

Communication Factors Influencing Business-IT Alignment

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Abstract: Communication plays a very important role in the success or failure of modern-day enterprises. Employees constantly exchange information as part of organizational planning, developing, control, reporting, etc. Communication is as important in the process of business-IT alignment. If the efficiency of communication between the business and IT sections is bad, the business-IT alignment will surely suffer. For this reason an enterprise should attempt at all times to optimise communication between the business and IT sectors. What is important though is to determine the suite of possible factors that might influence such business-IT alignment and to use these factors in attempts to improve the efficiency of such communication. The objective of this paper is to determine such a suite of factors influencing business-IT alignment.

Key words: Business-IT alignment, communication, delphi study, efficiency, attempts, communication

INTRODUCTION

Organisations today continue to experience misalignment between their business and IT visions and values, project expectations and scope, goals and risks, understanding and cultures, strategies, structures and processes. Communication underlies many of these issues (Juiz, 2011; Maier *et al.*, 2004). It is therefore important for organisations to understand how communication works in the business-IT alignment process and where it could break down (Luftman, 2004; Luftman *et al.*, 2012; Coughlan *et al.*, 2005). Therefore, the factors that play a role and influence the communication between business and IT is critically important in assessing and ultimately remedy business-IT alignment communication-related problems.

Consequently, it is necessary to explore the different ways in which communication may be conceptualised within the context of the method (Luftman and Kempaiah, 2007), particularly because this will allude to the individual factors and aspects that the method needs to assess. This is important, since, different conceptualisations might affect the creation of the method itself and thus produce dissimilar results.

Defining business-IT related communication: As mentioned above, business-IT alignment involves having the business and IT-related personnel of an organisation working together to reach a common goal (Cybulski and Lukaitis, 2005). Naturally, this requires collaboration at all levels of an organisation, especially, since, it would require information to be actively communicated and made sense of and to understand and fully commit to the business and IT missions, objectives and plans (Luftman, 2004). Consequently, alignment does not develop passively but rather through active social interaction and communication (Juiz, 2011).

Luftman and Kempaiah (2007) and Reich and Benbasat (2000) state that communication in business-IT alignment can best be described as a social and cognitive process whereby ideas, knowledge and information are mutually exchanged between business and IT personnel. As such, it does not refer to the mechanistic, engineering or mathematical processes of communication. Instead, it focuses on the social processes contributing to mutual understanding (Coughlan *et al.*, 2005; Campbell *et al.*, 2005).

Consequently, the success of communication in business-IT alignment is measured not just by the fact that it has taken place alone, rather it is measured on whether it has enabled both business and IT personnel to understand the business strategies, plans, business and IT environments, risks and priorities and how to address them (Luftman, 2004).

Parties involved and purposes: During the alignment process a variety of different communicator (sender and receiver) configurations can be observed (Luftman, 2003). Personnel in one business unit may have to communicate with another or one IT unit with another. However, more often a business unit may have to communicate with an IT unit or vice versa. These exchanges can occur in three directions (Luftman and Kempaiah, 2007) including top down (e.g., from a business manager to an IT staff member), bottom up (e.g., from an IT staff member to a business manager) or in between (e.g., between IT staff or between business staff). In addition, they may be formal or informal, taking the form of verbal commands, written policies or documents (Sledgianowski *et al.*, 2006). Meanwhile, they could occur at the same time (synchronously) or at different times (asynchronously).

These communicative acts could occur for a variety of purposes. It may be to delegate, report on, raise awareness of or handle a problem pertaining to an IT artefact. It could also concern a process or a relationship (between individuals or teams or between people and artefacts, rules, representations and so forth) (Haes and Grembergen, 2005).

Influences on business-IT related communication:

There are various reasons why business and IT personnel have to communicate with each other. However, they do not communicate in a vacuum, instead several contextual factors could affect their communication.

Factors that affect communication may pertain to the environment such as legislation, IT best practices and standards. Typical examples of these include ISO/IEC 38500 (ISO/IEC., 2008) ISO/IEC 27002 and the COBIT 5: Framework. The organisational sphere will also influence the communication, such influences include the culture among the business and IT personnel (Silvius *et al.*, 2009) and the role IT plays in the organisation (Nolan and McFarlan, 2005). In addition, they may include the procedures involved in business and IT strategic planning (Coughlan *et al.*, 2005) among others. Then there is also the team or function in which each communicator resides. The degree of knowledge sharing both in the team and between the team and others could influence the communication. Similarly, the degree of cooperation, mutual understanding and even team identity offer a unique backdrop against which the communication will occur (Juiz, 2011).

These factors all unite to form a unique context within which communication occurs during the business–IT alignment process. That said, they could just as easily influence any other process within the organisational sphere. What makes communication in business–IT alignment truly unique are the characteristics of the communicators themselves (Coertze and Solms, 2013, 2014, 2015), that is the business and IT personnel communicating with each other.

Business and IT personnel often have different mental models and understandings of the organisational environment. Moreover, they frequently have differing appreciations of the importance, uses and needs of IT (Leonard, 2007) and their success criteria and ‘operational language’s may differ widely (Schwaninger, 2001). They therefore often operate according to differing cognitive systems. Consider, for example, the senior business managers in an organisation. These managers are responsible for the overall well-being of the organisation, therefore, most of their focus is on risks, business value and stakeholders. Consequently, their operational language is usually primarily business-oriented, particularly given that their educational background often resides in accounting, business administration, law and finance (Posthumus *et al.*, 2010). It should therefore come

as no surprise that they approach business decisions, operations and ultimately, communication from a more holistic and integrated viewpoint (Millar, 2009). However, this is in sharp contrast to the usual IT personnel.

IT personnel are concerned with service delivery. Most of their focus is on keeping IT running without interruption daily. To this extent, they are responsible for the upkeep and maintenance of the IT infrastructure and architecture (Hunter, 2010; Marchand, 2007). Consequently, their operational language naturally resides in technology-oriented jargon. This is further compounded by the fact that their educational background often resides in software development, networking and other technical disciplines. Furthermore, their operational outlook is often limited to their immediate surroundings and those business units they serve. This results in them having a narrow viewpoint, where a holistic appreciation of the organisation’s larger business may be lacking (Millar, 2009).

Taking the above into account, communication within the business-IT alignment context has many unique characteristics. While some characteristics might be universally applicable, the interaction between business and IT personnel and its several challenges are specific to this context. This includes aspects such as differing educational backgrounds, viewpoints and ‘operational languages’ (Millar, 2009; Hunter, 2010). All of these make for a complex and volatile communication environment where the likelihood of conflict, misalignment and ultimately miscommunication arising is astronomical. Not surprisingly, several studies in business-IT alignment have highlighted the frequency and multiple causes with which communication breakdown occurs between business and IT personnel (Juiz, 2011; Maier *et al.*, 2004).

**BUSINESS-IT RELATED COMMUNICATION
BREAKDOWN**

The unique characteristics of communication in business-IT alignment discussed in the previous section carry their own problems and difficulties. In many alignment situations, it is difficult to identify communication problems as such or find their root causes, because they are so, closely interwoven with other procedural issues (Juiz, 2011). Even if a communication problem is detected organisations often struggle to see where it comes from. Sometimes it is the effect of factors such as management structures or corporate culture at other times the problem is purely personal (Maier *et al.*, 2005). To this extent, communication breakdown can have multiple causes.

At present, few business-IT alignment studies have specifically investigated the causes of communication breakdown in the alignment process. An exception to this

is Coughlan *et al.* (2005) and Juiz (2011) whose study took a communication-based view on the concept of alignment to investigate the relationship between the retail business and IT in a major UK high street bank.

Using thematic content analysis of the transcribed interview material (Coughlan *et al.*, 2005; Juiz, 2011) identified nine broad causes of communication breakdown during the alignment process.

Millar (2009) and Coertze and Solms (2015) have argued that a common cause for communication breakdown in business-IT alignment relates to the necessity for business and IT personnel to 'translate' their 'operational language' when communicating. In cybernetics this is better known as 'transduction' (Styhre, 2010). Transduction denotes that when two differing 'systems' (i.e., business and IT personnel) interact, they must translate the information being exchanged among them into a language that is understood by the receiving 'system'.

The difficulty in transduction rests on the fact that each 'system' has to have enough background and understanding of each other's mental models and context of operations to do so. In other words, they must understand where each is coming from. While easy to achieve within a single team or function, it becomes difficult when different departments interact; increasingly, so when these departments operate differently, have different operating procedures and differing 'operational language's. Yet, this is often the case when it comes to business and IT units.

Coertze and Solms (2015) also share a more general cause for communication breakdown during the alignment process. This relates to information distortion. During the alignment process information is often passed on via several other people before it reaches the ultimate recipient, for example, from a business manager to IT manager to IT staff member. The originator of the information might not know the eventual receiver's needs, tasks and background. In addition, each individual along the communicative chain has to interpret and forward the information along but given that each individual has his/her own mental model, the original meaning and intent of the information might be lost. As Nichols for example indicates, the clarity and understanding of an instruction may have decreased by as much as 80% by the time that information has progressed down or up through the organisational hierarchy. Consequently, business and IT personnel might not receive the information they need to know or might receive it voided of important aspects.

It can be concluded from that there are a myriad reasons why communication could break down during the business-IT alignment process. In particular, it might be a lack of understanding or a disposition to the differing 'operational languages' among personnel. The concern here is the recurrent nature of these causes and the fact that communication is so, critical to the alignment process. If communication is this important and it can so, easily break down, then it would seem fruitful and even

necessary, for organisations to invest time and effort in identifying, analysing and ultimately, remedying the communication breakdowns. At present, however, no known approaches or techniques exist to do so in the business-IT alignment discipline. A good starting point to address this problem in communication breakdown is by identifying the factors that might play a role in such a communication breakdown. Identifying such factors is after all the objective of this study.

IDENTIFYING FACTORS-A LITERATURE REVIEW

This study considers communication to be a multifaceted phenomenon and to be systemic in nature¹⁵. Therefore, it could be influenced by organisational, functional or domain, team and individual factors, since, it operates within a socio-technical system – a system that the business and IT personnel would be part of Millar (2009). In light hereof, it used (Moray, 2000) factors of a socio-technical system as the preliminary starting point for identifying the suite of factors that play an important role in assessing and improving communication in business-IT alignment.

However, Moray (2000) factors do not account entirely for the unique context and audience of the method, namely, business-IT alignment. Therefore, further literature reviews were conducted to identify additional factors that could influence communication practices in business-IT alignment. Among others, the literature reviews acknowledged Luftman (2004) six aspects used to assess communication in his popular SAM assessment model. Coughlan *et al.* (2005) thematic analysis of communication problems and their framework also produced several factors. In addition, those factors proposed for the social dimension of business-IT alignment were also identified (Coughlan *et al.*, 2005), given that communication was seen to form part of this dimension.

In total, the literature reviews and examined studies culminated 49 preliminary factors that could influence communication practices in business-IT alignment. These factors were grouped according to Moray (2000) social-technical system description. Hence, the factors ended in four categories: environment organisation, the function (team) and the individual communicator. These closely matched the systemic perspective of communication as proposed by Eckert *et al.* Unfortunately, the accuracy and validity of these factors and categories were questionable reasons. Consequently, the study employed a Delphi study to confirm and/or refine the list of factors.

DETERMINING THE FACTORS-A DELPHI STUDY

The Delphi method can best be characterised as a method for structuring a group communication process,

so that, the process is effective in allowing a group of individuals as a whole, to deal with a complex problem (Haes and Grembergen, 2005). Unlike interviews or focus groups, the Delphi method provides a structured process for soliciting expert opinion on a particular subject and enables group interaction without needing a face-to-face meeting (Creswell, 2007). Given this, this study employed the Delphi method to validate the preliminary factors and possibly, gather additional factors not identified through the academic literature. Hence, the Delphi method was employed in an exploratory capacity as supported by Okoli and Pawlowski (2004).

The Delphi study spanned three rounds over the course of three months. Each round consisted of an electronic survey containing a combination of both closed and open-ended questions which the participants had to complete. The participant panel was evenly distributed and overall included twenty high-ranking business and IT executives, IT auditors and academics doing research in business-IT alignment or related disciplines. These participants were knowledgeable about business-IT alignment and had immediate knowledge of communication and its importance in this context. From this group, nine experts continued to be involved in the full study until the last round (55% drop-off rate). The experts included an IT auditor, an international management expert, two high-ranking business executives, two high-ranking IT executives and three academics.

Following the recommendations of both Okoli and Pawlowski (2004) and Hsu and Sandford (2007), the Delphi study started with an initial list of 49 preliminary factors, all identified from literature. During the first round, the Delphi participants had to indicate to what extent each of these factors in their opinion influenced communication between personnel in the business and IT functions as part of the business-IT alignment process. The aim of this was to validate the initial list of factors identified from the academic literature. Based on the responses received, the participants agreed that most factors (42 out of the original 49) did influence communication in this context. Furthermore, they proposed an additional five factors, namely, 'tone from the top'; 'resource availability'; 'domain initiatives'; 'CEO's and board's IT "savviness"' and 'employee demographics'. The round concluded with the participants suggesting that 47 factors influenced communication in the assessment context to some extent.

In the second round, the participants were asked to select and rank each of the factors according to their perceived importance. The aim here was to derive a more manageable subset of factors or a minimum baseline of the most critical factors. This was essential since an assessment covering 47 factors in total would be too demanding for most organisations in industry, especially,

those with limited resources. Based on the responses received, the list of factors was narrowed down to 25. Although, a drastic reduction, the participants deemed these 25 factors to be the most influential and considered their inclusion crucial for the assessment.

The third and final rounds gave the participants the opportunity to make final changes to the list of 25 factors. In particular, they had the opportunity to exclude any of the factors or to re-include factors that had been removed during the previous rounds. They could also reshuffle the factors within the different socio-technical categories (see earlier). The round concluded with most participants agreeing to retain all 25 factors and none of the previously removed factors was re-included. Some participants gave reshuffling suggestions but none of these suggestions was implemented because of the limited support for their inclusion. Consequently, the decision not to conduct another round was founded on the fact that the list of 25 factors was supported by most and also by the literature.

An important challenge in a Delphi study is that different people often have different understandings of the same concept, also referred to as the "inadequate pre-operational explication of constructs threat"⁴³. As mentioned earlier, communication can be interpreted and conceptualised in different ways. Similarly, business-IT alignment means different things to different people. Consequently, all the questionnaires included short, unambiguous definitions of business-IT alignment, communication and the various factors affecting communication. Furthermore, the questionnaires were pilot-tested for ambiguities and vagueness before being sent to the participants. In addition, to ensure data accuracy and interpretation, a statistician was consulted after each round.

Overall, this study identified a list of 25 factors (Appendix A) that play a pivotal role in communication in business-IT alignment.

CONCLUSION

This study focused on human communication between business and IT personnel across the entire organisation, forming part of the social dimension of business-IT alignment. Thus, it examines communication issues relevant to business-IT alignment and proposes how to identify assess and possibly deal with them effectively. Note that within this scope, this study neither considers nor addresses machine-to-machine or human-to-machine communication. Instead, communication is regarded as "the social and cognitive processes whereby ideas, knowledge and information is mutually exchanged between business and IT personnel". Consequently, the mechanistic, engineering and mathematical processes of communication (i.e., data

across a fibre optic cable) fall outside the scope of study. Business-IT alignment concerns a wide expanse of concepts and issues that an organisation needs to address. Communication is but one of these issues while this study acknowledges, supported by Luftman⁷ that other factors and issues are also important to business-IT alignment, it neither considers nor addresses them. Thus, organisations can use the contribution made by this study to assess and improve the current communication situation(s) between their business and IT personnel.

Appendix A: Factors influencing communication in Business-IT Alignment.

Environmental category	
1.1	Legislation: Degree to which the organization adheres to and is knowledgeable about the rules and policies that govern the way it should operate; typically for a specific activity (e.g., POPI, ECTA, Sarbanes-Oxley)
1.2	Standards: Degree to which the organization adheres to and is knowledgeable about both business standards, such as ISO 9001 and IT standards such as ISO/IEC 27002 and ISO/IEC 38500.
1.3	Best practices and guidelines: Degree to which the organization adheres to and is knowledgeable about both governance best practices, such as King III and OECD and IT best practices, such as COBIT 5 and TOGAF.
1.4	Customers, products and services: Degree to which the organization is knowledgeable and shares information about the needs and demands of customers, service and/or products.
1.5	Technological developments: Degree to which the organization is knowledgeable and shares information about the advances, improvements and alterations to technology in the market.
Organisational category	
2.1	Business involvement in IT strategic planning: Degree business involvement during the strategic planning of the IT strategy.
2.2	IT involvement in business strategic planning: Degree IT involvement during the strategic planning of the business strategy.
2.3	Management style: Degree to which the organization understands how it can change the management style (e.g., command and control, consensus-based, results-based, profit/value-based, relationship-based) to achieve clear communication.

2.4	Perception of the role and strategic use of IT: How the board and executive management view IT's contribution to the organization (e.g., the cost of doing business, an asset, a fundamental enabler, a fundamental driver, a business partner)
2.5	Corporate culture: Degree to which current values, beliefs, and attitudes of the organization promote free and open communication; typically captured in the mission or vision statements.
2.6	Organisational structure: Degree to which the organization understands how it can change the organisational structure used to manage the business and IT functions (e.g., top-down, matrix, autonomous) to achieve clear communication.
2.7	Reporting level of IT function head: At which management level the head of the IT function (e.g., Chief Information Officer-CIO) operates, and to whom s/he immediately reports (e.g., the CEO, CFO, etc.)
2.8	The board and executive management's IT 'savviness': Degree to which the board, executive managers and supporting management are knowledgeable about IT and exhibit digital leadership.
2.9	IT governance archetype (Input rights to IT decisions): Degree to which the organization understands how it can change the combination of people who have either decision rights or input rights to IT decisions to achieve clear communication.
Business-it function (team) category	
3.1	Leadership style: Degree to which the business and IT leaders promote free and open communication when providing direction, implementing plans and motivating personnel.
3.2	Function (team) initiatives: Degree to which the business functions drive IT initiatives and visa versa.
3.3	Cooperation: Degree to which cooperation exists between the business and IT functions.
3.4	Communication style and ease of access: Degree of ease with which the business and IT functions interact and how familiar they are with each other's roles.
3.5	Liaison(s) breadth & effectiveness: Degree to which business and IT liaisons (e.g., CIO's, IT oversight committee, IT steering committee) are used to effectively transfer knowledge between the business and IT functions and vice versa.

3.6	Cross-domain (mutual) understanding: Degree to which the business functions understand the IT environment (e.g., its current and potential capabilities, systems, services, processes) and visa versa.
3.7	Knowledge sharing: Degree to which there is knowledge sharing (intellectual understanding and appreciation of the problems/opportunities, tasks, roles, objectives, priorities, goals, direction, etc.) between the business and IT functions.
Personnel category	
4.1	Experience, skills and competence: How often do employees receive training and attend workshops to improve their work experience, communication skills and build competencies.
4.2	Job commitment: Degree to which employees feel responsible for the mission and objectives of their function and the municipality, also, whether they are committed to communicating with others.
4.3	Employee personality: Degree to which the employees' distinctive character (e.g., their way of behaving, as well as their feelings and their thoughts) promotes free and open communication.
4.4	Job motivation: Degree to which an employee is motivated and interested in his/her job or role and communicating with others.

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