WHAT MATTERS IN BUSINESS/IT SHARED UNDERSTANDING? DEVELOPMENT OF A UNIFIED CONSTRUCT

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Research in Progress

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Abstract

The mutual understanding, shared knowledge, or cognition between business and IT units has been discussed frequently and in wide range of fields in IS research. On the other hand, we are still lacking a consistent and comprehensive conceptualization of what shared business/IT understanding is actually about, and previous studies have usually only taken some aspects of it into account. These often single-dimensional determinations represent an incomplete picture of shared business/IT understanding and thus can potentially lead to wrong or incomplete findings and implications. This research in progress steps into this gap and develops a comprehensive construct of shared business/IT understanding to provide future research with a unified concept that can be applied to various IS research contexts. In this paper, we discuss current conceptualizations of shared business/IT understanding and integrate them to a unified multidimensional construct, which will be validated and adjusted in future empirical research.

Keywords: Shared business/IT understanding, Conceptualization, Business/IT collaboration.

1 Introduction

The concept of shared understanding between business and IT has been constantly acknowledged as the crucial determinant in achieving a high level of business/IT alignment (Reich and Benbasat, 1996, Preston and Karahanna, 2009; Tan and Gallupe, 2006). Similarly, a high level of shared understanding for the application domain, in which the use of language plays a central role, has been recognized as one of the most important factors in information systems development (ISD) (Holten et al., 2010, Charaf et al., 2013). Additionally, the level of business knowledge of IT and vice versa is core of conceptualizations in studies on the role of knowledge transfer and management (Tiwana, 2012, Fisk et al., 2010, Pan and Mao, 2013).

These differences in conceptualizations are symptomatic for most of the IS literature and reflect that there are many conceptualizations – or dimensions – of shared business/IT understanding (*B/IT-SU*) and that most studies take only a minor portion of them into account. In different strands, different conceptualizations have evolved over time. For instance, research on business/IT alignment usually treats the role of IT and common objectives as the single dimension of B/IT-SU (Reich and Benbasat, 1996, Preston and Karahanna, 2009; Johnson and Lederer, 2010). By contrast, ISD research focuses on the application domain and often uses a joint language as the (often only) aspect of shared understanding (Jentsch and Beimborn, 2014).

Thus, we claim that previous IS research about B/IT-SU has often been too superficial and one-dimensional. Moreover, even though researchers intended to analyze the social dimension of alignment or of project-based collaborations they focused too much on intellectual but not social aspects of a shared understanding. For instance, an own literature review of studies on shared understanding (Jentsch and Beimborn, 2014) found just five out of 50 papers that include social aspects by discussing shared values and beliefs (Chua et al., 2012, Day, 2007), occupational cultures (Rao and Ramachandran, 2011, Yang et al., 2012), or team-specific shared understanding (Joachim et al. 2011).

Since shared business/IT understanding is a core concept of our discipline, we believe that a more thorough, consistent, and comprehensive consideration is needed, which bears the potential to enrich various research strands by considering, measuring, and analyzing the different aspects of this construct in a consistent way. Therefore, we intend to answer the following research question:

RQ: What are the components of a Shared Understanding among Business and IT?

To answer this research question we give initially an overview of the discussion on shared business/IT understanding based on the previously conducted literature review on B/IT-SU (Jentsch and Beimborn 2014). We will further include related discussions on shared understanding in team coordination and thus highlight the dispersed discussion on shared understanding within the distinctive research streams. Based on this discussion, we deduct a multi-dimensional conceptualization of B/IT-SU.

The objective of this paper is to understand and conceptualize the comprehensive and multidimensional nature of Business/IT Shared Understanding and to outline an approach for empirical research that will evaluate and refine this construct through detailed observations of real business/IT relationships in organizations, thereby also considering their respective contexts, such as type of collaboration or hierarchy level. Through this method, we will receive a generic, but context-adjustable concept of B/IT-SU. Subsequent IS research will benefit from this work by getting a unified B/IT-SU construct that can be applied and adjusted to various contexts at the business/IT interface (from strategic alignment to ISD projects or operational collaboration settings).

2   The Dispersed Discussions about Business/IT Shared Understanding

In our literature review, we found different research strands in the IS literature that take B/IT-SU into consideration (Jentsch and Beimborn, 2014). Those are: (strategic) alignment research, research of information systems development (ISD) and operational research. A fourth research stream which focuses on shared understanding in a team – but not necessarily a team of business and IT professionals – is the research of (virtual) team coordination.

In alignment research, one of the most influential works with regard to B/IT-SU is (Reich and Benbasat, 2000). The authors define "mutual understanding" as the understanding of the business unit for the current objectives of the IT unit and vice versa. While Reich and Benbasat (1996) apply *current objectives* as the main aspect to be jointly understood, Preston and Karahanna (2009), Johnson and Lederer, (2007) and Tiwana et al. (2003) speak about agreement on the role of IT among the business and IT side. Other works focus on the shared understanding of the business needs (Beimborn et al., 2007), or each other's work environments (Cohen and Toleman, 2006). An aspect which all of these studies have in common is the application of a strategic view on the partnership. It is usually about shared understanding among IT and non-IT top managers and the outcome is usually (strategic) alignment (e.g. Johnson and Lederer, 2010, Chan et al., 2006, Cybulski and Lukaitis, 2005). One of a few notable exceptions in applying an operational lens is Beimborn et al. (2007).

The second relevant research stream is ISD, which is often combined with communication research approaches. A first difference to alignment research is that B/IT-SU is described on a rather language-based level (Charaf et al., 2013) and either the outcome (Vranesic et al., 2011) or the construct/reflection (Rosenkranz et al., 2010) of shared understanding is the (quality of the) requirements.

Compared to alignment research there are no papers which applies the role of IT as the dimension of B/IT-SU. A second difference between both strands is the focus on the operating workforce level. Whereas alignment researchers tend to concentrate their analysis on the higher management when analyzing a B/IT relationship, ISD researchers mostly focus on developers and end users.

Research on operational alignment forms the third and most recent research stream which discusses the importance of shared business/IT understanding. These studies focus on the daily business of business and IT staff working together on IT operations, like IT maintenance, support and smaller changes. The importance for more detailed observation of the operational collaboration is highlighted by Wagner et al. (2014) who argue that "alignment is not merely a strategic or executive-level issue, but that it is probably even more important at an operational level". In our search we noticed the very limited research focusing on the daily business for which reason it is difficult to highlight a specific direction within this domain. While some studies mainly focus on the occupational cultures (Rao and Ramachandran, 2011) or shared belief systems (Day, 2007) other papers discuss the understanding for the respective work environment (Nelson and Cooprider, 1996) or collaborative business and IT process knowledge (Ray et al., 2005).

(Virtual) team research is closely related to the research of business/IT shared understanding. Interestingly we found barely no cross-referencing between researches of business/IT shared understanding and shared understanding in (virtual) team coordination. Studies within this fourth identified research stream mostly analyze the coordination success of (virtual or globally distributed) teams. Even though this research strand focuses on the same question – what is shared understanding? – the conceptualizations are quite different and more comprehensive than in the research of business/IT collaborations. While we found a lot of B/IT-SU-centered works focusing on the collaborative task (i.e. the IT supported improvement of business processes), studies on (virtual) team coordination explicitly include a team dimension focusing on the social aspects of a collaboration. The distinction of task- and team-specific shared understanding has been discussed very frequently in (virtual) team research (Espinosa et al., 2007, Thomas and Bostrom, 2007, van Knippenberg et al., 2013). In these studies, the task specific shared understanding focusses on the understanding and knowledge about process specific artefacts whereas the team-specific layer of shared understanding includes characteristics, which are part of every interpersonal activity like cultural norms or subjective values and preferences (Cannon-Bowers and Salas, 2001).

By comparing the different research strands we barely found no cross-referencing overcoming the respective research domains (Jentsch and Beimborn, 2014). Even though Chan et al (2002) highlighted the crucial importance of the informal (or social) interactions in a team for achieving business/IT alignment, further research still remains exclusively on task characteristics in B/IT-SU research. Summing up the conceptualization of B/IT-SU depends highly on the research domain. Especially in alignment and ISD research, the focus has been exclusively on task-specific aspects of shared understanding and has been silent about interpersonal characteristics that need to be shared. In the following, we gather important findings from the respective research domains and compile a unified construct of the meaning of Business/IT Shared Understanding.

3 A Comprehensive Framework of Business/IT Shared Understanding

Based on the research fields summarized above, we develop a unified and multidimensional conceptualization of Business/IT Shared Understanding. This concept distinguishes between three task-specific and three team-specific attributes that are important to capture B/IT-SU in its entirety. Those are highlighted in Figure 1 and described in the following.
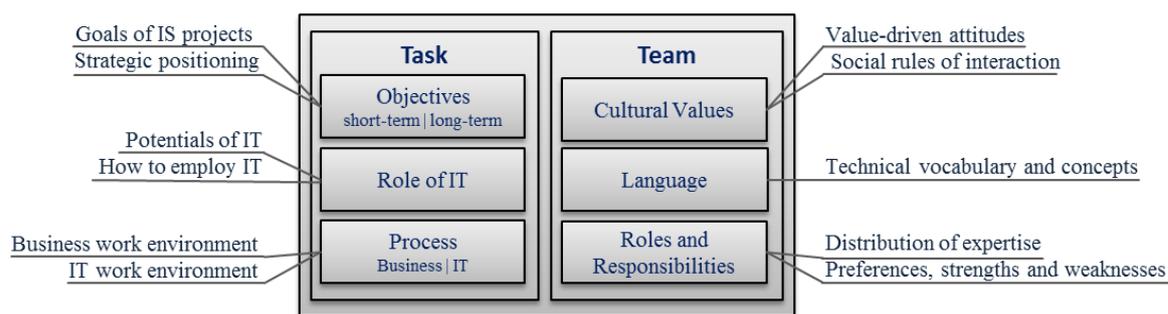
Goals of IS projects
Strategic positioning

Potentials of IT
How to employ IT

Business work environment
IT work environment

Value-driven attitudes
Social rules of interaction

Technical vocabulary and concepts

Distribution of expertise
Preferences, strengths and weaknesses

Task
Objectives
short-term | long-term

Role of IT

Process
Business | IT

Team
Cultural Values

Language

Roles and
Responsibilities

Figure 1.   Framework of Business/IT Shared Understanding

3.1   Task-specific Business/IT Shared Understanding

The *collaborative task* between business and IT is defined as the support and enhancement of the business through IT systems provided by the IT unit. For that reason, task-specific B/IT-SU focuses on the processes in both units, the role of the IT system, and the short-term and long-term objectives pursued by the collaborative task.

The first attribute of task-specific B/IT-SU is the understanding or knowledge about the respective processes in both units. In our analysis we focus on the implicitly held, or tacit, knowledge about the task and exclude explicit knowledge (documentations, etc.). 'Processes' refer to both the business activity which is part of the collaborative task (or supported by the IT), and the IT process, which is applied to provide and change IT according to the requirements of the business process. Bassellier and Benbasat (2004) state that the partnership between business and IT will be improved if IT professionals have high business competence and understand the business domain. Reversely, Bassellier et al. (2003) claim that the business side should have a good understanding about the IT as well, in order to successfully contribute to effective IT implementation, provision, and adaptation. Accordingly, Nelson and Cooprider (1996) postulate the mutual necessity of a shared understanding for both – the business and the IT work environment.

The second aspect of task-specific shared understanding is about the role of IT within the collaborative task. Johnson and Lederer (2007) state that a high level of mutual understanding about the role of IT is achieved, when both parties share a "common views about how to employ IT resources to support the organization's strategy" (p. 85). With a focus on the potentials of IT, Ray et al. (2005) define their construct of shared knowledge as "common understanding between the IT and the line manager regarding how IT can be used to improve [business] process performance" (p. 630). Preston and Karahanna (2009) define shared understanding as "understanding of how IS can be applied to enhance organizational capabilities." (p. 162). All these studies conceptualize shared understanding as shared *agreement* on the role and potentials of IT.

Closely linked to the dimension of the role of IT is the dimension of objectives with regard to the collaborative task. Preston and Karahanna (2009) suggest "that a 'meeting of the minds' of [IT] and [business] on IT value propositions is key to aligning an organization's IS strategy and business strategy" (p. 1). The resulting question in this context is: what are business and IT trying to jointly achieve by their collaboration and do they pursue the same kind of business value of IT? While the previous component analyzed the shared understanding about the application of IT systems, this component focuses on their perceived usefulness, exploitation, and value creation for the organization. Following Reich and Benbasat (1996), this desired value of IT can be separated into short-term and long-term objectives. While the short-term perspective analyzes the objectives of existing (or to be conducted) IT

projects and systems, the long-term perspective includes a shared *vision* of the future role of IT (Reich and Benbasat, 1996, Preston and Karahanna, 2009, Cohen and Toleman, 2006).

3.2   Team-specific Business/IT Shared Understanding

The second layer of shared understanding covers the overlap of mental models regarding the perceptions of individuals' behavior, values and competencies within the collaboration. If team members understand the tendencies of their teammates, we speak about team-specific shared understanding. In their discussion about shared cognition, Cannon-Bowers and Salas (2001) argue "that team members need to understand each other – their preferences, strengths, weaknesses, and tendencies in order to maximize performance". Within that type of shared understanding, we differ between (occupational) cultural values, (technical) language, and understanding of the roles and responsibilities of each person and organizational unit involved.

"Management scholars have articulated the importance of occupational cultures in understanding employee behaviors in organizations" (Rao and Ramachandran, 2011, p. 581). The content of *culture* is defined as "rules, norms and values and basic assumptions of a given culture" (Schein, 2010, p. 69). Hence, to understand colleagues' behavior in a team, it is necessary to analyze implicit rules of interaction and value-driven attitudes of the particular occupational culture. A critical aspect of occupational cultures is the creation of a sufficient understanding of the communication style. Gudykunst et al. (1996) argue that their cultural background affects the communication style among organizational members and that it differs between high-context and low-context communication based on the amount of cultural meaning within the messages. Thus, a shared understanding of the culture makes it possible to understand the communication styles and "to predict social behavior, get along with each other, and find meaning in what we do" (Schein, 2010, p. 3).

While the previous dimension focused on the cultural meaning of words, the dimension of *language* is defined as shared understanding for the technical vocabulary and concepts. Drawing on Habermas' theory of communicative action, we argue that individuals need to have a common understanding about the applied vocabulary in order to prevent misunderstandings (Habermas, 1985). Thus, the first necessary step in the theory of communicative action is to understand the content of the message. When it comes to shared language, the literature usually focuses on IT professionals' capabilities of speaking a non-technical language (Charaf et al., 2013), which has shown to be a critical success factor (Bassellier and Benbasat, 2004). ISD research often applies the concept of domain-specific language as an indicator for shared understanding (Holten et al., 2010) to analyze the effectiveness of requirements elicitation (Charaf et al., 2010). We conclude that sharing an understanding for the vocabulary and for the concepts within communicated messages is a fundamental dimension of shared understanding.

The final dimension of team-specific BIT-SU focuses on the roles, responsibilities, and expertise of each team member within a collaboration. Thus, Dhaliwal et al. (2011) define shared understanding as "the degree of shared cognition between two [units] regarding their respective roles and responsibilities" (p. 5). The cognitive contribution of this determinant is "that over time team members learn the distribution of expertise within the team" (Cannon-Bowers and Salas, 2001, p. 197). When team members are very close to each other, they share an understanding for the optimal allocation of individual tasks. The authors exemplify this optimal situation by a perfectly aligned basketball team. Members know exactly where their partner will stand in any situation. This shared understanding of individual roles and expertise enables blind passes where a player throws the ball to a teammate without even looking.

We can summarize that shared understanding among business and IT exists if partners understand and accept the respective positions related to the six dimensions of B/IT-SU. They need to understand the shared work environment and the role of IT and objectives within this collaborative environment. Fur-

ther, they need to understand the respective cultural values, roles and responsibilities and the verbal messages within the communication. By differentiating between 'understanding' and 'agreeing' based on Marshall and Brady (2001), we further argue that the quality of shared understanding increases if the partners personally agree on the introduced B/IT-SU dimension. Based on Chiravuri et al. (2011) we believe that "shared understanding helps to structure and minimize cognitive conflict, making it easier to attain consensus" (p. 313).

4   Next Steps and Contribution

The next step in our research will be the empirical evaluation and refinement of the concept. Right now, we are compiling a semi-structured interview guideline, which addresses the relevant dimensions of B/IT-SU. We will conduct various interviews and case studies with representatives who are involved in different contexts of business/IT collaboration, like IT strategy development, IS project management, IT outsourcing management etc. In the interviews, the respondents need to describe their perception of the critical facets for achieving B/IT-SU by referring to actually experienced B/IT-SU collaborations. Within their context, they will be asked to describe the positive (and negative) characteristics of fulfilling a collaborative task. By this approach we aim at eliciting a complete and detailed picture of the different components of B/IT-SU. Thus, in this step of the research we will validate the previously introduced dimensions and gather a very detailed and practical description of each dimension. The contribution to research in general will be a validated concept of business/IT shared understanding, which, compared to the extant literature, covers all relevant facets of collaborative understanding. This step of precisely structuring the target (here: B/IT-SU) is important for the further steps.

After having refined and evaluated the generic theoretical B/IT-SU construct, we will adjust it to specific contexts. The concept as developed in section 3 represents a broad concept of necessary attributes of B/IT-SU, in general. Nevertheless, we expect that some attributes are more important than others when applying it to a specific contextual situation (e.g., collaboration during an IS implementation project). For example, the literature emphasizes the importance of the dimension of *role of IT* when it comes to strategic B/IT alignment processes, but a focus on the attributes of *language* or *process* when researching IS implementation projects. The contextual framing of the B/IT-SU construct will happen along two perspectives. On one hand, we focus on the activity in which business and IT collaborate, differing between strategic activities like IT infrastructure planning, tactical activities like ISD, and operational activities like IS change and operations. The second perspective takes the organizational hierarchy into account. Here we differentiate between top management, middle management (like division managers, project managers, or team leaders), and the operational workforce, like end users or system developers. The major contribution of this step will be an *adjustable* conceptualization of B/IT-SU, based on the particular research area. Thus, the same basic concept can be applied in different research projects to examine B/IT-SU in large organizations. Previous concepts have focused on just one context, often bound to a specific hierarchical level and a specific form of business/IT collaboration. Through our conceptualization it will be possible to compare findings regarding both the creation and the role and impact of B/IT-SU in various contexts of organizational collaboration among business and IT.

To empirically examine B/IT-SU in organizations, we will also develop an operationalization of the construct. While we can draw on several established instruments for the single dimensions from previous works (which applied their measures as overall measures for shared understanding although they often took only one aspect of it into account), a profound challenge of the operationalization is to ensure content validity of the unified multi-dimensional construct. In experiments with students and in 'real' organizational contexts, we have already conducted first experiments that showed the applicability of the repertory grid technique (Kelly 1955) for validating the content of the operationalization. We conducted both a traditional survey-based approach and – similar to Tan and Gallupe (2006) – reperto-

ry grid-guided interviews in order to test for the degree of conformance of both instruments (while assuming that the repertory grid approach is able to uncover the 'true' level of B/IT-SU along its different dimensions). Based on this part of the project, we can then provide a description and recommendation for measuring all dimensions of B/IT-SU while taking the different contextual situations into account.

The last step in our research will be the development of a goal-oriented action plan for improving the level of shared understanding in various contexts. By this, we will develop a set of management action items that influence the specific dimensions of the construct, and evaluate its effectiveness in field studies. Based on these findings, we can then recommend specific action items to improve single dimensions of B/IT-SU that are lacking.

As summary, the contributions of our research on shared business/IT understanding can be highlighted as follows:

- Providing a unified and detailed description of the concept of shared business/IT understanding which covers all relevant dimensions and thus enables cross-wise transfers of insights and findings among different strands of IS research, which have developed unique but incomplete concepts of B/IT-SU

- Providing flexibility for contextual adjustment so that the concept can be applied in comprehensive research of business/IT collaboration which takes several contexts (e.g., strategic and project level) into account

- Providing an operationalization of the construct while ensuring content validity by an innovative, cognitive research approach (repertory grid), which can then be used to measure B/IT-SU in a unified manner in quantitative, survey-based research

- Providing a set of goal-oriented mechanisms that can be applied to improve specific dimensions of business/IT shared understanding in organizational contexts

Overall, we believe that this research project can help substantially integrate and align the IS field's understanding about one of its most fundamental concepts and thus to inform research and practitioners on how to close the often huge gap between business and IT in organizations.

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