gerow, Tratcher and Grover, 2014) and be able to obtain the maximum of each report.

The alignment has been typically considered as congruence between IT and business strategy. However, there are different typologies of alignment like, **operational integration** (Henderson and Venkatraman, 1993), focuses in the relations between the IT and business processes and (Gerow, Tratcher and Grover, 2014) also captures the IT infrastructure and business infrastructure in the equation of operational integration.

Another typology of alignment, **functional alignment** (Tallon and Pinsonneault, 2011) or **horizontal alignment** (Chakravarthy and Henderson, 2007), when alignment is produced between when IT capabilities leverage and support business capabilities. Moreover the existing models, cannot develop IT capabilities to leverage business capabilities at the corporate level and SBU[8] level (Reynolds and Yetton, 2015).

Structural alignment (Hodgkinson, 1996) or **vertical alignment** (Chakravarthy and Henderson, 2007) specifies how to allocate business and IT decision rights for capabilities developed at corporate and SBU[9] levels, models that explain the relationship between corporate and SBU level strategies and how they interact to create value. Moreover, the enterprises could generate and capture synergies across their SBUs with successful MBOs[10], having a great coordination between the corporate level and the SBU level.

Aligning as adaptation (Karpovsky and Galliers, 2015), when enterprise's adaptation emerges, caused because of the changing environment. Moreover, the actors of the organization are monitoring the changes in the environment of the organization. Then, they should evaluate the

---

[8] Strategic business unit
[9] Strategic business unit
[10] Management by objectives

conditions, favorable or threatening, considering to do or not changes in the organization due to the changing environment.

Aligning as translation, alignment has been seen as part of CIO's[11] duties, involving communication skills and the translation of the strategies at the executives levels is key in order to communicate it to the whole organization (Sabherwal, Hirschheim and Goles, 2001)**. "**The translations involve intentionality: clarifying existing strategies; prioritizing projects; formulating and implement plans; applying a set of planning methodologies; and consequently, capturing, though the use of tools, the intellectual dimension of alignment. " (Karpovsky and Galliers, 2015).

Aligning as integration, named the open and effective exchanges or interactions that helps the business and IT to work well together (Brown and Ross, 1996)**.** Furthermore, (Karpovsky and Galliers, 2015) declared as strengthening activities, those activities focused in integrating IT/business planning, bringing both parts together strengthening the communication, the understanding and perspectives between them. Consequently, the improved interactions of these factors and activities are required to develop and enhance the alignment.

Aligning as experience, (Karpovsky and Galliers, 2015) related to those activities focused on individuals and their actions (experience), indicating the importance of the emergent nature of organizing practice . Moreover, the process of learning is intrinsic in the aligning practices, gaining experience from the past and from the practices associated with the environment and familiarization.

---

[11] Chief Information Officer

2. Typology and characteristics of the studies

This chapter provides deeper information about all the studies includes in the study. Furthermore, the table 3 provides information related to: general terms the paper, the methodology, the data and the context of each study included. Consequently, it is vital to understand the methodology in detail in order to compare the studies and obtain the maximum amount of information from them.

On one hand, three of the studies analyzed in this project are empirical studies, using information from questionnaires in order to obtain deeper conclusions related to alignment (Tallon *et al.*, 2016), (Yayla and Hu, 2012), (Queiroz, 2017).

On the other hand, 5 studies included in this study are conceptual analysis. One of the studies, build an dynamic capabilities framework (Baker *et al.*, 2018), other try to obtain deeper conclusions related to maturity and models of strategic alignment (Elmorshidy and Ahmed, 2013), another study provide six types of alignment defined and updated the concepts (Gerow, Thatcher and Grover, 2014), another analyze the dynamic nature of the alignment (Karpovsky and Galliers, 2015) and the last study included (Reynolds and Yetton, 2015) provide a model that helps define and provide guidance related to alignment in the complex environments the enterprises are competing nowadays.

The paper (Baker et al., 2018)(1,Table 3), build a dynamic capabilities framework analyzing "1) the degree of alignment at a given point in time, (2) the organization's history of alignment, and (3) the maturity of the business". Also, contribute to alignment literature providing a deeper content building a Dynamic Capability Framework and it helps the organizations understand the alignment. Moreover, the Dynamic Capability Framework is a tool for the organizations in order to understand the organizational competency, and is considered as a method of obtaining a source of competitive advantage or alignment.

Another paper (Elmorshidy and Ahmed, 2013)(2, Table 3), enhance the importance of the topic and it also provide more information related to alignment, enhancing the importance of it in the industry. Moreover, the importance of the alignment between business and strategies, is vital for the survival of the enterprises in the competitive environment. The paper discusses the importance of the alignment, the current research models and provide support and contributes to this important topic. The introduction of a new theoretical framework (Elmorshidy and Ahmed,

2013) help understand better and perfects the successful models of (DeLone, William and McLean, 1992)(DeLone, William and McLean, 2002).

The study (Gerow, Thatcher and Grover, 2014)(3, Table 3), analyze the past 30 years of investigation of the alignment topic, many models have been developed in order to generate value for the firms. However, the past models presented inconsistency in the definitions and measures in the alignment, and had created conflicting results reduced the progress of the critical topic. In consequence, (Gerow, Thatcher and Grover, 2014) have defined the different typologies of alignment into 6 single well-classified definitions creating an unified model and a tool of items in order to measure and verify the new alignment construct.

The conceptual analysis (Karpovsky and Galliers, 2015)(4, Table 3), analyze the literature and the current research trajectory, and the studies have offered a static focus related to the alignment topic. In order to understand the dynamic nature of the alignment, the paper (Karpovsky and Galliers, 2015) focus in the alignment between IS and all the concerns related to with business imperatives. The paper argues the need to go beyond the macro analysis of alignment process and the fact of conducting a deeper analysis have provided new identification and classification of alignment not shown in previous studies. To summarize, the paper does a critical appraisal of IT and business alignment providing substantive contributions that help to understand the "alignment in practice".

The last conceptual analysis, (Reynolds and Yetton, 2015) shows how the different typologies of alignment creates value through strategic drivers and explore the implications of the existing models and providing alternatives theoretical arguments explaining the conclusion obtained after analyzing the data from the Commonwealth Bank of Australia. Moreover, the importance of the topic alignment has remained one of the issues more studied by the literature, however the main focus of the alignment remained between IT and the business strategy. To conclude, the case studied (Reynolds and Yetton, 2015), analyzed MBO's[12], presenting a higher challenge due to the business strategy are developed at the corporate level, across corporate investment cycle and within individual strategic business and the alignment is more complex to obtain.

The empirical study (Tallon *et al.*, 2016)(6, Table 3), analyzed the literature related to the alignment and conclude that the tendency of the report is to focus on the firm level alignment, however that view could mask the actions or steps the firms are doing to obtain the alignment and the incentives that produce it. The process level alignment (Tallon *et al.*, 2016) is considered,

---

[12] Multi-business organizations

building an emergent stream, but the literature fails interpreting and discovering how IT enables the creation of new business strategies. To sum up, the study conceptualizes the alignment considering the IT slack (providing more IT than required from the business activities) and IT shortfall (providing less support to business activities than required), leaks found in the previous literature.

The study (Yayla and Hu, 2012)(7, Table 3),. This paper intention is to fill the gaps between performance-alignment in the context of developed countries. Consequently, (Yayla and Hu, 2012) investigate the effects in the performance and the strategic alignment using data from Turkey's enterprises. Therefore, the previous studies of the literature have been focused in the context of the developed countries without the consideration of market environment and competitive strategy (context) affecting to the alignment. To conclude, the study offers theoretical and practical implications, being significant the positive effect in uncertainty environments and it vary depending on the performance measures.

To conclude the last practical analyzed (Queiroz, 2017)(8, Table 3), considers that despite the extensive literature, there are mixed and unclear conclusion related to alignment and performance. Moreover, the main objective of the paper is to offer some clearance after examining the tradition IT-alignment, **firm level** literature and the **process level** alignment (emerging literature). To sum up, the paper, after analyzing data form 120 data surveys, both alignment[13] are not "synonyms" or interchangeable and depending on which is selected, the theory proposed is accepted or rejected.

Table 3: Methodology used in the papers

Paper	Report type	Data & methodology	Context
1.Conceptualizing the Dynamic Strategic Alignment Competency. (Baker *et al.*, 2018)	**Conceptual**	The study builds a Dynamic Capabilities Framework, contributing to the strategic alignment by analyzing it as dynamic capability , the maturity and the misalignment in the **preexistent literature**.	The literature has reviewed and offered a broad definition in relationship with the alignment. However, it is required a more complex model than analyses the complexity of the topic related to strategic and IT alignment.

---

[13] Firm level and Process level

2.Aligning IT with Business Objectives: A Critical Survival and Success Factor in Today's Business. (Elmorshidy and Ahmed, 2013)	**Conceptual**	**De Lone and Mclean information systems** (Luftman J., 2000) **Strategic Alignment Model [14]** (Henderson and Venkatraman, 1999)	Papers related to strategic alignment that developed models, about strategic alignment and maturity of the strategic alignment.
3.Six types of IT-business strategic alignment: an investigation of the constructs and their measurement. (Gerow, Tratcher and Grover, 2014)	**Conceptual & Empirical**	**Research Now's CIO panel** 140 **questionnaires** were completed, resulting in a response rate of 13%.	The existing literature, do not offer definitions for the different typologies of alignment and this study provides definitions and tools to measure the created constructs (new alignment definitions.
4.Aligning in practice: from current cases to a new agenda. (Karpovsky and Galliers, 2015)	**Conceptual**	9000 articles from the IS, strategic management and management literatures concerned with ISS and related topics.	The current research trajectory of the literature is predominantly static and this study want to examine the dynamic nature of the alignment.
5.Aligning business and IT strategies in multi-business organizations. (Reynolds and Yetton, 2015)	**Conceptual**	Introduction of a model that satisfy the main presumption that helps define the more and more complex it alignment.	The organizations are larger in size, more diversified, taking multiple businesses. Consequently, the organizations are needed for a new model that needs to provide more support to that kind of organizations.
6.Business Process and Information Technology Alignment: Construct Conceptualization, Empirical Illustration, and Directions for Future Research. (Tallon *et al.*, 2016)	**Empirical**	Data from matched surveys of senior business and IT executives in the EU and US. Two phases: Phase 1: o Number of surveys:76 Phase 2: o Number of surveys:241	The study builds an emergent stream of research, that considers the alignment between it and business and IT strategy at the process level. By the contrary, the literature view that considers that the firm-level view could mask the intellectual actions and how are going to succeed firm's actions.

---

[14] Strategic Alignment Maturity, six maturity alignment criteria: scope, communications, competency, governance, partnership and arquitecture and skills (Henderson and Venkatraman, 1999).

7.The impact of IT-business strategic alignment on firm performance in a developing country setting: exploring moderating roles of environmental uncertainty and strategic orientation. (Yayla and Hu, 2012)	**Empirical**	**Questionnaires** to head managers with knowledge about IT. The majority of the sample (72%) consisted of firms with more than 500 employees, and over 90% of the firms were privately owned. 560 invitations, rate of response of 31.6%.	The enterprises analyzed were from **Turkey** and the average revenue of the firms in the sample was about $1.3 billion. One-third of the sample were **manufacturing firms**, followed by **Wholesale/Retail** firms (18%), and **Finance/Insurance/Legal** firms (11%)
8.Mixed results in strategic IT alignment research: a synthesis and empirical study. (Queiroz, 2017)	**Empirical**	**Questionnaires** Data was collected from a sample of firms based in the United States (42%), Germany (40%), and Australia (18%). (randomly sourced from S&P Compustat) 120 usable responses and an overall response rate of 10%.	The study consider that the IT previous research literature provide inconsistent results, paucity of empirical evidence and different conceptualizations of IT alignment and performance.

3. Methodology in detail

The 8 studies included in the study are going to be analyzed in detail in order to understand better the conclusion obtained and the methodology to do so. First, we are going to examine the theoretical studies considered, taking in consideration the theoretical review made in each one, helping to understand better the conclusion and the topic reviews.

Secondly, the practical reports included analyzed data from different contexts, deep in the topics and providing explanation for future reports. Moreover, the reports provide satisfy more doubts and interrogates generated of the literature along the years.

3.1 Conceptual Reports

3.1.1 Conceptualizing the Dynamic Strategic Alignment Competency (Baker et al., 2018)

The report suggests that the organization ability to achieve high degree of alignment between IT and business strategy will have a source of a competitive advantage. Moreover, the report (Baker *et al.*, 2018) follows the theoretical understanding on how the strategic alignment provides value and reach into this approach measuring the organization dynamic strategic alignment. To conclude the introduction, the approach considers (1) the degree of alignment at a period of time, (2) the organization's IT and business strategies to co-evolve.

The creation of the Dynamic Capabilities Framework (Baker *et al.*, 2018), was in response of Resource-Based View (RBV)[15], a static theory of the firm (Teece, Pisano and Shuen, 1997). In contrast, the Dynamic Capabilities Framework, "explains that internal technological, organizational, and managerial processes enable firms to generate economic rents in settings of rapid change" (Teece, Pisano and Shuen, 1997) and this perspective gives more emphasis to the managerial capabilities, rather than the RBV to the resources.

The conceptualization of the dynamic by (Baker *et al.*, 2018), starts finding the perspective that stimulate alignment and the end-state of alignment. Moreover, the end-state perspective provides

---

[15] The DNV explains that the heterogeneous resources and capabilities the enterprise is composed, that are rare valuable, difficult to replace and emulate produce the source of a competitive advantage (Teece, Pisano and Shuen, 1997).

a static measure of two elements of strategic and historical alignment. Those the measurement elements are included in the assessment of strategic alignment. Also, the report (Baker *et al.*, 2018) explains the process perspective, emphasizing the importance of the integration of business and IT strategy development in order to impact one each other (Agarwal and Sambamurthy, 2002). Besides, the last or final element of measurement is the process maturity included in the syntheses from the two perspective mentioned in the previous paragraph, in order create a unitary operationalization of dynamic strategic alignment.

Theoretical and practical implications and contributions

The understanding of the alignment as a dynamic capability could stimulate future findings, with the possible change in the understanding of the strategic alignment. Moreover, this scenario could be possible in enterprises with specific strategic orientation having specific alignment-alignment processes. Additionally, explore the ways in which different industries and firms, with different sizes establish the process facilitators for the development and maintenance of alignment.

Another, contribution provided by (Baker *et al.*, 2018) is to the Dynamic Capabilities Framework. The ability to foster alignment is valuable and rare, being complicated or almost impossible to replicate, then the authors of the study identified the importance of the dynamic strategic alignment as a source of competitive advantage.

The study considered "the dynamic strategic alignment competency mitigates the constraining effect of path dependency" (Baker *et al.*, 2018), however the precious literature (Teece, Pisano and Shuen, 1997) limited the Dynamic Capabilities Framework to firms' routines, behaviors and choices of investments. To conclude the theoretical contributions, the firms could use the dynamic competency in order to adapt to the changing competitive environment.

On one hand, the enterprise understand better in which manner dynamic capability for strategic alignment is beneficial to their organizations, thankfully to this report. Moreover, the report has provided measurement of the dynamic strategic alignment competency and it can be used to gain of view in which and how he organization had obtained their strategic alignment.

Conclusively, "strategic alignment in dynamic environments is important, but the conceptualization and the operationalization of the topic had been neglected by the literature" (Baker *et al.*, 2018). Additionally, the report had provided theory explanation of the dynamic strategic alignment and proving the use of their approach. The conclusion of the study will raise

the impetus to seek for the strategic alignment analyzing the effectiveness of the process/result. The last contribution, comes as an initiative for the researchers and providing more knowledge and guidance for the managers focused in the consecution of the alignment.

3.1.2 Aligning IT with Business Objectives: A Critical Survival and Success Factor in Today's Business (Elmorshidy and Ahmed, 2013)

The paper introduced in this chapter introduces new theoretical framework in order to align business objective and IT, integrating the successful model of Mclean and DeLone with leading research models.

The report, included the SAM model, like the classical component of the strategy, with a hierarchical view of strategic management (figure 8). The SAM model considers "the business strategy as the driver of both organization design choices and the logic of the IT infrastructure"(Elmorshidy and Ahmed, 2013).

Figure 8: Strategic Alignment Model
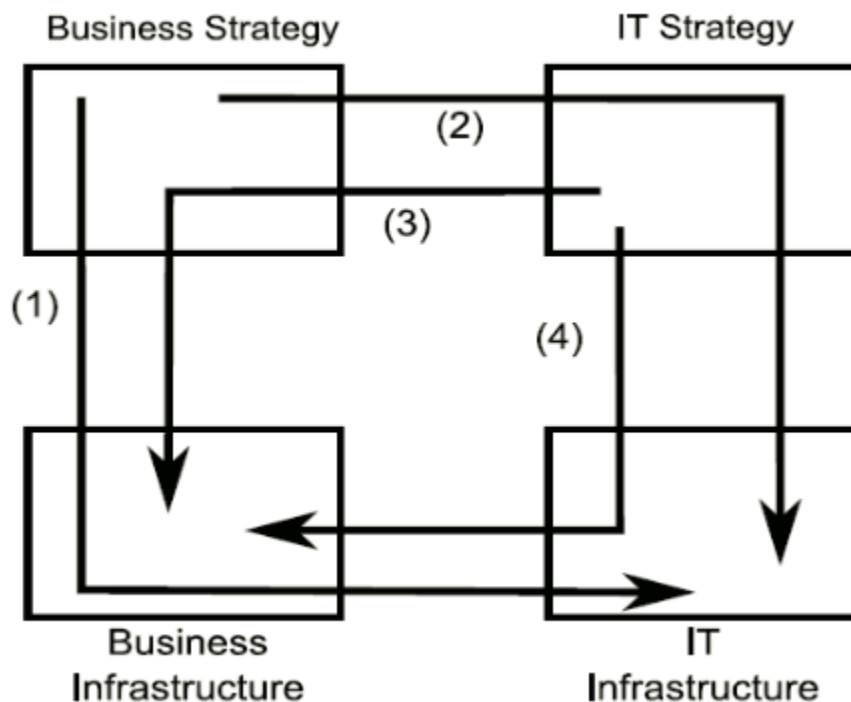
Source: (Henderson and Venkatraman, 1999)

The well-established model of (DeLone, William and McLean, 2002)(Figure 9) offered the next hypothesis introduced in the new model:

Hypothesis 1: "Information Systems (IS) system quality, information quality and service quality will have a positive effect on the use of the system (and intention to use) as well as the user

satisfaction of individual investors of online stock trading information systems" (DeLone, William and McLean, 2002)

Hypothesis 2: "System use (and intention to use) as well as user satisfaction, are going to affect each other and will have a positive effect in introducing net benefits to the users of online stock trading information systems." (DeLone, William and McLean, 2002)

Hypothesis 3: "The net benefits of online stock trading information systems are going to have a positive effect on system use (and intention to use) as well as the user satisfaction of individual stock investors." (DeLone, William and McLean, 2002)

Figure 9: Information Systems Success Model
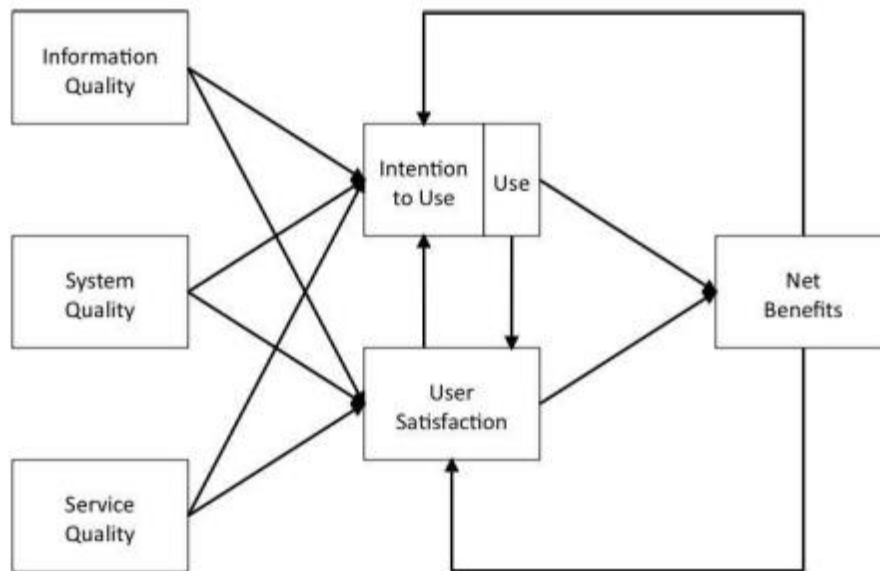
Source: (DeLone, William and McLean, 2002)

After the analysis of both models SAM (Henderson and Venkatraman, 1999) and DeLone and McLean model (DeLone, William and McLean, 2002), the new model of (Elmorshidy and Ahmed, 2013) is introduced (figure 10). Then, the new model considers that the business IT and business infrastructure affect each other and both business and IT strategy will affect the actual IT system implemented, as well as the information quality of that system (basic for the decision making). Another implications of the new model are that the service quality, information quality and service quality affect the user satisfaction and the disposal to use the system.

Figure 10: New Theoretical Framework for It/Business Alignment
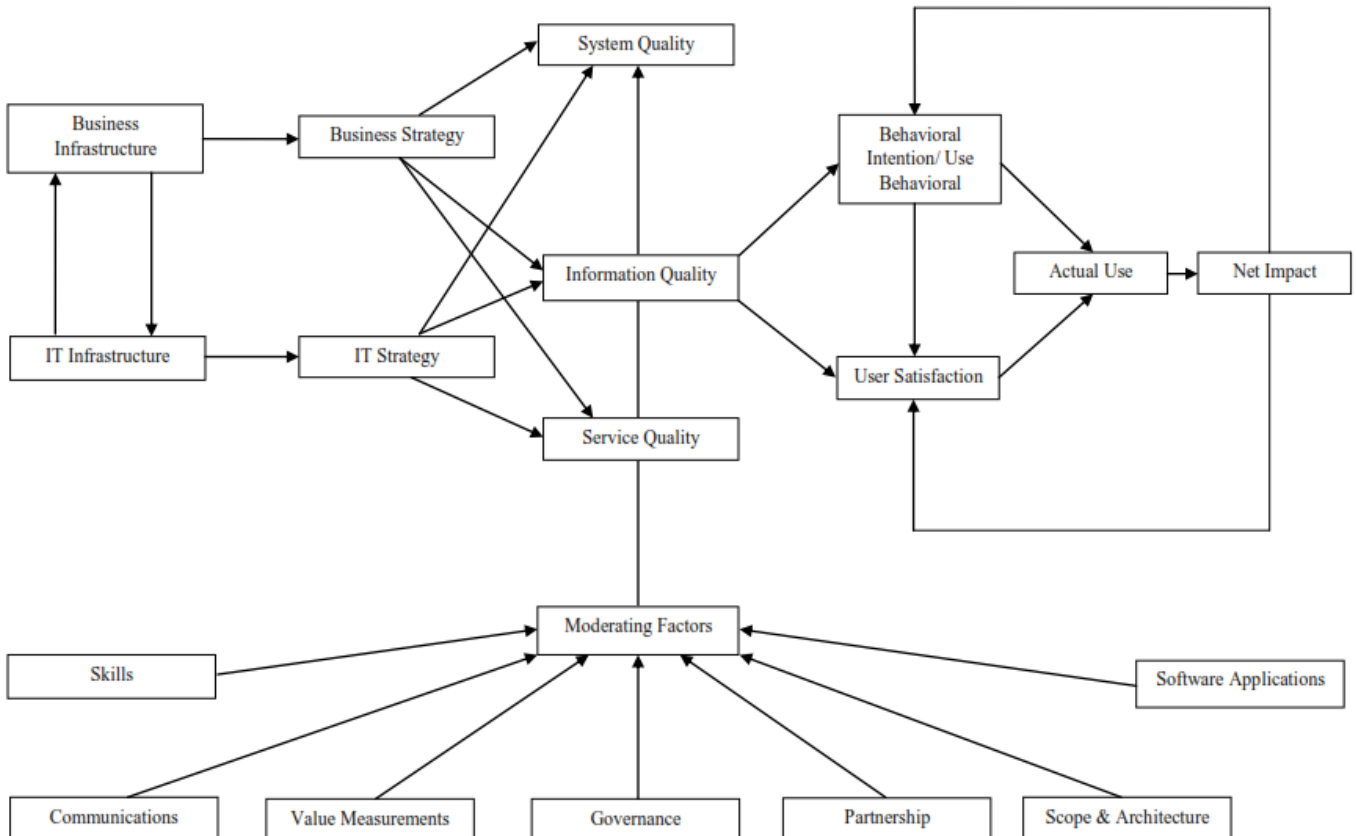
Source:(Elmorshidy and Ahmed, 2013)

Theoretical and practical implications and contributions

The basic foundation of the strategy of any enterprise is to align IT with business goals in order to survive today's turbulent and unstable environment. Also, the enterprise should establish specific and clear goals and focus their IT system in how to achieve them. To conclude, the quality of the information, service and the system will affect the attitude of the users (Elmorshidy and Ahmed, 2013).

3.1.4 Aligning in practice: from current cases to a new agenda (Karpovsky and Galliers, 2015)

The paper described in this chapter, has into consideration the research trajectory of the topic is static, and the review of the literature has revealed the identification and the classification of undertaken activities related to alignment. Furthermore, the report is critical related to IT/business alignment and it has important contributions to add to the alignment topic in practice.

The first step of the report (Karpovsky and Galliers, 2015), the evaluation of the literature/research that have contributed to this topic and the capture of all the information related to the topic, providing information and how to foster the alignment. Moreover, the alignment activity is defined by (Karpovsky and Galliers, 2015) to be "any action that any particular organizational actor takes in the process of finding and/or implementing IS that would potentially support business needs".

The analysis of the literature, had provided two different conceptual distinctions, the social and intellectual dimensions of alignment. Thus, the intellectual alignment that the activities are focused techniques, configuration, technology, strategies, plans, methodologies, infrastructures and data used to the alignment's formulations (Karpovsky and Galliers, 2015). The other conceptual distinction, the social dimension, it refers to the degree of involvement, modes, choices of actors, methods of communication and decision-making (Karpovsky and Galliers, 2015).

The alignment presented in the report (figure 11) is going to be described and the authors presented 4 typologies: aligning as translation, aligning as integration, alignment as adaptation and aligning as experience.

Figure 11: Aligning in practice

Source: (Karpovsky and Galliers, 2015)

The **Aligning as translation**, has been seen as CIO'S duties involving their communication skills and ability to translate the strategy at executive level. Moreover, involves activities like: prioritizing projects, formulation and implementation of plans, capturing the mentioned intellectual dimension of alignment and prioritizing plans.

Another typology of alignment in practice, the **alignment as integration**, considered by the authors a number of intended and planned activities oriented in the consecution of the IT/business alignment, "bringing IT and business functions or tasks closer together to strengthen the communication, under- standing and perspectives between them"(Karpovsky and Galliers, 2015). To conclude, the authors classified and established the strengthening activities related to the concept, those that stimulate the procedures focused in bringing both parts making smoother the process and proving appreciation and understanding.

The **alignment as experience**, is presented in the report as the focused activities on the individual and their actions and those actions present an emergent nature of the practice in the organization. The negotiation, decision-making and the learning process (figure11) are a clear example of the power and importance of the experience in order to obtain alignment.

The last typology introduces in the report (figure 11) is the **aligning as adaptation**, caused by of the changing environment and the will of the enterprise to adapt to those changes. Moreover, the actors of the organization are monitoring the changes in the environment of the organization and they should evaluate the conditions, favorable or threatening, considering to do or not changes in the organization due to the changing environment.

The considerations of the report related to the literature and the previous research (Karpovsky and Galliers, 2015), considers the majority of it follows "prescribed methodologies, assuming rational decision making and is often sequential in nature". Moreover, the authors specify both aligning as experience and integration involves "social practice" from the actions and interactions of the individuals.

Theoretical and practical implications and contributions

On one hand, the report considers the practical perspective allows the union of the intellectual and social dimensions of alignment and "recursive loops between the social and the intellectual provides an integrated understanding of how organizational actors mobilize tools and how tools can assemble actors to attain alignment outcomes"(Karpovsky and Galliers, 2015).

Another contribution of the study, is that all the categories of alignment in practice mentioned before, can be use as foundation for the future researchers using a broader research methodology in the study of a greater number of unit of analysis. Additionally, the wider the approaches the research takes are more likely to more dynamic results and make easier to understand the alignment.

The intention of this report was to be as a catalyst for a broader and enriched alignment research topic and believe the authors (Henderson and Venkatraman, 1993) goes only to the essence of the link of between business and IT-related issues. The authors (Karpovsky and Galliers, 2015) propose to shift that focus from the process alignment to the practical alignment focusing on the daily activities and how the alignment is accomplished.

To conclude, the authors propose an evolution from the classical macro focus in the methodologies and organizations to the micro-process focused in the actors inside the organization and activities that foster alignment.

3.1.5 Aligning business and IT strategies in multi-business organizations (Reynolds and Yetton, 2015)

The report presented in this chapter use information from the Common- wealth Bank of Australia and focus in multi Multi-business organizations (MBOs), presenting an alignment challenge due to the business strategies are developed at the corporate level, across corporate investment cycle and within the individual strategic business units (Reynolds and Yetton, 2015). Consequently, the extant literature assume the alignment is produced between IT strategy with a single business strategy in a single point of time, the MBO present a higher complexity in order to achieve the alignment and how is achieved the alignment. To conclude, the paper is based in the resource-based theory and the dependence between the structural, functional and temporal alignment.

The report introduces a new model with taking as a frame three assumptions. Moreover, those propositions defined how IT and business strategic alignment create value at SBU[16] and corporate level. The first theory introduced is (Makadok, 2010)(Makadok, 2011) theory profit , showing the drivers of the profit that created value (competence, governance, and flexibility). Moreover, the authors introduced the three primary forms of alignment (Chan and Reich, 2007), IT alignment structural, temporal and functional, affecting the profit drivers creating value.

To sum up, the model (figure 11) explains how alignment created value similarly to the SAM model of (Henderson and Venkatraman, 1993), however the authors limited the analysis to "analysis to formal, top down decision making in MBOs, in which the top management team (TMT) approves the corporate business and corporate IT strategies, and the corresponding SBU business and SBU functional IT strategies, to develop and sustain business and IT strategic alignment"(Reynolds and Yetton, 2015).

Theoretical and practical implications and contributions

The new model enables to see the alignment findings with new lens, introducing new concepts and it allos to re-examinig criticaly the literature. The authors identifies six alignment relashionships (figure 11, R1–R6). Then, there are two alignment relationships at SBU levels and corporate levels (R1&R2), being variations of traditional business and IT functional strategy. Moreover, the authors found three alignment related to IT alignment, just one specific to MBOs R3, between the corporate IT platform strategy and SBU IT platform strategy (figure 11).

---

[16] Strategy business unit

The fourth alignment relationship (R4), is the relationship between corporate strategy and SBU strategies, also, typically the SBU strategies are a part of corporate strategy. To complete the model's relationship, there are some diagonal relationships between corporate IT platform and SBU business strategies (figure 11, R5) and SBU IT application portfolio strategies with corporate strategy and (R6).

Figure 12 Functional and structural alignment in MBOs
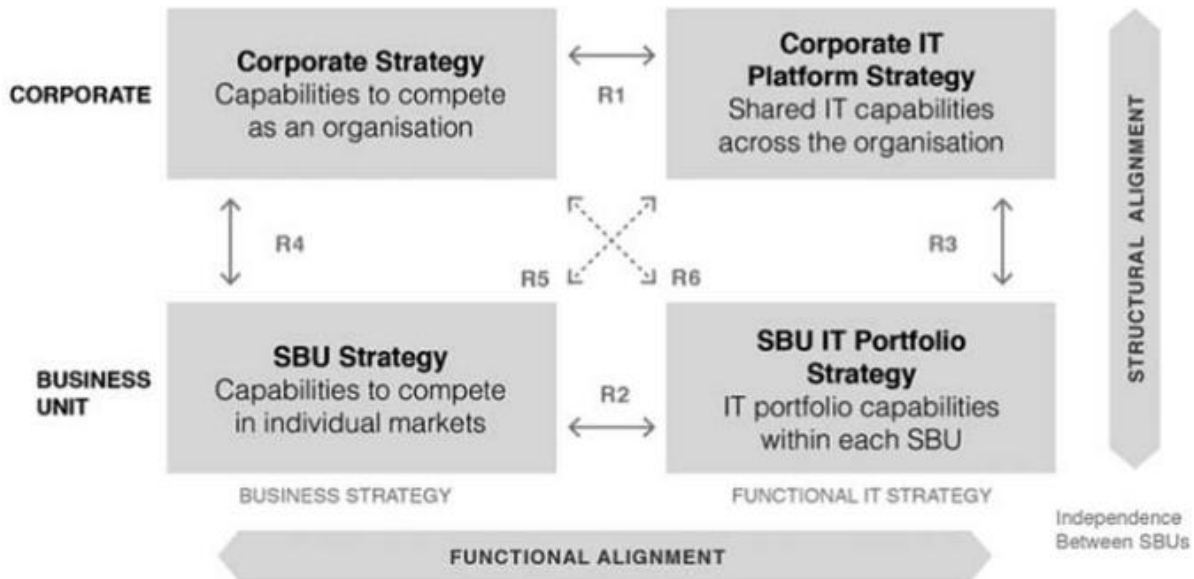
Source: (Reynolds and Yetton, 2015)

The introduction of the model brings up a paradox, "two speed" IT strategy providing competitive advantages. The long-term developed capabilities coming from the corporate IT capabilities providing sustainable competitive advantage and the business units highly dynamic, capable of creating massive IT platform capabilities to create and compete in the marketplace. The organization, will have to leverage both of them and have the advantages that both brings to the enterprise.

3.2 Empirical reports

3.2.1 Business Process and Information Technology Alignment: Construct Conceptualization, Empirical Illustration, and Directions for Future Research (Tallon et al., 2016)

The authors follow the consideration and the emergent stream of research, that considers the firm-level view could mask what the firms are doing in order to achieve the alignment between business and IT strategy. Then, the report (Tallon *et al.*, 2016) considers the alignment between business strategy and IT al the process level.

The tendency of the research to see the IT as a support part for the business strategy, fails in the account of the "how" the IT is able to develop business strategies and achieve alignment. Consequently, the authors (Tallon *et al.*, 2016) use the lens of IT shortfall (lack of support to business strategy) and IT slack (having an "excess" of IT for the business strategies) to conceptualize the alignment between IT and business strategy at the process level.

The organization will be able to respond quicker to marker changes, if the IT is concentrated in IT's resources critical for the survival for the business strategy. In addition, the organization will have less wasteful processes and the effect produced by the lack of IT resource, may be source of frustration for the end-user and it will affect the business strategy.

The first step, the authors have taken is by analyzing the process level literature at firm level in the last 20 years, and introducing the "granular" view of alignment across multiple business (Tallon *et al.*, 2016). Moreover, they have distinguished between cases IT shortfall and IT slack, that might facilitate the change in the business strategy and the accomplishment of the alignment.

Re-conceptualizing IT Alignment at the Process Level

The authors intention is to conceptualize alignment at process level, reviewing the tools, the literature have been reviewing and at the same time, extend them in order to find a better fit of the peculiarities involved in the strategic alignment at the process level. Additionally, the literature has interpreted the fit and alignment more broadly, including the meanings of IT supporting the

business strategy. In contrast, the misalignment connotes that the enterprise had no spent enough money on IT or it sourced the wrong IT resources.

The conceptualization of alignment (Tallon *et al.*, 2016), considers the IT do not act only as support for the business strategy in the alignment, but the enterprise is using all the IT resource to achieve the alignment. Moreover, the authors extended the conceptualization of the alignment in order to reflect IT shortfall and IT slack and the alignment can take three possible process level outcomes:

1. IT fails to fully support the business strategy (IT shortfall).
2. IT fully support the business strategy and the supply of IT resources equals the demand of resources (perfect alignment).
3. IT fully supports the business strategy without using the total resources at its disposal (IT slack).

The firms, have fewer opportunities to exercise digital options in the peripheral processes (Tallon *et al.*, 2016), because the peripheral processed are considered more risky, unnecessary and economically wasteful and the IT executives are focus on mission-critical processes. Then, the authors expect to find evidence of process-level IT shortfall and IT slack and propose the next hypothesis accordingly:

H1: "IT shortfall is more likely to occur in processes that are peripheral to an organization's business strategy" (Tallon et al., 2016).

H2: "IT slack is more likely to occur in processes that are critical to an organization's business strategy" (Tallon et al., 2016).

The introduction of the hypothesis 1 (IT shortfall) and 2 (IT slack), had made the authors rethink the benefits of the alignment. The presence of IT slack mean that the needs of the process level are satisfied, and it could produce a higher performance in it rather the when the needs were perfectly aligned. Consequently, IT slack could be considered as an incentive in order to increment the process level performance, then the executive might want to foster it, if the conditions are adequate and the positive effect could transfer to the organization as a whole. However, IT slack cannot be considered the best suited method in every process and IT slack can create a minimum effect increasing the value if the peripheral parts of the value chain. Moreover, the changes in the peripheral processes will not shift the business's ability to execute parts of the strategy (Tallon *et al.*, 2016) and the IT slack in non-core and peripheral process could

be wasteful and it decreases the performance in those processes. Accordingly, to the previous argumentation, the authors proposed the next hypothesis:

H3: "IT shortfall has a negative effect on process-level performance but particularly in processes that an organization regards as critical to its success" (Tallon et al., 2016).

H4: "IT slack has a positive effect on process-level performance but particularly in processes that an organization regards as critical to its success" (Tallon et al., 2016).

Theoretical and practical implications and contributions

The paper contributed to the literature in three ways. First of all, the study swap direction and built a new stream of investigation focusing into the alignment at the process level. Additionally, the stream created in this study allows a to distinguish the critical process and non-critical process involved in the alignment.

Secondly, the authors "question the need to continue assessing alignment as the absolute or squared distance between actual and ideal IT " (Tallon et al., 2016). Then, the authors propose a change in the literature view of the alignment (absolute view) and related it directly comparing the distance between the actual It and the ideal (required). To sum up, the third contribution reinforce the view of the literature that considers alignment is associated with an increment of the performance.

3.2.2 The impact of IT-business strategic alignment on firm performance in a developing country setting: exploring moderating roles of environmental uncertainty and strategic orientation (Yayla and Hu, 2012)

The report (Yayla and Hu, 2012), intends to fill the gaps related to the alignment–performance relationship based on the data collected from enterprises in Turkey. Moreover, the authors investigated the moderating roles of environmental uncertainty and the strategy the organization follow, and its effect on the performance effects of the strategic alignment.

The main objectives of the study are, to test the relationship between the performance of the organization and the strategic alignment and extend the validity of the topic between organizations and cultures. Also, investigate the effect of an uncertainty environment and the strategic orientation to the relationship alignment-performance (figure 13).

Figure 13: Conceptual model for the impact of IT-business strategic alignment on firm performance.
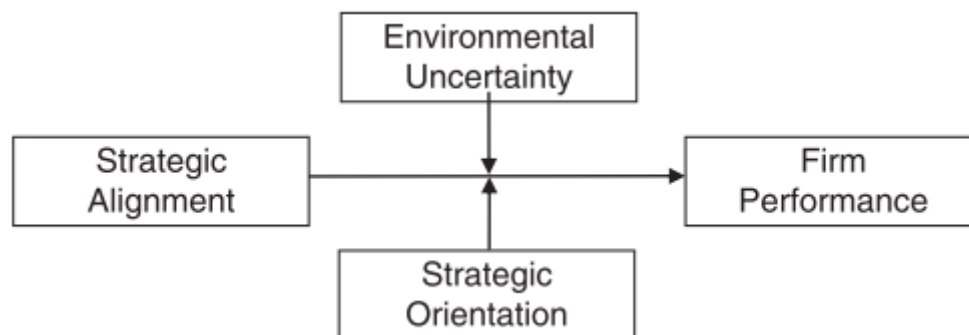
Source: (Yayla and Hu, 2012)

The argument of the authors (Yayla and Hu, 2012), is that the business will benefit from aligning their IT and business strategy, in spite of technical, social, environmental, economic differences or another differences in terms education level of the employees and managers. Conclusively, the accomplishment of the strong IT-business alignment will help the organization to overcome the competitors. Then, this perspective leads to the first hypothesis:

 H1: "IT-business strategic alignment has similar positive effects on organizational performance in a developing country setting as in a developed country setting " (Yayla and Hu, 2012).

Another argument provided by the authors, is that the studies are carried on developed counties were the market economy dominated and this perspective considers the effect of the alignment

on performance will be different, depending on the level of uncertainty of the environment. This argument provides the next hypothesis:

"H2: The effect of IT-business strategic alignment on organizational performance is moderated by the dimensions of environmental uncertainty" (Yayla and Hu, 2012).

The last hypothesis is based in the argument, that there is need to do more investigation in order to validate this relationship in the environment of developed countries. Then the authors, postulate the effect of the alignment is moderated by the strategies of the organization leading to the next hypothesis:

"H3: The effect of IT-business strategic alignment on organizational performance is moderated by the strategic orientation of the organization" (Yayla and Hu, 2012).

Theoretical and practical implications and contributions

The first contributions come from the test of the relationship between the IT-business strategic alignment using data from Turkish enterprises, supporting the validity of the alignment theory in developing economies. Moreover, the second contribution comes from the empirical investigation done by the authors and the findings of "strong empirical support for the moderating effect of environmental uncertainty on the strength of this relationship" and the extension of the existing literature (Yayla and Hu, 2012).

The results provided by this study show the that "IT-business strategic alignment is significantly associated with firm-level performance measures" (Yayla and Hu, 2012). Nonetheless, the effect is stronger in the enterprises operating in highly competitive, hostile and heterogeneous environments. In contrast, the effect of the strategic orientation on the alignment-performance do not accomplish the proposed hypothesis, the impact on ROI[17] is significant, but mixed with other performance measure, no allowing the confirmation of the hypothesis.

To conclude, the report highlights the importance of the IT-business strategic alignment in dynamic environments, especially important for the enterprises operation internationally or globally. Additionally, the report provides information for the executive advising to pay attention to the alignment in order to maximize the benefits provided by the relationship (IT-business strategic alignment).

---

[17] Return of Investment

3.2.3 Mixed results in strategic IT alignment research: a synthesis and empirical study (Queiroz, 2017)

This reports intends to satisfy the needs to clarify the effects of strategic IT alignment on organizational performance and the interest on the topic has been increased in the last years. Furthermore, the reports seek to provide "some light" in the inconsistency of the traditional firm-level IT alignment literature and the emerging literature into process-level IT alignment.

The literature had shown a "paucity of empirical evidence as to the robustness of process-level IT alignment in capturing direct performance effects of alignment" (Queiroz, 2017). In order to solve the paucity of the study, the author investigated empirically if an alternative conceptualization of the classic theory related to the alignment, produce the same effect under the same conditions.

Theoretical and practical implications and contributions

The report proved that the firms' process-level conceptualizations of IT alignment provide different conclusion in the relationship test between alignment and performance. Another, contribution of the study is that shows the strategic orientation of the firms "explain inconsistent results between firm and process-level conceptualizations of IT alignment" (Queiroz, 2017) and also depending the conceptualization can produce the difference between accepting and rejecting the theory.

Another contribution of the study, is that process-level and firm's conceptualization are not interchangeable and the acceptance of the or reject of the theory depends on the choice of the conceptualization. To sum up, the report showed, that the different strategic orientation in the organization, have mixed result and it is need for further research in order to provide more knowledge to the topic.

# 4. Conclusion and Contributions of the studies analyzed

The objective of this literature review, is to analyze studies related to IT alignment, check the conclusions of the selected reports included and the classify the them depending on the typology of alignment specified in each one of them. Consequently the reports analyzed in this theoretical review are going to be classified following the six definitions of alignment provide in the report (Gerow, Tratcher and Grover, 2014) and the conclusion/contribution of them are going to be exposed in order to understand better the topic and show the research tendencies. Additionally, the report (Gerow, Thatcher and Grover, 2014), has been selected as base for the classification of the rest of reports included, due to the easiness to understand, it help simplify the topic and see the evolution of the current research.

The included report had been selected from university's database *Proquest* (ProQuest, 2019)*,* using the keywords : "business strategy", "information systems" and "strategic alignment". Moreover, one of the contributions of this study is to show the research tendencies of alignment topic, "decrypt" the complex topic providing the conclusion provided by each one of them and show some of the many authors investigating this important concept for the organizations nowadays.

The report's conclusions are going to be presented in order to provide a brief review of the conclusion and contributions to the topic. Moreover, the figure presented below are going to help to understand better the alignment definition they are investigation following as a base the model (Gerow, Thatcher and Grover, 2014).

The report of (Baker *et al.*, 2018), built a Dynamic Capabilities Framework a suggests the ability of the organization and capacity to achieve IT strategy and its business strategy is an "long run" and that is a source of competitive advantage. Also, the enterprise understand better in which manner dynamic capability for strategic alignment is beneficial to their organizations, thankfully to this report. To sum up, the report alignment investigates the Intellectual alignment defined in the report (Gerow, Thatcher and Grover, 2014), as level of alignment in the business and the level in which the business strategy is aligned with the IT strategy providing competitive advantage for the enterprise in the long run (figure 14).

Figure 14: Henderson & Venkatraman's Strategic alignment model Intellectual alignment (modified)
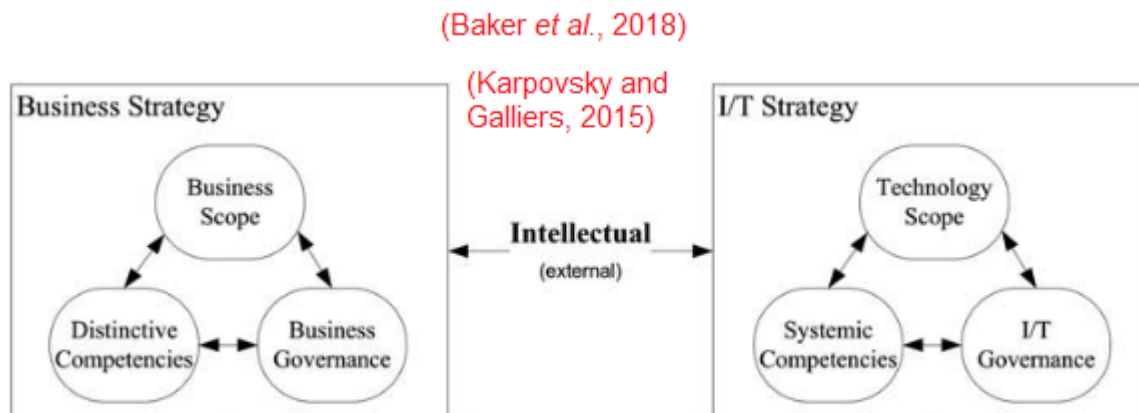
Source: (Henderson and Venkatraman, 1999) Modifications: own elaboration

Another report, created a new model (Elmorshidy and Ahmed, 2013) considering the business ant the infrastructure affect each other, also both IT strategy and business will affect the actual IT system implemented. Moreover, the authors specified that the user satisfaction and disposal to use the system are going to be affected by service quality. To conclude, this report introduced a new model related to the business alignment defined in (Gerow, Tratcher and Grover, 2014)(figure15), using the SAM model of (Henderson and Venkatraman, 1999).

The report (Karpovsky and Galliers, 2015), focuses in the business alignment described in (Gerow, Tratcher and Grover, 2014), but focused in the practical part of the alignment and introduced 4 new typologies of alignment: aligning as translation, aligning as integration, alignment as adaptation and aligning as experience. To conclude, the report also included the concept of intellectual alignment (figure 15&14), described as the intellectual alignment "the activities are focused techniques, configuration, technology, strategies, plans, methodologies, infrastructures and data used to the alignment's formulations" (Karpovsky and Galliers, 2015).

The report (Reynolds and Yetton, 2015), used information from Multi-business organizations (MBOs), used resource-based theory and in order to analyze functional, structural, and temporal IT strategic alignment in MBOs. Moreover, the authors focused in the business alignment(Gerow, Tratcher and Grover, 2014)(figure15), based in the resource-based theory and introduced a

model with 6 different alignment relationship between the corporate strategy, SBU strategy, corporate IT platform strategy and SBU IT portfolio Strategy (figure12).

The study of (Yayla and Hu, 2012), attempted to fill the gaps analyzing the relationship between alignment and performance using information from Turkey, investigating the importance of the environment and the strategic orientation of the enterprise. To conclude, this study focus in the business alignment (Gerow, Tratcher and Grover, 2014), but the main focus is the relationship with the general performance of the enterprise (figure15),

Figure 15: Henderson & Venkatraman's Strategic alignment model Business alignment (modified)
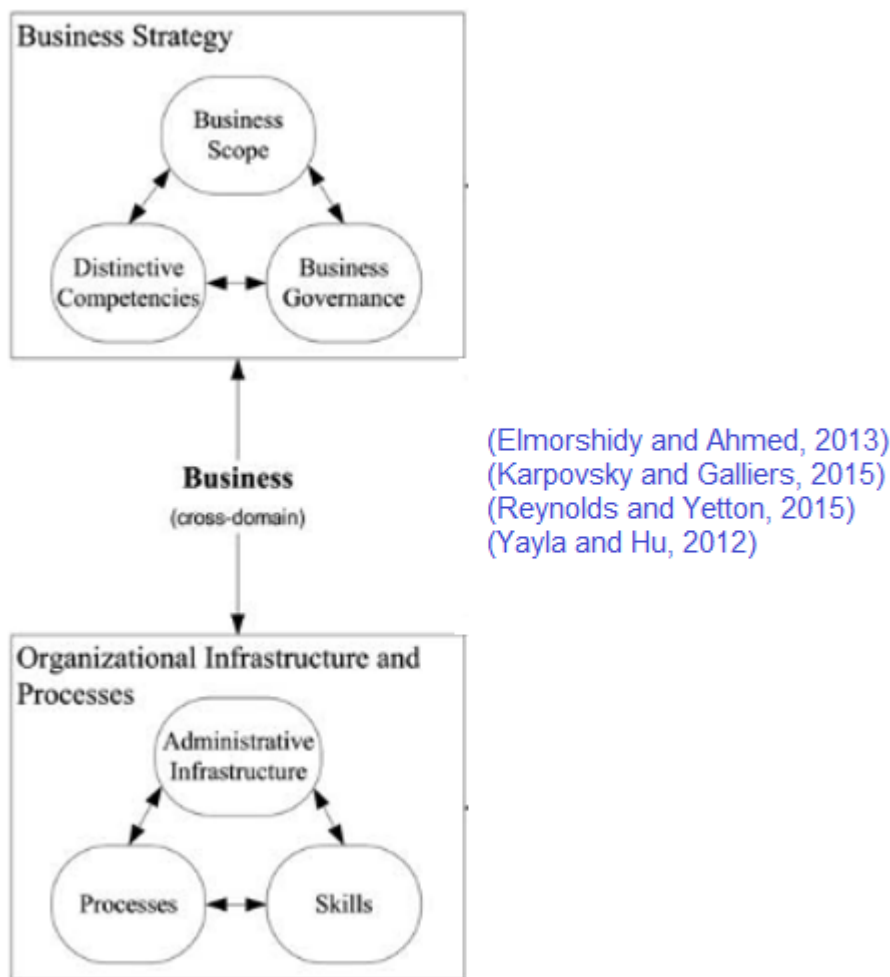
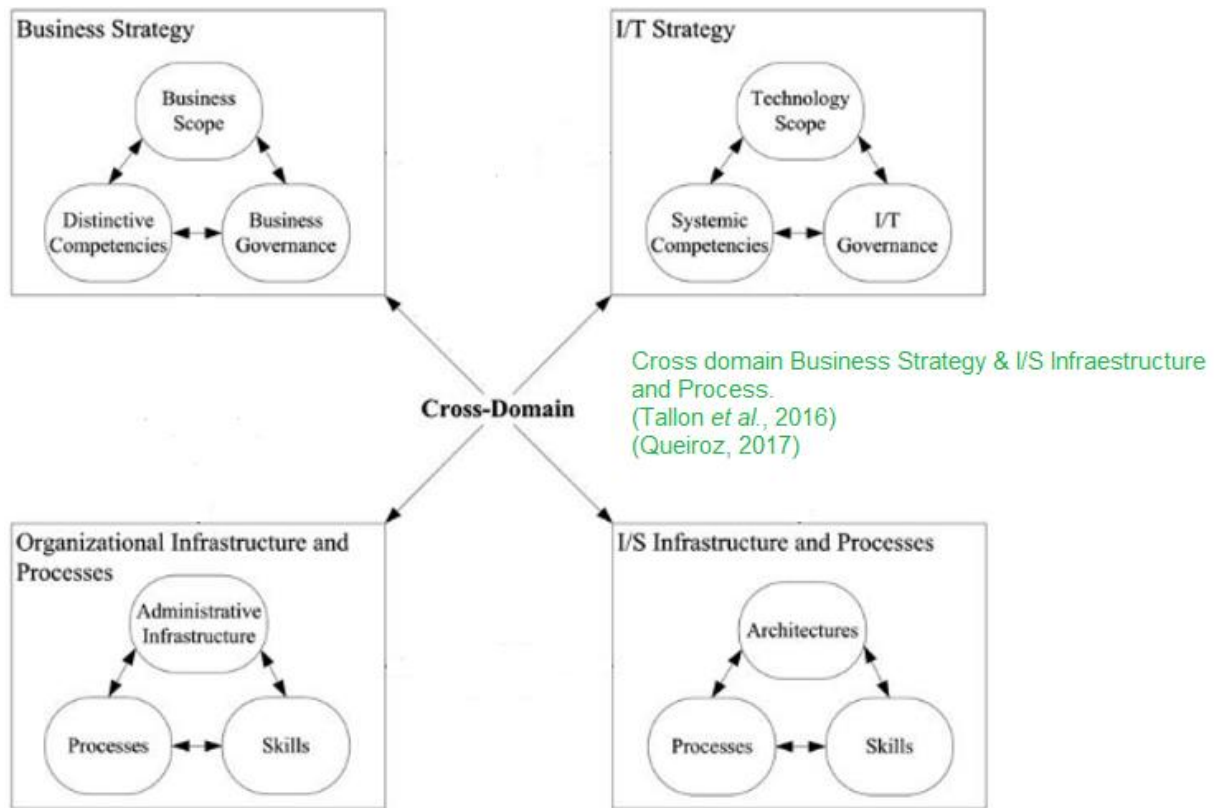Source: Source: (Henderson and Venkatraman, 1999) Modifications: own elaboration

The next report (Tallon *et al.*, 2016), considered the firm-level view of the previous literature, could mask what the firms are doing in order to achieve the alignment between business and IT strategy and considers the alignment between the business strategy and IT at the process level. The

typology of alignment introduced in this study is named cross domain alignment (business strategy to IT infrastructure and processes) referring to bridging higher level, externally focused strategies with lower level, internally focused infrastructure and processes (Gerow, Tratcher and Grover, 2014)(figure16).

The last study included, in this literature review and it shows that "firm-level IT alignment and process-level IT alignment yield different conclusions when testing the same theory under the same conditions" (Queiroz, 2017). Moreover, the study analyzes the firm-level IT alignment and process-level IT alignment, named as business alignment and cross domain alignment (Gerow, Tratcher and Grover, 2014)(figure16).

Figure 16: Henderson & Venkatraman's Strategic alignment model Cross-domain Business Strategy & Infrastructure and Process (modified)

Source: Source: (Henderson and Venkatraman, 1999) Modifications: own elaboration

This literary review, intended to simplify the complex topic for all the people related to the enterprise world, and do not do research. The topic of alignment is vital for the survival of the

enterprise and the role of IT is evolving having an impact in customer service, sales and the most important business strategy (Newman, 2016). Consequently, this literature review could help to increase the interest in the alignment and once the businessman had reach some interest in the topic could analyze deeply the topic, obtaining all the advantages for their organization.

To sum up, the majority of the literature has focus in the firm-level alignment, but the topic of alignment is more complex and the new research stream we've analyzing in this literature review focused in other typologies of alignment. Conclusively, after analyzing the report, the complexity of the topic is growing at the same pace the importance of the alignment is for the organization in the global environment.

5. References

Agarwal, R. and Sambamurthy, V. (2002) 'Principles and models for organizing the IT function n', *MIS Quarterly Executive*, 1(1), pp. 1–16.

Baker, J. *et al.* (2018) 'Conceptualizing the Dynamic Strategic Alignment Competency', *Journal of the Association for Information Systems*, 12(4), pp. 299–322. doi: 10.17705/1jais.00265.

Brown, C. V. and Ross, J. W. (1996) 'The Information Systems Balancing Act: Building partnerships and infrastructure', *Information Technology and People*, 9(1), pp. 49–62.

Carter, M., Grover, V. and Tratcher, J. B. (2011) 'The emerging CIO role of business technology strategist', *MIS Quarterly Executive*, 10(1), pp. 19–29.

Chakravarthy, B. and Henderson, J. (2007) 'From a Hiererachy to a Heterarchy of Strategies: Adapting to a changing context, Management Decision', *From a Hiererachy to a Heterarchy of Strategies: Adapting to a changing context, Management Decision*, 45(3), pp. 642–652.

Chan, Y. *et al.* (1997) 'Business strategic orientation, information systems strategic orientation, and strategic alignment.', *Information Systems Research*, 8 (2), pp. 125–150.

Chan, Y. E. and Reich, B. H. (2007) 'IT Alignment: What have we learned?', *Journal of Information Technology*, 22, pp. 297–315.

Cragg, P. and Tagliavini, M. (2007) 'Evaluating the alignment of IT with business processes in SMEs', *Australasian (ACIS)*, pp. 38–48.

DeLone, William, H. and McLean, E. R. (1992) '"Information Systems Success: The Quest for the Dependent Variable', *Jnformation Systems Research*, pp. 60–95.

DeLone, William, H. and McLean, E. R. (2002) 'Information Systems Success Revisited', *Proceedings of the 35th Hawaiian Intemational Conference on Systems Sciences*.

Dynata (2019). Available at: https://www.dynata.com/.

Elmorshidy and Ahmed (2013) *Aligning IT With Business Objectives: A Critical Survival And Success Factor In Today's Business*. Available at: https://search.proquest.com/abicomplete/docview/1370363929/fulltextPDF/25D0D7965D3E4C0 BPQ/17?accountid=15297 (Accessed: 21 January 2019).

Gerow, J. E., Thatcher, J. B. and Grover, V. (2014) 'Six types of IT-business strategic

alignment: an investigation of the constructs and their measurement', *European Journal of Information Systems*, 24(5), pp. 465–491. doi: 10.1057/ejis.2014.6.

Gerow, J., Tratcher, J. and Grover, V. (2014) 'Six types of IT-business strategic alignment: an investigation of the constructs and their measurement', *Six types of IT-business strategic alignment: an investigation of the constructs and their measurement*, 24(3), pp. 1–27.

Henderson, J. C. and Venkatraman, H. (1999) 'Strategic alignment: leveraging information technology for transforming organizations', *IBM Systems Journal*, 38(2/3), pp. 472–484.

Henderson, J. and Venkatraman, N. (1993) 'Strategic alignment: leveraging information technology for transforming organizations.', *IBM Systems Journal*, 32(1), pp. 4–16.

Hodgkinson, S. L. (1996) 'The Role of the Corporate IT Function in the Federal IT Organisation, in M.J. Earl', *Information Management: The Organisational Dimension, Oxford: Oxford University Press*.

Karabenick, S. A. *et al.* (2007) 'Cognitive processing of self-report items in educational research: do they think what we mean?', *Educational Psychologist*, 42(3), pp. 139–151.

Karpovsky, A. and Galliers, R. D. (2015) 'Aligning in practice: from current cases to a new agenda', *Journal of Information Technology*, 30, pp. 136–160. doi: 10.1057/jit.2014.34.

Kelly, K. (2019) 'What Is Gestalt Psychology?', *Verywell mind*. Available at: https://www.verywellmind.com/what-is-gestalt-psychology-2795808.

King, W. R. (1978) 'Strategic planning for management information systems', *MIS Quarterly*, 2(1), pp. 27–37.

Luftman J. (2000) 'Assessing Business-IT Alignment Maturity', *Communications of the Association of Information Systems*, 4 Article.

Makadok, R. (2010) 'The Interaction Effect of Rivalry Restraint and Competitive Advantage on Profit: Why the whole is less than the sum of the parts', *Management Science*, 56(2, pp. 356–372.

Makadok, R. (2011) 'The Four Theories of Profit and their Joint Effects', *Journal of Management*, 37(5), pp. 1316–1334.

Mintzberg, H. (1978) 'Patterns in Strategy Formation', *Management Science*, pp. 934–948.

Nadler D and Tushman M (1980) 'A diagnostic model for organizational behavior', *Perspectives*

on behavior in organizations.

Newman, D. (2016) 'The Changing Role Of IT In The Future Of Business', *Forbes*, p. 1. Available at: https://www.forbes.com/sites/danielnewman/2016/07/26/the-changing-role-of-it-in-the-future-of-business/#45479ca0525d.

Nunnally, J. C. (1967) 'Psychometric Theory', p. 175.

Porra, J., Hirschheim, R. and Park, M. S. (2005) 'The history of Texaco's corporate information technology function: a general systems theoretical interpretation', *MIS Quarterly*, 29 (4), pp. 721–746.

Preston DS and Karahanna E (2009) 'Antecedents of IS strategic alignment: a nomological network', *Information Systems Research*, 20 (2), pp. 159–179.

ProQuest (2019) *ProQuest | Databases, EBooks and Technology for Research*. Available at: https://www.proquest.com/ (Accessed: 22 January 2019).

Queiroz, M. (2017) 'Mixed results in strategic IT alignment research: a synthesis and empirical study', *European Journal of Information Systems*, 26(1), pp. 21–36. doi: 10.1057/s41303-016-0024-z.

Reynolds, P. and Yetton, P. (2015) 'Aligning business and IT strategies in multi-business organizations', *Journal of Information Technology*, 30, pp. 101–118. doi: 10.1057/jit.2015.1.

Sabherwal, R., Hirschheim, R. and Goles, T. (2001) 'The Dynamics of Alignment: Insights from a punctuated equilibrium model', *Organization Science*, 12(2), pp. 179–197.

Sabherwal, R. and Ye, C. (2001) 'Alignment between business and IS strategies: a study of prospectors, analyzers, and defenders', *Information Systems Research*, 12, pp. 11–33.

Tallon, P. P. *et al.* (2016) 'Business Process and Information Technology Alignment: Construct Conceptualization, Empirical Illustration , and Directions for Future Research', *Journal of the Association for Information Systems*. Available at: https://search.proquest.com/abicomplete/docview/1831801231/fulltextPDF/D9065CB91EB5431DPQ/7?accountid=15297 (Accessed: 21 January 2019).

Tallon, P. and Pinsonneault, A. (2011) 'Competing Perspectives on the Link between Strategic Information Technology Alignment and Organizational Agility: Insights from a mediation model', *MIS Quarterly*, 35(2), pp. 463–486.

Tan FB and Gallupe RB (2006) 'Aligning business and information systems thinking: a cognitive approach', *IEEE Transactions on Engineering Management*, 53 (2), pp. 223–237.

Teece, D., Pisano, G. and Shuen, A. (1997) 'Dynamic capabilities and strategic management.', *Strategic Management Journal*, 18(7).

Venkatraman, N. (1985) 'Strategic Orientation of Business Enterprises: The Construct and Its Measurement', *University of Pittsburgh*.

Venkatraman, N. (1986) 'Strategic Orientation of Business Enterprises: The construct, Dimentionality and Measurement', *Alfred P.Sloan School of Management*.

Yayla, A. A. and Hu, Q. (2012) 'The impact of IT-business strategic alignment on firm performance in a developing country setting: exploring moderating roles of environmental uncertainty and strategic orientation', *European Journal of Information Systems*, 21, pp. 373–387. doi: 10.1057/ejis.2011.52.