From Theory to Practice: Barriers to Business-IT Alignment in Organizations Acting in Sweden

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Abstract

In research, many barriers to BITA are presented based on different theoretical frameworks. However, these barriers are studied either from a pure theoretical perspective or with limited empirical scope. This consequently hinders the achievement of BITA in organizations. In this paper the practitioners view of barriers to BITA are investigated aiming at producing a list of barriers which practitioners can use as a ground for better achievement of BITA. The list of barriers was identified by conducting two in-depth case studies on multinational organizations acting in Sweden along with two focused group discussions of researchers, and followed by a survey on 74 large and medium sized organizations on the Swedish market. The result of this study is a list of 45 barriers to BITA from the perspectives of business and IT practitioners.

1. Introduction

Business-IT Alignment (BITA) is a preferred condition in which the relation between business and IT is optimized in order to maximize the business value of IT. Results from BITA research have shown that organizations that successfully align their business strategy with their IT strategy can increase their business performance [1] [2]. According to Kappelman et al. (2013) [3] BITA is the top IT management concern in the 2013 Trends Survey by the Society for Information Management. BITA can also support the analysis of the potential role of IT in an organization. For example, BITA can support identification of emergent IT solutions in the IT marketplace that can be an opportunity for an organization to change its business strategy and business infrastructure [4]. However, for today’s modern organizations, the crucial question is not “why alignment is important” but rather “how it can be achieved and measured” [5].

When it comes to achieving, sustaining and measuring alignment, one has to look beyond the strategic level and also study how IT and business can align at tactical and operational levels. It is highlighted in [6] that the need to differentiate between alignment at the different organizational levels, although Gutierrez & Serrano [7] points out that current alignment approaches “are mainly focused at the strategic level but provide little insight at tactical and operational level”. Tarafdar & Qrunfleh [8] argues that alignment at the operational and tactical level is necessary to ensure that applications are successfully implemented, maintained and used, in accordance to the business’ needs.

When aiming to align business and IT, one has to know the factors that influence alignment. Some of these factors are drivers for achieving and/or sustaining alignment while others hinder. Luftman [9] points out that “achieving and sustaining alignment demands focusing on maximizing the enablers and minimizing the inhibitors that cultivate alignment”. Barriers exist not only when aiming to achieve alignment but also when sustaining. Without clear image of barriers that exist between an aligned and misaligned state, practitioners will find it difficult to address alignment within their organizations. Studies on factors that have clear impact on achieving and sustaining BITA have not yet to an extent been studied empirically [10] [11] [12], especially within the Swedish market.

Therefore, the goal of this paper is to identify a list of barriers for achieving and sustaining BITA from the perspective of business and IT practitioners. The need for such a list is not only academically rooted but also comes from practitioners who aim to apply BITA concepts in their organizations. This need has been identified during interviews with more than 200 different large- and medium-sized organizations as part of the teaching activities in IT management courses in our university for the last seven years in row. During the interviews with CIOs and key alignment managers in these organizations, the lack of knowledge on BITA and its challenges are proved to be one of the top concerns. Above all, achieving BITA has traditionally been seen as a part of Chief Information Officer’s (CIOs) duties. That typically involved communication and strategy translation at executive levels [13] [14]. Today, successful BITA, however, entails much more
at tactical and operational levels, and focuses on management activities that help in achieving cohesive goals across IT and business operations [15]. Therefore, the barriers compiled years ago in BITA are strongly argued not to be the same as today as the CIO’s role has changed a lot combined with dramatic changes in business models and techniques.

The result of this research shows an empirical list of BITA barriers identified at strategic and tactical levels of organizations. The classification into strategic and tactical supports researchers and organizations’ managers to understand how different strategies are designed at strategic levels and then implemented at tactical levels with different standards. Therefore, the research also brings up new barriers and challenges to BITA regarding architecture and technology, IT metrics and relationships between IT and the business.

The remainder of the paper is structured as follows: following this introduction, the research approach is presented in Section 2. In Section 3, the literature is analyzed. The empirical studies are presented in Section 4 and Section 5. Finally, concluding remarks are presented in Section 6.

2. Research Approach

This paper primarily aims at identifying and analyzing barriers for achieving business-IT alignment. Since it is taken from an empirical perspective, it would be ideal to derive barriers from literature and then extend them based on empirical study. Hence, the use of inductive reasoning research approach would be more appropriate to proceed with this research. Figure 1 illustrates the three phases consisted in the research approach.

![Figure 1. The Research Process](image)

**Phase-I (literature survey).** We aimed by this phase to update or confirm barriers to achieving BITA that were included in literature from the 1990s and 2000s. Therefore, we sought a comprehensive and detailed description of BITA barriers in recent literature (i.e. last five years (2009-2013) and including 2014 following the recommendation of Webster & Watson [16] for the development of the research area).

**Phase-II (Empirical Study).** We aimed by this phase to develop an understanding of how BITA is practised focusing on the barriers to achieving it. It embraces two steps: Step-1. An exploratory study based on two in-depth case studies and two focused group discussion of researchers in two different seminars, Step-2. A survey was carried out among large and medium sized organizations on the Swedish market. After getting confident into the classification of barriers into six categories, the aim in this step was to extend and verify our findings into a bigger representative sector of practitioners.

**Phase-III.** Finally, based on a triangulation method (see [58] and [59]), the data from both empirical studies are analysed to identify the final list barriers. Firstly, the interviews and their qualitative data were analyzed to find the list of BITA barriers. Further, the survey’s results were quantitatively analyzed to check and establish validity in our study.

3. Updating Barriers from Literature

3.1. Literature Selection

For retrieving literature, we used a keyword-based search in four scientific databases; the Education Resources Information Center (ERIC) database, the ScienceDirect database, the Business Source Premier database, and the Academy of Management Learning and Education database. Different keywords in titles and abstracts were used to find relevant articles, such as ‘barriers to Business-IT alignment’, ‘challenges in business and IT alignment’, ‘misalignment of Business and IT’ and ‘factors hindering business-IT alignment’.

In total, the search retrieved 47 papers. Considering the validation of the results in these articles, the articles were further investigated using the following two criteria:
- The article should have either quantitative investigation on BITA.
- The article should have either qualitative research method with statistical analysis of its data, or triangulation methods if the overall approach is qualitative.

By applying these criteria, the following 30 articles were identified: [15] and [17] - [45].

3.2. Literature Analysis

Given the fact that BITA focuses on relationships between business and IT, the complexity of its nature is increased when considering different views of IT perception in organisations and how it is utilized in regard of business objectives. This was highlighted by Henderson & Venkatraman [4] as the founding fathers for modeling BITA [7] and is still highlighted by the most recent studies [15]. In addition to that, different studies in various contexts have focused on different interpretations of BITA [47] [5]. These interpretations have caused the barriers to be seen at both tactical and strategic levels in organizations.

3.2.1. Strategic Alignment Barriers. At a strategic level, senior executive support for IT has been
identified as an important factor of alignment. It is considered to be number one enabler as well as the fifth inhibitor to alignment, as found by Luftman et al. [47] [29]. General business awareness and support of technology innovations is of foremost importance. In assisting this, business executives should take into consideration the value of IT as well as defining visions and strategies that include the role of IT. Another important factor in the business support of IT is seeing the value in funding and sponsoring IT-projects [24]. Hence, lack of senior executive support creates an alignment barrier. It is further highlighted by [38] stressing the importance of line executive commitment to IS issues and initiatives, e.g., by IS projects having a business sponsors.

The second most important enabler found by Luftman et al. [47] was the notion of IT participating in creating business strategies. A mutual cooperation between representatives from IT and the business is needed in forming business and IT strategies in order to take advantage of IT as an enabler to reach competitive advantage. Such cooperation is easier with cross-functional teams, with representatives from both the business and IT [18]. Cross-functional teams provide advantages such as taking IT opportunities into account when forming business strategies. Important aspects such as trust and forming partnership are made possible through cross-functional teams [36]. Ajjan [17] adds to this by proposing that the connection between business and IT planning process impacts alignment. IT managers who participate in business planning have a better perceived understanding of business objectives and vice versa. Luftman et al. [31] highlights the importance to link Business and IT Missions, Priorities, Strategies, Planning Processes and Plans. The authors proposed that business and IT plans should be linked and well documented, and for IT personnel to participate in business planning and in new product development. Moreover Rosenkranz et al. [37] underline that good communication lead to information sharing between business and IT, which also support mutual understanding. Furthermore, Vermerris et al. [40] highlight communication and understanding between business lines and IS executives as another important precondition to alignment. This is more often the case when the CIO has been with the firm for many years and has a strong working relationship with CEO. Preston & Karahanna [35] argue that good communication is an important ingredient in shaping true partnerships based on mutual trust, as well as risk and reward sharing between business and IT.

3.2.2. Tactical Alignment Barriers. It is often argued that IT does not understand the business environment and therefore cannot support and drive the business in a successful manner. Ray et al. [48] and Rosenkranz et al. [37] concluded that it is fundamental that IT understands the organizations business environment including external forces such as customers and competitors. In reverse is equally important for business to understand IT. In achieving an understanding of business, IT should for instance communicate in business terms and also apply technical understanding to discover business opportunities. For example, IT can be used to deliver customer service. This way one can also measure data which enables enhancement of results. Another example of IT benefits are organizations that have IT-based business strategies, for instance companies that sell customer tailored products. In reverse it is also evident for business to understand IT [42]. It is also found by Campbell [49] and Wagner et al. [41] that a tactical barrier faces managers is that formal business strategies are often too ambiguous for business managers to understand. In other words, managers face ambiguity surrounding the differences between espoused strategies, strategies in use, and managerial actions, many of which may be in conflict with one another.

Reich & Benbasat [50] found, and recently confirmed by Rao & Ramachandran [36] that shared domain knowledge is an important alignment factor. Moreover IT and business executives ability to understand and be able to participate in the others’ key processes, ensures a better communication between business and IT. Furthermore increased cross-border knowledge influences the relationship between business and IT. Therefore business executives have ranked that IT does not prioritize their workload well according to business needs [19]. On the other hand IT is often overwhelmed with tasks to a degree that it becomes difficult to meet its commitments, which creates agitation in both end users and business executives. Cancelled and over budgeted IT projects are rarely because of technical problems, however it still affects IT credibility. The main reason for IT failing to meet its commitments is not adhering to basic project management disciplines, as well as lack of business participation in the different aspects of the project [15] [51]. Therefore Reich & Benbasat [50] propose that the history of IT implementations within an organization is an important factor when it comes to alignment, and has been emphasized within the studies applying social capital theory or boundary object theory that have emerged more recently (since 2010) [15] [40]. Past failures or success of IT implementation can reduce or increase the credibility of IT.

3.3. Theoretical Framework of Barriers

A number of BITA models and frameworks have been proposed for conceptualizing BITA and its
components by different researchers e.g. [4] [9] [50] [52] [53] [54]. Although Henderson and Venkatraman [4] are seen as the founding fathers of BITA modeling [9], Luftman’s strategic alignment maturity model [6] (SAM) has gained more popularity in practice [11] due to its: a) bottom-up approach by setting understanding goals of linkages between business and IT, analyzing and prioritizing gaps, choosing and evaluating success criteria, and consequently sustaining alignment through these processes, b) presentation of BITA as a complete holistic process encompassing not only establishing alignment but its maturity by maximizing alignment enablers and minimizing inhibitors, and c) focus on different areas by the modularity in six BITA criteria. It then provides an instrument for understanding business-IT relationships which helps to identify different factors that enable and inhibit the alignment process [6].

SAM classifies BITA into six criteria (Table 1) consisting of 38 attributes (Figure 2) in five maturity levels: Ad Hoc, Committed, Established Focused, Managed, and Optimized Process. This classification gives clear view of alignment and helps to spot particular areas of where an organization needs to improve for maximizing values of IT investments. Since its inception, SAM has been used by several researchers and in number of industries for assessing BITA and its components [5]. SAM is then considered as theoretical framework for classifying BITA barriers. This supports for identifying the relationship between each barrier and its business area. The main notions for strategic and tactical barriers were summarized in the light of each SAM criteria. Based on the above literature review on barriers, Table 2 shows these notions versus each BITA criteria.

### Table 1. Criteria of SAM model [9]

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Definition and Questions Attached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Refers to clear understanding between business and IT communities with an effective exchange and sharing of each ideas, processes and needs.</td>
</tr>
<tr>
<td>Competency/Value Measurements</td>
<td>Concerns about demonstrating IT values in compatible figures with the business community understanding. Therefore, both business and IT have different metrics of values they add.</td>
</tr>
<tr>
<td>Governance</td>
<td>Ensures that business and IT communities formally and periodically discuss and review their plans. Different priorities are important to be clearly defined for allocating the needed IT resources.</td>
</tr>
<tr>
<td>Partnership</td>
<td>Refers to the relationship between business and IT in having shared vision of the organization’s processes in order to facilitate the IT as an enabler or driver for business transformation in processes and strategies.</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>Illustrates the involvement of IT in all organizational processes. It defines the IT role in supporting flexible and transparent organizational infrastructure. This, however, facilitates applying technologies effectively and providing customized solutions responding to customer needs.</td>
</tr>
<tr>
<td>Skills</td>
<td>Refers to all human resource aspects that influence (are influenced) by changes. They include factors that enhance organization’s cultural and social environment as components of organizational effectiveness.</td>
</tr>
</tbody>
</table>

### Table 2. Notions of strategic and tactical BITA barriers

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Strategic</th>
<th>Tactical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>IT lacks senior business executive support [18] [27] [28]</td>
<td>Unclear channels for communication (formal and informal networks) [30] [32]</td>
</tr>
<tr>
<td>Competency/Value Measurements</td>
<td>IT and business metrics and objectives not clearly linked as the IT value is poorly demonstrated [34]</td>
<td>Ambiguity between espoused strategies, strategies in use, and managerial actions reflecting business performance [26] [33]</td>
</tr>
<tr>
<td>Governance</td>
<td>Lack of joint strategic planning between business and IT</td>
<td>Separation between overall and IT governance [40] [44]</td>
</tr>
<tr>
<td>Partnership</td>
<td>One-sided relationship as IT is not seen as strategic partner [29] [35]</td>
<td>Uncertainty of roles and expectations [27] [45]</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>IT architecture allows business process to be too flexible without integration at high levels [39]</td>
<td>The mismatch between IT architecture and its interpretation into infrastructure [21] [23]</td>
</tr>
<tr>
<td>Skills</td>
<td>The environment is dominated by business people for leading, changing decision and career development [38]</td>
<td>Lack of feedback information between business and IT. The environment is not opened when multi business unit exist [36]</td>
</tr>
</tbody>
</table>

### 4. Empirical Study-1 (Case studies)

#### 4.1 Cases Background

As discussed in the research approach (Section 2), this is the first step in the empirical study. Two in-depth case studies in two multinational organizations, in which eight interviews with practitioners were performed in one and four interviews in the other, along with two focus group seminars were conducted. A case study is usually unique and offers rich details rather than generalizations, and understanding of complex issues rather than explanations. In addition to that, case studies allow the study of difficult issues while retaining the holistic characteristics of real-life events [55]. In total, 12 semi-structured interviews were carried out in the two organizations, in which six with business practitioners and six with IT practitioners allowing emerging themes to be explored (as suggested
by Myers [56]. Following the theoretical framework of barriers, the interview questions were based on the Luftman’s Strategic Alignment Maturity Model (SAM) [9]. The SAM model was explained for the interviewees before the interviews were carried out. The results from the two case studies were presented in two academic seminars in a research school. The results were peer reviewed by two expert researchers in the field, and then discussed openly in two focused groups of eight researchers each in related areas. The two organizations involved in the studies are presented below as well as the motivation for selecting them.

**Organization A**: is a large construction company currently active in different markets in Europe and the Americas. It is a member of the OMX-Stockholm Large Cap (Organizations with market capitalization of over EUR one billion (accessed May-2014 from: www.nasdaqomxnordic.com/shares). The organization was deemed a good fit for the case study because IT is not its core business, although IT is considered an important supporting function to the business. Instead of outsourcing the IT activities, which has been a trend in the last decade, the organization has recently established a child company that provides IT services. Three business and three IT representatives were interviewed.

**Organization B**: is a medium-sized retail company. The company grew up from a family business to a business with more than 2000 employees. Today, the organization is established as a member of the OMX-Stockholm Medium Cap (Organizations with a market capitalization of over EUR 150 million and under EUR one billion (accessed May 2014 from: http://www.nasdaqomxnordic.com/shares). With fast growing and strong relationship with IT, the organization selected not to outsource any of their IT activities. Instead they have selected to manage all of their IT functions in-house with more reliance on IT consultant organization that frequently customize and develop for them, especially their ERP system. One business and two IT representatives were interviewed.

### 4.2. Findings of the Exploratory Study

The barriers identified in the study of the two organizations and focused group discussions are listed and described below. Based on SAM model, a thematic analysis was used to analyze the data collected from the interviews. Thematic analysis emphasizes examining themes found in data [57].

#### 4.2.1. Communications. (Communication goes through informal networks)

At Organization A, communication is stated to mainly flows through informal networks and not in a structured way through formal channels. This results in information often staying in its specific unit and is not properly shared with people outside the unit. In an attempt to tackle this barrier the interviewee suggests to implement a set of rules to make it appealing to conduct communication more formally. This in turn would lead to a more structured, consistent and predictable communication, the interviewee implies.

- **(Fragmented business units)** It is pointed out in Organization A, that there are difficulties in communication because of the company’s fragmented business units. It prevents communicating a one-fits-all solution for multiple business units.

- **(Insufficient knowledge to communicate with the other part).** There is a concurrent view that employees from respective sides, business and IT, have insufficient understanding of each other in both Organization A and Organization B.

- **(A reactive view of IT).** Highlighted in both Organizations as a barrier that business has a reactive relation to IT which is clarified by stating that IT is merely seen as a support function rather than an enabling and driving toolbox for governing and improving the business.

- **(Business-IT only communicates at top management level).** While Organization A seems to improve business-IT connection on different organizational levels through maintenance management model used, the situation seems to be different in Organization B. It is pinpointed that communication between the business and IT primarily exists at the top management level. There is little communication between end users and IT staff; instead the communication is dominated by management.

#### 4.2.2. Competency/Value Measurements. (Value of IT is perceived low)

There is a shift in attitude from business in Organization A regarding perceived value of IT, an IT representative remark. The business tends to more often ask IT to be more proactive in order to develop new solutions. Although, with this being said, it should be mentioned that business, to a large extent, still does not see the value in IT but rather sees it as a cost, stated as well.

- **(Poor demonstration of IT value).** There is a unanimous view in both Organizations that IT in fact does provide value, but that the provided value is poorly demonstrated. For example, there is a notion in Organization A, according to an interviewee, that IT more frequently tends to headline IT related problems rather than bringing attention to successful projects. Another interviewee, in the same organization, states that business never really actively requests that IT should demonstrate its value.

- **(Value measurements of IT are not used to identify opportunities).** An IT representative in Organization A stated that the company does not have the right audience to fully understand how to use value
measurements of IT. A business representative in the same company states that measurements of IT are difficult to understand and that they are not sufficiently presented. In order for business to explore new opportunities that are potentially provided by measurements of IT, one must first understand the measurements, the business representative states.

(IT and business metrics and objectives are not clearly linked). A business representative in Organization A highlights that construction projects, in essence the company’s core business, do not consider matters such as linking goals and measurements.

(Lack of benchmarking). Business and IT representatives in both Organizations explain that IT measurements of efficiency and performance cannot really be considered if they are not benchmarked against other organizations, both internal and external.

4.2.3. Governance. (Lack of IT input during business strategic planning). There is clear consensus within Organization A that the business generally does not consider input from IT in strategic planning. IT is seen as a function that follows the business and supports their activities, rather than a strategic driver. In Organization A, the same barrier is highlighted by a business representative explaining that IT is generally not seen as a key success factor by the business.

IT planning is not done jointly. An IT representative from Organization A states that IT planning should not be done individually, but rather jointly and formally with both IT and business, which is not often the case. By carrying out joint planning, both department will understand what is expected from one another and what should be done together. There is also a need for instructions on how to cope with joint planning and common view of stated expectations.

(Reactive response to changing business needs). A representative from Organization A explains that the traditional view of IT within the construction industry affects the ability to see potential opportunities. Changes are seen when customer demands, which force business to include IT in the planning process.

(Relationship dependencies on understanding business needs). IT’s perceptiveness for business needs is dependent on relationships between business and IT, and competence among IT employees, as one IT representative points out in Organization A. In Organization B, the situation is similar in saying that it can be proposed that personal relationships between IT and non-IT personnel, both formal and informal, improves the ability for IT to grasp important information to better understand the goals and needs that exist within the business.

(IT’s lack of understanding of the big picture). It is highlighted in Organization A that there is a need for IT to be able to understand the big picture. Business needs are commonly looked on from a need to need basis; however in large organizations this often results in implementing multiple solutions to address the same conceptual needs. An interviewee underlines that IT has a key position when trying to see the big picture since IT personnel often sit in the crossroad between all departments. In Organization B, the big picture of business is seen by IT personnel working close to business, but is not seen as important by the IT consultants hired from outside to maintain the enterprise system.

4.2.4. Partnership. (Tense relationship). There is an understanding in Organization A that relationship between business and IT is heterogeneous and works well in some areas while in others it can be tense. A reason for the tense relationship may be that the relationship between business and IT is not always business-like enough, as an IT representative points out. In Organization B, an IT technician recognizes the tense in some part of IT: the IT consultant maintaining the ERP system is a somewhat separate from the rest of the organization.

(Uncertainty of roles and expectations). A business representative in Organization A states that inadequacy in relationship is caused by business being unclear over what to expect from IT, which makes it difficult for IT to deliver the right things. An IT representative in the same organization also expresses an uncertainty among business and IT personnel about each other’s roles. This leads to different understandings of IT’s role.

Anonymous relationship. The business-IT relationship is anonymous within Organization A, a business representative explains. Only when a business need occurs, business will approach IT.

(One-sided relationship because IT is not seen as strategic partner). An IT representative at Organization B hints that the business-IT relationship is one-sided when arguing that if IT was more included in business planning, a more partnership based relationship would be established. A business representative from the same organization explains that the relationship between the two parts is weak because IT is not seen as an important strategic partner.

(Lack of risk and reward sharing). A business representative in Organization A claimed that when the business develops or runs a project there is no reward or risk sharing, which has a negative effect on the relationship between the two. The main reason for a lack of reward and risk sharing is that IT and the business live in isolated worlds.

4.2.5. Scope & Architecture. (Inflexible IT Architecture). IT architecture is not flexible in areas where IT existed for some time, an IT representative in Organization A explains. Many processes in the ERP
system were developed in the late 90’s and the organization is stuck having to follow processes that were defined long time ago. This partly is due to that modifications were made to ERP system to make it difficult to change later on. There are however ongoing initiatives to move from these modifications allow a more flexible environment. In Organization B, the level of flexibility is also related to cost, as one interviewee points out. Making an inflexible environment more flexible does cost time and money.

(IT architecture allows business process to be too flexible). Although the IT architecture itself is deemed inflexible, it is also highlighted by a representative in Organization A that the current technical environment allows too much business process flexibility. The ERP system, for example, should be seen as a tool to improve processes and help to regulate what people are allowed to do. However, if the system is implemented right, there should be less need for flexibility.

(Low level of IT architecture understanding at the business). The business in both organizations is highlighted having insufficient knowledge about IT architecture. They do not fully understand in what way it impacts business, especially further away from business-IT interfaces. The architecture is a complex topic with many modules that correlate to one another. If a change is done to one part, others will most likely be affected. When this is not understood by business, it is difficult to understand a complexity of change, which may lead to frustration when there is not a shared view of time and resources required to implement the change.

(IT contracts affecting rapid change of IT architecture). Factors such as licenses and supplier agreements heavily impacts how fast you can make changes since they often are tied to contracts. This is emphasized in both Organization A and B. Making changes that affects these contracts may lead to high costs which are not always thought of in advance.

4.2.6. Skills. (Lack of formal information sharing). An IT representative in Organization A states that knowledge sharing between business and IT is seen as informal and is lacking sufficient structure. Without structured information sharing there is not always awareness of whom to turn to when a change is requested, or support is needed. It is additionally claimed in Organization B that documents and processes should be developed collaboratively between business and IT to improve the information sharing process.

(Lack of IT feedback to the business). IT often has information that could indicate business performance that should be communicated back to business in better ways, according to representatives in Organization A. It is furthermore important that the business is perceptive to the information from IT; otherwise it will be less interesting to capture and communicate the information. There is also a perceived need to start using gathered information more proactively.

(Protecting knowledge). A barrier that is strongly highlighted in both Organization A and Organization B is the tendency of people keeping information and knowledge to themselves especially in the business domain. This has often to do with employees, consciously or unconsciously, trying to protect their position within the company in order to stay indispensable. If staff is afraid of losing their ability to stay indispensable, knowledge will less likely be shared across the organization which subsequently damages the ability to align business and IT.

(Lack of motivation for staff to realize personal ideas). IT representatives in both Organizations note that there are no formal barriers to realize personal ideas. One has to identify the unspoken, structural barriers to innovation. Lack of time for creative and proactive thinking due to one’s own workload, is suggested to be an inhibitor by an interviewee.

(Isolated social relations). According to the interviewees, there is a lack of social interaction in Organization A One obvious factor that affect the social interaction is that Organization A is a large enterprise, which in turn requires a lot of effort to create social network across business units. Also, which is something that is mentioned by the interviewee, there seems to exist unclear or overlapping roles that create friction.

(Low level of IT understanding and knowledge). It is pinpointed in both Organization A and Organization B that there is a need for education to improve the knowledge of IT systems and routines. This would help to improve the business’ understanding of IT and reduce uncertainty. Another related barrier refers to that many systems seem too complicated for the users, especially since they are often not designed for the exact purpose it is needed for. Lack of IT knowledge is however not isolated to the end-user since the top management team often does not include a spokesperson for IT.

5. Empirical Study-2 (Survey)

5.1. Survey Design

A survey was carried out among large and medium sized organizations acting in the Swedish market. The questionnaire included open ended questions. The questions were based on SAM model and its six criteria and attributes, which were explained in the questionnaire. The survey was sent out to 63 mid cap organizations and 46 large cap organizations. We have
received responses from 49 (78%) mid cap and 31 (68%) large cap organizations. However, we have received two (4%) and one (2%) incomplete mid cap and large response respectively. Therefore, the result coming out from 45 (71%) mid cap and 29 (63%) large cap organizations are presented in this paper.

The survey was developed as an electronic self-completion questionnaire divided into seven sub-sections. The first section includes four general information questions about the respondents and their organization. These questions aim to ensure that all respondents included in the data analysis are relevant for the research. The other six sub-sections of the survey were defined using Luftman’s SAM model as a foundation, each deriving from the six alignment maturity criteria in the model (see Table 1 and Figure 2). Each section starts by an explanation of all BITA attributes in the aimed criteria followed by one open question asking the respondent to explain the barriers they believe exist in their organization in relation to the specific criterion. An example of such an open question would be; “What barriers exist in your organization to achieve good communication between the business and IT”.

For presenting practitioners’ view, and influenced by a limited number of pages in this paper, we present a combined result from both empirical studies together here in this section. Table 3 presents a total number of 45 barriers highlighted from the two case studies, focused group discussions and the survey categorized based on Luftman’s [9] six criteria. The first column of the table presents the criteria in which the barrier is highlighted. The second column presents the barriers themselves. We were exhaustive in our approach to include all the suggestions gathered from the practitioners. The conflicting statements were omitted and similar statements were grouped and rephrased in such a way that redundancy could be avoided. The third, fourth and fifth columns present the business, IT and total highlights, respectively, of each barrier.

5.2. Survey Analysis

Although the barriers are presented by practitioners as independent, related barriers in the same SAM category should also be considered while analyzing them. The top-ten barriers in number of highlights from Table 3 are identified and studied separately in Table 4. The top-ten barriers are selected because they represent positive standard deviation. It is then important to see how they differ when statistically analyzed by considering business versus IT highlights. In our analyses, we consider the standard deviation as only above the variance between minimum and maximum values above and below the mean value to see how barriers are seen by practitioner, or in other words how are practitioners confident on the importance of a barrier. We consider all the standard deviation values between the minimum and maximum values as zero (0.00) as they lie in the balanced area where the importance is not highly emphasized.

For example, Table 4 shows that the top barrier (B1) has the highest percentage of highlights by practitioners (79%) with standard deviation of (37.59). When considering business and IT highlights, it can be seen the barrier has much higher business standards deviation (27.97) than that of the IT (12.76). This implies that business practitioners are more confident about the barrier (B1). Therefore, it is likely that the lack of IT input during business strategic planning has some intention actions from business practitioners and other reasoning that should be investigated separately.

For the barrier (B2), it seems from Table 4 that it has a balanced view from practitioners. The table reflects a standard deviation of (8.00) for business versus (11.98) for IT practitioners. The two values are close to each other which likely reflect that one-sided relationship between business and IT in organizations is recognized similarly from practitioners. However, the total percentage of highlights (56%) reflects that the barrier is seen in almost half of the organizations. This is seen logical when considering that still many organizations consider IT as a supportive technology with advanced tools.

For the barrier (B3) it is seen in the table having the third highest total percentage of highlights (53%). However, it can be seen that most of the highlights coming from IT with 76% of the IT practitioners see this barrier. Highlights of business practitioners is found to have (0.00) standard deviation. It can be then concluded that linking business and IT metrics and objectives are seen mainly from IT practitioners as supportive aspect for improving alignment in organizations. The opposite image can be seen for barriers (B4) the poor demonstration of IT values, and (B5) the complication of IT architecture as highlighted barriers more from the business practitioners with standard deviation of (0.00) from IT practitioners. Similar conclusions can be noticed while looking at the further barriers from B6 to B10 to see how variations in view of business and IT practitioners might influence the over behavior of a barrier and its interpretations.

It can also be noticed the new identified barriers from the survey are highlighted in grey color. In the current research paper, there is no room to discuss them separately or comparatively analyze the differences between barriers from both qualitative and quantitative data. However, we should highlight that the triangulation analyses show clear validation of our final result i.e. at least no barriers from only the survey were highlighted in the top-ten list.
Barriers of BITA

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Barriers of BITA</th>
<th>Bus. (No.)</th>
<th>IT (No.)</th>
<th>Total (No.)</th>
<th>Total (%)</th>
<th>Total StDev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>Communication goes through informal networks</td>
<td>11</td>
<td>30</td>
<td>41</td>
<td>48</td>
<td>6,19</td>
</tr>
<tr>
<td>Communications</td>
<td>Fragmented business units (no one-fits-all solution)</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>16</td>
<td>16,28</td>
</tr>
<tr>
<td>Communications</td>
<td>Insufficient knowledge to communicate with the other part</td>
<td>17</td>
<td>22</td>
<td>39</td>
<td>45</td>
<td>45,35</td>
</tr>
<tr>
<td>Communications</td>
<td>A reactive view of IT</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td>14</td>
<td>13,95</td>
</tr>
<tr>
<td>Communications</td>
<td>Business-IT only communicates at top management level</td>
<td>6</td>
<td>15</td>
<td>21</td>
<td>24</td>
<td>24,42</td>
</tr>
<tr>
<td>Communications</td>
<td>No common language between business and IT especially on pure technical/business aspects</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td>13</td>
<td>12,79</td>
</tr>
<tr>
<td>Communications</td>
<td>Lack of time/interest for communication to achieve common understanding</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td>12</td>
<td>11,63</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>Value of IT is perceived low (Poor demonstration of IT value)</td>
<td>36</td>
<td>8</td>
<td>44</td>
<td>51</td>
<td>51,16</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>Value measurements of IT are not used to identify opportunities</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>9</td>
<td>9,30</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>IT and business metrics and objectives are not clearly linked</td>
<td>20</td>
<td>26</td>
<td>46</td>
<td>53</td>
<td>53,49</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>Lack of benchmarking</td>
<td>9</td>
<td>9</td>
<td>18</td>
<td>21</td>
<td>20,93</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>The different systems are not optimized to be used together</td>
<td>20</td>
<td>16</td>
<td>36</td>
<td>42</td>
<td>41,86</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>Few people who actually can see the big picture which makes it possible with End-to-End metrics</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>16</td>
<td>16,28</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>Everything is measured but without use or feedback on the next processes</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td>12</td>
<td>11,63</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>Missing focus on customer understanding and customer support</td>
<td>9</td>
<td>6</td>
<td>15</td>
<td>17</td>
<td>17,44</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>Both departments are isolated from each other in terms of performance</td>
<td>8</td>
<td>10</td>
<td>18</td>
<td>21</td>
<td>20,93</td>
</tr>
<tr>
<td>Governance</td>
<td>Lack of IT input during business strategic planning</td>
<td>40</td>
<td>28</td>
<td>68</td>
<td>79</td>
<td>79,07</td>
</tr>
<tr>
<td>Governance</td>
<td>IT planning is not done jointly</td>
<td>10</td>
<td>25</td>
<td>35</td>
<td>41</td>
<td>40,70</td>
</tr>
<tr>
<td>Governance</td>
<td>Reactive response to changing business needs</td>
<td>17</td>
<td>15</td>
<td>32</td>
<td>37</td>
<td>37,21</td>
</tr>
<tr>
<td>Governance</td>
<td>Relationship dependencies on understanding business needs</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td>14</td>
<td>13,95</td>
</tr>
<tr>
<td>Governance</td>
<td>IT’s lack of understanding of the big picture</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>13</td>
<td>12,79</td>
</tr>
<tr>
<td>Governance</td>
<td>Too many systems and a complex IT structure and organization</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td>13</td>
<td>12,79</td>
</tr>
<tr>
<td>Governance</td>
<td>The planning is not transparent on all levels</td>
<td>4</td>
<td>15</td>
<td>19</td>
<td>22</td>
<td>22,09</td>
</tr>
<tr>
<td>Partnership</td>
<td>Tense relationship between business and IT</td>
<td>17</td>
<td>20</td>
<td>37</td>
<td>43</td>
<td>43,02</td>
</tr>
<tr>
<td>Partnership</td>
<td>Uncertainty of roles and expectations</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>16</td>
<td>16,28</td>
</tr>
<tr>
<td>Partnership</td>
<td>One-sided relationship because IT is not seen as a strategic partner</td>
<td>20</td>
<td>28</td>
<td>48</td>
<td>56</td>
<td>55,81</td>
</tr>
<tr>
<td>Partnership</td>
<td>Lack of risk and reward sharing</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td>14</td>
<td>13,95</td>
</tr>
<tr>
<td>Partnership</td>
<td>Outsourcing does not allow partnership to grow</td>
<td>6</td>
<td>11</td>
<td>17</td>
<td>20</td>
<td>19,77</td>
</tr>
<tr>
<td>Partnership</td>
<td>No trust or communication between both domains</td>
<td>7</td>
<td>20</td>
<td>27</td>
<td>31</td>
<td>31,40</td>
</tr>
<tr>
<td>Partnership</td>
<td>Dominance of business executives in decision making</td>
<td>6</td>
<td>19</td>
<td>25</td>
<td>29</td>
<td>29,07</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>IT architecture is complicated ... not easy to change or make it flexible</td>
<td>33</td>
<td>10</td>
<td>43</td>
<td>50</td>
<td>50,00</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>IT architecture allows business process to be too flexible</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>16</td>
<td>16,28</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>Low level of IT architecture understanding at the business</td>
<td>20</td>
<td>18</td>
<td>38</td>
<td>44</td>
<td>44,19</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>IT contracts (e.g. licenses and supplier) affecting rapid change of IT architecture</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>6,98</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>The architecture is not always updated with the latest technology</td>
<td>9</td>
<td>4</td>
<td>13</td>
<td>15</td>
<td>15,12</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>The lack of enough monitored standardization</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>10</td>
<td>10,47</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>With outsourcing, it is difficult to manage openly</td>
<td>9</td>
<td>8</td>
<td>17</td>
<td>20</td>
<td>19,77</td>
</tr>
<tr>
<td>Scope &amp; Architecture</td>
<td>The limited IT budget, consolidation and lack of management insight into IT operations</td>
<td>5</td>
<td>14</td>
<td>19</td>
<td>22</td>
<td>22,09</td>
</tr>
<tr>
<td>Skills</td>
<td>Lack of formal information sharing</td>
<td>4</td>
<td>5</td>
<td>9</td>
<td>10</td>
<td>10,47</td>
</tr>
<tr>
<td>Skills</td>
<td>Lack of IT feedback to the business</td>
<td>5</td>
<td>2</td>
<td>7</td>
<td>8</td>
<td>8,14</td>
</tr>
<tr>
<td>Skills</td>
<td>Protecting knowledge (i.e. position)</td>
<td>3</td>
<td>9</td>
<td>12</td>
<td>14</td>
<td>13,95</td>
</tr>
<tr>
<td>Skills</td>
<td>Lack of motivation for staff to realize personal ideas</td>
<td>3</td>
<td>9</td>
<td>12</td>
<td>14</td>
<td>13,95</td>
</tr>
<tr>
<td>Skills</td>
<td>Isolated social relations</td>
<td>6</td>
<td>7</td>
<td>13</td>
<td>15</td>
<td>15,12</td>
</tr>
<tr>
<td>Skills</td>
<td>Low level of IT education and knowledge</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td>13</td>
<td>12,79</td>
</tr>
<tr>
<td>Skills</td>
<td>The two careers are separated with no communication</td>
<td>9</td>
<td>13</td>
<td>22</td>
<td>26</td>
<td>25,58</td>
</tr>
</tbody>
</table>

Table 4: Most notable barriers to BITA from the case Studies and the survey (top-ten highlighted)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>No.</th>
<th>Barrier</th>
<th>Value %</th>
<th>StDev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance</td>
<td>B1</td>
<td>Lack of IT input during business strategic planning</td>
<td>79,77,82</td>
<td>37,59</td>
</tr>
<tr>
<td>Partnership</td>
<td>B2</td>
<td>One-sided relationship because IT is not seen as a strategic partner</td>
<td>56,38,82</td>
<td>14,33</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>B3</td>
<td>IT and business metrics and objectives are not clearly linked</td>
<td>53,38,76</td>
<td>12,01</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>B4</td>
<td>Value of IT is perceived low (Poor demonstration of IT value)</td>
<td>51,69,24</td>
<td>9,68</td>
</tr>
<tr>
<td>Scope &amp; Arch.</td>
<td>B5</td>
<td>IT architecture is complicated ... not easy to change or make it flexible</td>
<td>50,63,29</td>
<td>8,52</td>
</tr>
<tr>
<td>Communications</td>
<td>B6</td>
<td>Communication goes through informal networks</td>
<td>48,21,88</td>
<td>6,19</td>
</tr>
<tr>
<td>Communications</td>
<td>B7</td>
<td>Insufficient knowledge to communicate with the other part</td>
<td>45,33,65</td>
<td>3,87</td>
</tr>
<tr>
<td>Scope &amp; Arch.</td>
<td>B8</td>
<td>Low level of IT architecture understanding at the business</td>
<td>44,38,53</td>
<td>2,71</td>
</tr>
<tr>
<td>Partnership</td>
<td>B9</td>
<td>Tense relationship between business and IT</td>
<td>43,33,59</td>
<td>1,54</td>
</tr>
<tr>
<td>Comp./Value Meas.</td>
<td>B10</td>
<td>The different systems are not optimized to be used together</td>
<td>42,38,47</td>
<td>0,38</td>
</tr>
</tbody>
</table>
6. Conclusions

The goal of this paper was to identify a list of barriers to achieve and sustain BITA from the perspective of business and IT practitioners. To fulfill this goal, we have conducted studies in two multinational organizations acting in Sweden and have performed a survey including 74 large and medium sized organizations on the Swedish market. Luftman’s SAM model was the base for questions used in the interviews in the two studies and the questionnaire used in the survey.

Comparing the final results in this research with barriers to BITA found in research literature (presented in Section 2), it can be seen that most of the barriers to BITA are coming from tactical rather than strategic level. Strategic barriers to BITA are mainly highlighted in Governance (e.g. Lack of IT input during business strategic planning) and partnership criteria (e.g. One-sided relationship because IT is not seen as a strategic partner). However, tactical barriers to BITA are the base for other criteria; Communications (e.g. Communication goes through informal networks), Competence/Value Measurements (e.g. IT and business metrics and objectives are not clearly linked), IT Scope & Architecture (e.g. IT architecture is complicated ... not easy to change or make it flexible) and Skills (e.g. Protecting knowledge (i.e. position)). This can be understood as tactical level is the transferring link between strategic and operation levels. Therefore, this level should have the implementation of BITA strategies and standards that are designed and agreed upon at the strategic level. Chan and Reich [11] classified BITA barriers into three categories; challenges related to knowledge, challenges related to locus of control and the status of IT, and challenges related to organizational change.

However the classification into strategic and tactical can be seen more realistic as each class into Chan and Reich’s [11] can be confused to be determined without splitting e.g. the challenges related to knowledge into strategic and tactical levels.

The conducted analysis leads to a fundamental conclusion that although business-IT alignment has a high priority rank amongst executives in organizations, progress in this field remains to be done. What is furthermore evident is that despite the fact that senior executives support for IT is considered as the number one enabler to alignment, there are still many barriers to be addressed in order to improve business-IT alignment. In addition to what was found in previous research literature, several new barriers have been brought to attention during this research. These barriers address issues regarding architecture and technology, IT metrics and the relationship between IT and the business.

Future steps following our research might be to:
• quantitatively analyze the importance/weight of each barrier.
• demonstrate how the list of barriers can be used in an organization for enhancing BITA.
• compare practitioners’ view of barriers’ list from literature, with a specific comparison between barriers identified in each reference or set of references and those found in empirical research.

10. References