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### BUSINESS-IT ALIGNMENT, THE STRUGGLE CONTINUES

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# BUSINESS-IT ALIGNMENT, THE STRUGGLE CONTINUES

*Research-in-Progress (Developmental Paper)*

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## **Abstract**

*Business and IT alignment continues to be a challenge for business which seeks to maximise value of and from the IT function. Research has covered the wider Business-IT alignment points from mainly a macro-level viewpoint, such as, structural, dynamic and functional alignment. However, both research and practice still consider Business and IT alignment to be a challenge. In this research, we seek to uncover part of the reasons why Business and IT alignment is challenging to organisations. We note the factors in the literature which emphasise Business-IT alignment, such as, shared understanding, communication, management commitment, IT investment evaluation, innovation and rewards, strategic planning of IS, and strategic agility. The results of this study show that even if organisations address these alignment factors, IT projects could still end up failing. We also note the opposing misalignment factors in practice, such as, human tensions and strained work relationships, knowledge silos, self-centred management, technology does not matter, organisational change resistance, technology as a burden, and resources inflexibility. We conclude that organisations need to address both alignment and misalignment factors.*

**Keywords:** Business-IT alignment, business value, business loss, alignment factors, misalignment factors, IT projects, micro-level business-IT alignment, business value creation.

## **1.0 Introduction**

Business and IT alignment is argued to generate business value. As such, an organisation which “applies IT in an appropriate and timely way, in harmony with business strategies, goals and needs” (Luftman & McLean 2004) and has excellent business and IT organisational and functional fit, gains a competitive advantage (Beimborn et al 2007; Ragowsky et al., 2008). However, both in practice (Luftman and Ben-Zvi, 2010 and academia (Zhang et al. 2018) it has been noted that companies

struggle to generate business value because of business-IT alignment problems (Gajardo and La Paz, 2019). In this research, we seek to uncover some of these problems and highlight the reasons why business and IT alignment is difficult, and hope that both practitioners and academics find it beneficial. We propose a novel perspective on addressing business-IT alignment, and suggest where future research contributions might be made. In addition, we reinforce the essential message, as agreed by both practitioners and academics, that business and IT alignment is necessary to improve business performance (Wagner and Weitzel, 2006). This is further demonstrated by Cragg et al. (2007) who argued that business-IT alignment could help explain the elusive relationship between IT use and business performance. Similarly, Zhang et al. (2019) reviewed the business-IT alignment research agenda and noted the need for research, which addresses increasing environmental dynamics from a multi-dimensional and level perspective, that considers alignment from a holistic approach.

Business and IT alignment has been analysed at different levels, for example, strategic-firm level (Sabherwal and Chan, 2001) and tactical business level (Reich and Benbasat, 2000). In this research, we consider the operational IT-project level because of two main reasons. First, as Vermerris et al. (2014) noted, narrowing the unit of analysis to project level in the business and IT alignment analysis, could open up the black box of alignment and help contribute to the day-to-day work of steering boards and managers. Second, the analysis of alignment at macro levels of structural alignment (Broadbent and Weill, 1993), functional alignment (Henderson and Venkatraman, 1993) and dynamic alignment (Sabherwal et al. 2001), is rampant in research; as shown by Reynolds and Yetton (2015) and Pekkola and Nieminen (2015). Micro level analysis, for instance, at project level, is important but there are only a few such micro level analysis of alignment, such as, Campbell et al (2005) and Cragg et al (2002). Therefore, we seek to address this gap noted in literature, while acknowledging that it is also significant in practice, where for instance, alignment remains a top concern for executives, always in the top 10 issues on IT executives' agenda for 30 years (Luftman and Ben-Zvi, 2010, Zhang et al. 2018).

For more than 20 years, there have been efforts to improve business-IT alignment. Seen as notable research in this area, Luftman (2000) suggested assessing business-IT

alignment maturity by proposing six criteria, namely communications maturity, competence maturity, governance maturity, partnership maturity, scope maturity and skills maturity. There has been plenty of subsequent research to Luftman (2000) from different perspectives, for instance, critical (Belfo and Sousa, 2012) and validation (Luftman et al. 2008). More recent research, such as, Vermerris et al. (2014) suggested that business-IT alignment practices, namely communication, shared understanding, management commitment and IT investment evaluation, would help achieve alignment in IT projects. Indeed, they argued that these practices are necessary to create business value in IT projects. However, even when considering all these interventions to improve alignment, the struggle to improve misalignment issues continues. Silvius et al (2007) went as far as to suggest that academic research cannot provide solutions to the issues business and IT executives face in practice. We turn our attention to this challenge, and hence attempt to address the research question: why is business and IT alignment so difficult?

It is important to address this question from empirical perspectives because in understanding the root cause of the problem, organisations could devise their own customised solutions. Moreover, to know the disease is half the cure. This means that uncovering the source of the business-IT alignment challenges could be of value. To do this, we will first highlight some of the suggested solutions in the literature. Our contributions will also include a holistic analysis of both alignment and misalignment factors existent in practice. This particular approach is different, and hopefully of good value, to most of similar research, such as Vermerris et al. (2014) and Cragg et al. (2002), who focus on alignment factors only which cover half of the real life alignment practices. The other half are the misalignment factors which are rarely analysed, and hardly ever simultaneously with alignment practices.

In the next section, we elaborate on the theoretical background that includes Business-IT alignment and business value creation, and the alignment practices noted in the literature and IT project phases. The subsequent sections feature the results of our analysis, followed by the discussion and conclusion.

## **2.0 Theoretical background**

### **2.1 State of the art**

As early as the 1970s, McLean and Soden (1977) highlighter the importance of business and IT alignment. Almost fourty years later, Wu et al (2015) noted that top performing firms generate returns on their IT investments up to 40 percent higher than competitors because companies get more value from well designed and governed IT. Kohli and Grover (2008) observed, IT-based value creation is generated from IT resources and this is enabled by business-IT alignment. That is, alignment is one of the facilitating factors essential for creating the right conditions in the chain of IT value creation. Recent research by Zhang et al (2018), continues to highlight business- IT alignment as a concern both in practice and academia, with its value being well documented. Because of this, we seek to highlight the roots of the business-IT alignment challenges.

One aspect of the value of IT in business was debated by Cragg et al. (2007) who suggested that business-IT alignment could help explain the elusive relationship between IT use and business performance. Carr (2004) famously argued that “IT doesn’t matter”, with a lot of follow up research supporting or arguing against this point of view. One aspect of how IT creates competitive advantage, is through business and IT alignment (Ragowsky et al., 2008). As noted by Huang et al. (2010, p. 288), “well-designed and orchestrated IT governance mechanisms are expected to produce IT-related decisions, actions and assets that are more tightly aligned with an organization’s strategic and tactical intentions.” We seek to contribute to this important IT value debate by making use of solid empirical evidence to demonstrate the root cause of alignment challenges.

Elsewhere, there is broad research which examines the topics of fostering business-IT alignment, such as, organisational learning process (Wagner and Weitzel, 2006). In addition, there is research which highlights the difficulties organisations encounter in business-IT alignment efforts, Weiss and Anderson (2004). Because alignment practices and misalignment factors have been rarely studied together, their opposing forces towards business-IT alignment remain theoretically underdeveloped. One of the few research efforts covering both alignment and misalignment is offered by

Corsaro and Snehota (2011) who investigated the alignment and misalignment in business relationships considering customer and supplier perspective. They noted the limited empirical evidence on this topic and identified various gaps, such as, objects of alignment and misalignment, the effect of relationship development, and assessment of alignment and misalignment. Gilchrist et al. (2018) highlighted the process of social alignment and misalignment within a complex IT project. They noted that “project progress, and ultimately success, is much harder to achieve without agreement between the project stakeholders as to what exactly needs to be accomplished and how best to accomplish it” (Gilchrist et al., 2018, p 845). In doing so, they analysed the social aspect of alignment. Our own work seeks to consider all the factors related to alignment both social and non-social in mapping constraints hindering IT and business success, due to their importance.

Zhang et al. (2019) noted gaps in the alignment of business-IT and highlighted business-IT alignment state of the art findings. They highlighted aspects of the alignment literature that have been driving the research agenda recently as:

- Environmental changes and conditions – both business and IT external factors, e.g., dynamic market requirements, component innovations, big data and cloud computing
- Organisational changes and conditions – internal changes to plans and strategies, such as, inertia and IT changes
- Business-IT process – misfits of Business-IT emerge because of the environmental and organisational changes noted above
- Organisational performance – alignment efforts are a way to facilitate overall organizational performance

In this research we seek to make contributions to alignment and IT governance knowledge bases by addressing some of the themes noted above. For instance, we make use of an empirical case to highlight Business-IT alignment issues. Academics, researchers and practitioners alike could find valuable findings in the analysis of alignment and misalignment derived from our empirical work. From a research perspective, we suggest where future contributions might be made, while from an academic perspective, we present model that includes both alignment and misalignment which explains the challenges to this topic.

## **2.2 Business-IT alignment and business value creation**

There is no one common definition for Business and IT alignment because the concept has been applied in different ways, such as, functional alignment (Henderson & Venkatraman, 1993), structural alignment (Broadbent and Weill, 1993) and dynamic alignment (Sabherwal et al., 2001). One view which tries to integrate these different dimensions, is business-IT alignment, noting the “degree of fit and integration between an organization’s business strategy, IS/IT strategy, business structure, and IS/IT infrastructure” (Zhang et al., 2019). A good example of a comprehensive view of alignment is “a continuous co-evolutionary process that reconciles top-down “rational designs” and bottom-up “emergent processes” of consciously and coherently interrelating all components of the Business/IT relationship at three levels of analysis (strategic, operational, and individual) in order to contribute to an organization’s performance over time” (Vermerris et al., 2014).

The business value created from alignment and the business loss incurred from misalignment, is a subject of debate. For instance, there is a group of researchers who argue that alignment and business value has direct positive relationship, such as, Bachor and Chiasson (2015) and Cragg et al. (2002). Another group, such as, Tallon et al. (2000), argue that there is an indirect relationship between alignment and business value. Others, for example, Kearns and Sabherwal (2007) suggest that business value is an intermediate performance measure of alignment. At the same time, Tallon and Kraemer al (2003) found no support for impact of alignment to business value. In this research, we take a holistic view in reaching our conclusion on how business value could be derived from alignment.

## **3.0 Alignment practices**

As a starting point to the investigation of alignment practices, it would be useful to consider the factors that positively influence alignment. There is extensive research proposing business-IT practices (Vermerris et al., 2014), maturity (Luftman, 2000; Gajardo and La Paz, 2019) and success factors (Kurti et al., 2015). In this section, we highlight some of this research and attempts to improve business-IT alignment. These are elaborated in terms of their business and IT alignment input and value creation in Table 1.

<b>Alignment factors</b>	<b>Description</b>	<b>BITA input</b>	<b>Reference</b>
Communication	Domain and technical knowledge sharing in IT projects	Collaboration process	Luftman, (2000); Vermerris et al. (2014); Miller et al (2014)
Shared understanding	Business and IT Knowledge integration	Absorptive capacity	Kurti et al. (2015); Vermerris et al. (2014); Miller et al (2014)
Management commitment	Executive managers assurance to the IT project individually and as a team.	Strategic support and potential	Kurti et al. (2015); Vermerris et al. (2014)
IT investment evaluation	Assessment of IT investments at every project phase.	Reviews and feedback	Luftman, (2000); Vermerris et al. (2014)
Innovation and rewards	Innovation and reward systems that promote a culture of innovation can be considered as engines of the future development of any company that aspires to remain current and competitive.	Innovation and renewal culture	Gajardo and La Paz (2019)
Strategic planning of IS	Providing users with tools appropriate to their needs, through a formal and systematic process.	Technology empowered users	Gajardo and La Paz (2019)
Strategic agility	The ability of organisation (project) to change in line and speed of the dynamic environment.	Change process	Mavengere (2013)

**Table 1. Alignment factors and value creation**

Table 1 links the alignment factors to the value creation and their input from a business-IT alignment perspective. Communication is very important in IT projects for strong collaborative results. Collaborating partners tend to have diverse domain and technical knowledge and, therefore, communication is the vehicle to share and put this knowledge into use. Communication enables shared understanding which

increases absorptive capacity, and the ability to identify, assimilate and apply knowledge which creates business value. Management commitment is essential to tie all these alignment practices together and offers strategic support and potential. IT investment evaluation provides the essential reviews and feedback. Dynamic business environment means that innovation and strategic agility is ever required.

#### **4.0 Research methodology**

Our research approach is twofold. First, we conducted a literature review on the business-IT alignment which formed the basis of our case analysis. The literature review was conducted to learn the state of the art of the topic. In the literature review, we were somewhat overwhelmed by the number of articles which proposed factors that enhances business IT alignment, such as, Vermerris et al. (2014), Kay and Avison (2005) and Ullah and Lai (2013). But surprisingly, the literature is very sparse on misalignment factors. That is, there is limited research, where a project is considered as a unit of analysis, on factors that reduce business IT alignment. The results of the literature review, for instance by Vermerris et al. (2014) point out that the alignment factors a inadequate and that the analysis of business-IT alignment is narrow and thus incomplete. We say so because a past case study [Reference removed for anonymity] conducted by one of the authors covered all the proposed alignment factors in the literature but still the result was a failure.

Therefore, second, we re-analyzed this case to draw insights of why an organization with the suggested business-IT alignment factors failed. The case focused on the technology change in which a company (customer<sup>1</sup>) wanted to renew its old technology in collaboration with its long-term vendor. The vendor had other plans: not only to upgrade the customer system but to package it so that it can be sold to other companies.

The case study was conducted as follows: In the spring 2013 we conducted sixteen semi-structured theme interviews. We recruited the interviewees by asking them to

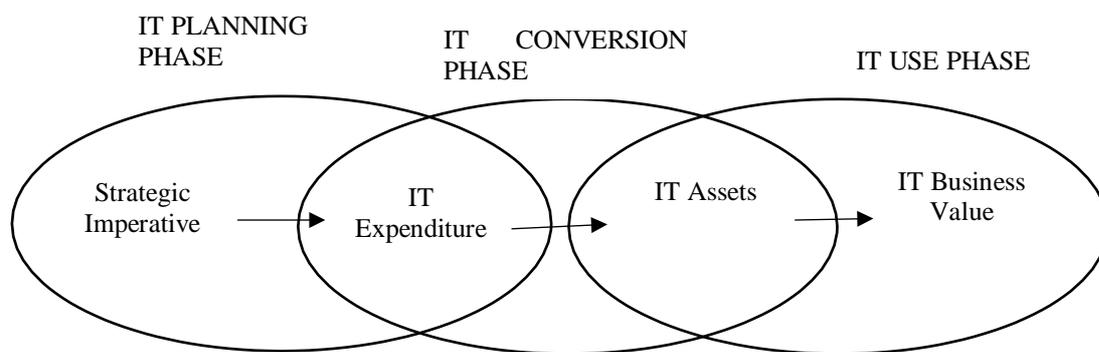
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<sup>1</sup> Customer, of over 1000 employees and 300M€ turnover operates in the retail business. It has operations in 27 countries, over 1200 sales outlets, and headquarters in Finland. Its unit consists of three primary areas (consumer, business-to-business, and wholesale) and supporting functions (human resources, finance, logistics, IT, and marketing).

pinpoint subsequent ones (Myers & Newman, 2007). When new interviewees were not suggested, we considered this snowball sampling finished. All interviews followed the same template and themes: identification of stakeholders, personal experiences, and project experiences. They were face-to-face interviews, lasting 49 on average, and were audio-recorded.

The interview data analysis followed an interpretive research approach (Klein & Myers, 1999). We first read the transcripts, identified relevant comments and statements, and grouped them thematically. These comments were then analyzed by identifying the points of misalignment.

We use the project environment as the unit of analysis. To elaborate the project phases, we used the work of Vermerris et al. (2014), illustrated in Figure 1. Their work fitted well with the case study both from empirical point of view and as an analytical framework. We analyzed different phases of the project cycle, namely pre-implementation, implementation, and post-implementation (Wu, 2008). These can also be titled as IT planning phase, IT conversion phase, and IT use phase, as suggested by Vermerris et al. (2014). We adapt this view because it illustrates the value creation and loss from the business-IT alignment factors. We elaborated these phases in Figure 1.



**Figure 1. IT project phases (adapted from Vermerris et al. (2014))**

The IT PLANNING PHASE includes the initial steps in defining and mapping IT strategies in line with company strategy, mission, and vision. There are two main sub-phases, namely strategic imperative and IT expenditure. Strategic imperative involves defining and linking the required IT resources in line with the business requirements

which is context based at operational level. This would call for IT expenditure to acquire the resources, which is the second sub-phase of the IT planning phase.

The second phase, IT CONVERSION, involves the adaptation of the IT expenditure into IT assets. An example of an IT asset is Enterprise Resource Planning Systems (ERP). We specifically state ERP because it is of interest to this paper as it is the application elaborated in our empirical study.

The final phase, IT USE encompasses the application of the IT assets in business processes, work flow, and practice. The intended goal of all this is to generate business value. However, the reality is a significant proportion of IT projects leads to business loss. Our aim is to clarify how this business value or loss come about from a business-IT (mis)alignment point of view.

## 5.0 Results

The literature lists the factors that positively influence alignment. However, business-IT alignment challenges continue existing in practice. In this section we address the research problem, namely why is business-IT alignment difficult, by utilizing the insights from our case analysis. We explained the challenges emerging from the practice, and reference them as misalignment factors. The misalignment factors are listed in Table 2.

<b>Alignment factors noted in literature</b>	<b>Opposing misalignment factors noted in practice</b>	<b>Description of the misalignment factor</b>	<b>Result</b>
Communication	Human tensions and strained work relationships	Mindless behaviors of actors are part of the collective mind in a IS change organization	Strains and anxieties
Shared understanding	Siloed and withheld knowledge	Business and IT hold diverse views and knowledge is shared.	Misunderstandings of the process and expected outcomes

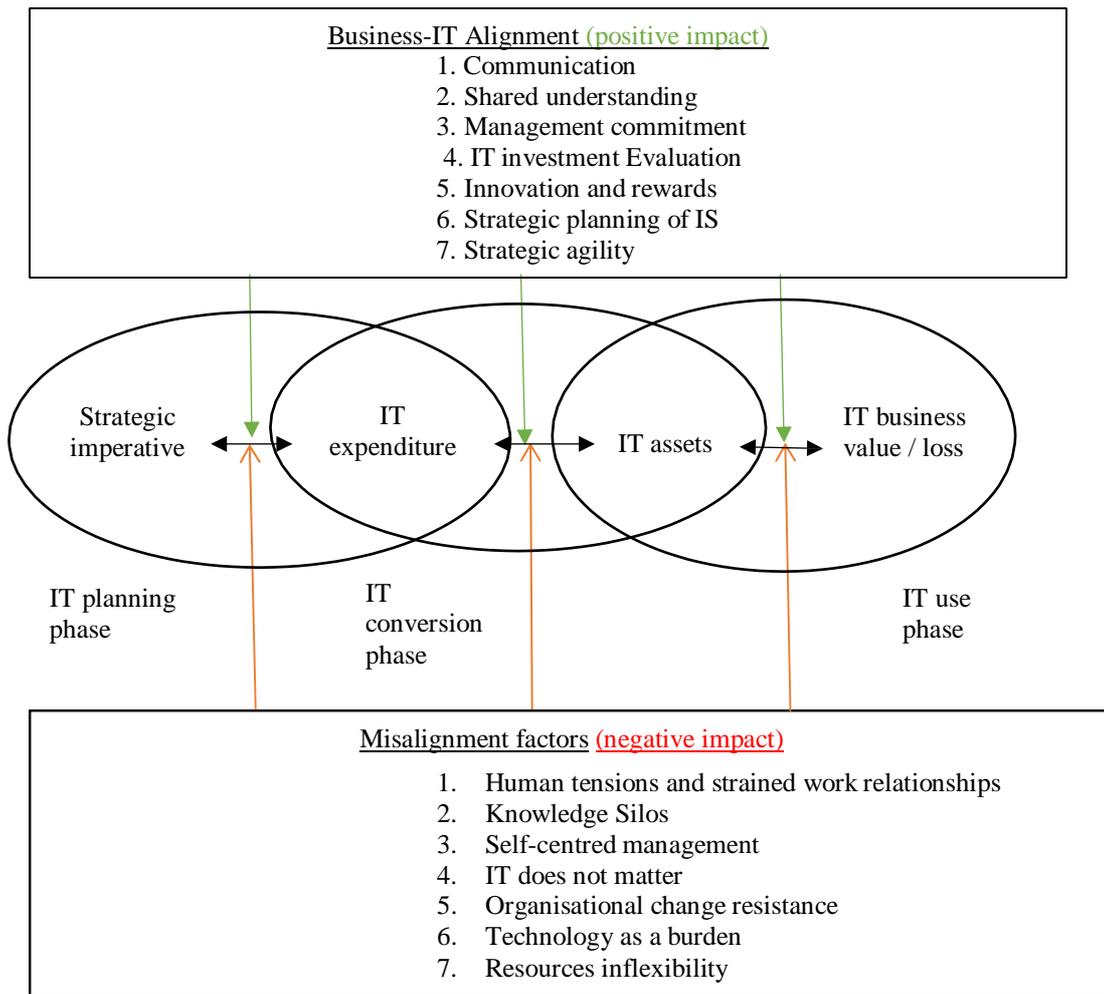
Management commitment	Self-serving and personal interests centred management	Top managers acting in self-interest, which is different from project and organizational.	Disjointed and dysfunctional leadership
IT investment evaluation	'IT does not matter'	Lack of appreciation of IT	Under- utilised IT
Innovation and rewards	Organisational change resistance	In new product development if organisation misses an opportunity to be explorative there is possibility of vicious cycles start dominating and lack of progress.	Pressures in new product development.
Strategic planning of IS	Technology a burden to the workflow and practices.	Technology embedded in work processes bringing inconsistencies and confusion.	Disruption of work processes.
Strategic agility	Resources inflexibility	The inability of organisation (project) to change in line and speed of the dynamic environment.	Organisational (project) inertia

**Table 2. Misalignment factors**

Table 2 highlights the misalignment factors that have negative impact on the business-IT alignment efforts. In IT projects, the change brought in by technology adoption could raise pressures when technology is not supporting business processes, causing inconsistencies and confusion. Thus, negating shared understanding which has been advocated for, as an alignment factor, in the literature. There are cases when technology adoption results in increased workload and inefficient work practices. In short, technology viewed as a burden to the employees. In such cases, communication could be a catalyst that worsens the situation. In addition, individuals create tensions, especially in a complex change situation full of uncertainty. This could negate commitment by the top management. The strategic efforts from the top management

are like adding fuel to the fire as a result of the negative impact generated. The dynamic IT project environment makes resource fluidity a challenge. Resource inflexibility makes IT investment evaluation of little value because the evaluation recommendations may not be possible to be put into practice. Moreover, the reallocation of resources, in line with the dynamic environment, could lead to organisational (project) design changes, which lead to resistance create inertia. Organisational and (project) inertia, inability of change in line and speed with the dynamic environment, leads to new product development pressures when progress is stalled.

Then we combined these misalignment factors with the alignment factors derived from literature. Here we utilized Vermerris et al. (2014) a model that shows how IT business value is generated from IT investments, taking into consideration the business-IT alignment practices in all IT project phases. Vermerris et al. (2014) elaborated the importance of timing and complementarity of alignment practices in creating business value in IT projects. In addition, the model looked at operational level IT projects and therefore, they argued that this perspective enables value creation assessment of alignment practices in each project phase. The proposed business-IT alignment practices are communication, shared understanding, management commitment and IT investment. The final practice is the complementarity of these listed alignment practices. Our case study covered all the aspects suggested by Vermerris et al. (2014) but business loss remains as the outcome. Thus, we propose to enhance our model by including the misalignment factors noted in Table 2. These identify the negative impact which could lead to business loss in IT projects. Therefore, we acknowledge that in IT projects there are both positive impact from business-IT alignment factors and negative impact from misalignment factors, as illustrated in Figure 2. The final result of business value or loss depends on whether the positive or negative impact is more prominent to the IT project. Therefore, based on this, either business value is created if business-IT alignment practices are more prominent than misalignment factors or business loss is incurred if misalignment factors are more prominent than business-IT alignment practices.



**Figure 2. Positive and negative impact in Business-IT alignment (adapted from Vermerris et al., 2014)**

## 6.0 Discussion

We have highlighted the negative impact, that is, the misalignment factors which lead business IT alignment efforts to fail, even though a project can have the right ingredients proposed for success. Luftman and Ben-Zvi, (2010) and Zhang et al. (2018) noted that companies struggle to generate business value because of business- IT alignment problems. We do not claim that we have found a strait jacket solution to business-IT alignment problems. But we claim that we have found a process which incorporates both alignment practices and misalignment factors that enhance business-IT alignment. Companies need to be aware of ‘both sides of the coin’, that is, the positive impact fostering and negative impact blocking business-IT alignment.

Our work goes one step further from that of Vermerris et al., (2014) who proposed that business value in IT projects is created by alignment practices. We argue the importance of the alignment practices which are communication, shared understanding, management commitment, IT investment evaluation, and complementarity. We analysed a case study which addresses all the points proposed by Vermerris et al., (2014) but unfortunately the IT project was still deemed to be a failure. Lessons drawn from the case include the misalignment factors which are not considered by Vermerris et al., (2014) but, nevertheless, play an essential role in the mapping of business-IT alignment.

The main limitation of our work is that it only considers a single case study. Results could be investigated in other case studies, especially in different industries. The project level analysis is essential and could be expanded more with other points of view. Therefore, for further research, we propose a multi-case analysis as the next step to this study. We also encourage the study of different industries and domains, such as, the public sector.

## **7.0 Conclusion**

This paper considers Business-IT alignment at project level, a critical instance where business and IT units interact frequently. This is operational and micro level that maps the macro elements of business and IT alignment. Bachor and Chiasson (2015) noted that large and complex projects include many collaborative partners from heterogeneous firms and individuals. In addition, this heterogeneous membership means that there is multi-dimensional and complex set of influences on alignment. In this research we note the positive impact by alignment factors and negative impact by misalignment factors.

The ongoing Business-IT alignment struggle noted both in literature and practices could be reduced by focusing on both the alignment practices and misalignment factors. Business-IT alignment factors, which include communication, shared understanding, management commitment, IT investment evaluation, innovation and rewards, strategic planning of IS and strategic agility, have a positive impact. At the same time, negative impact which hinders business-IT alignment includes

misalignment factors, technology as a burden, human tensions and anxieties, work process disruption, resources inflexibility, organisational (project) inertia, and pressures in new product development. Companies need to put measures in place to promote Business-IT alignment and, in addition, to minimise the effects of misalignment factors.

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