SHARED UNDERSTANDING AMONG BUSINESS AND IT –
A LITERATURE REVIEW AND RESEARCH AGENDA

Completed Research

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Abstract
Researchers have acknowledged that shared understanding between business and IT is a crucial factor to achieve high performing teams, well aligned units, and superior business value of IT. In addition, they agree, that this determinant of social alignment is very complex and difficult to govern. However, a goal-oriented governance will only be possible if the target is clearly and adequate defined. In this paper, we will provide a structured review of the IS literature addressing the question how shared business/IT understanding has been conceptualized and used in the various fields of our research community. We identify strong differences between and within these research domains regarding the conceptualization. Primarily, we find that most of the papers just analyze single aspects of shared understanding but miss the “big picture”. Our findings can point researchers to potential lacks of conceptualization of Business/IT Shared Understanding in their research domain and will help to cross borders among different research strands, which all will potentially profit from a more holistic and comprehensive investigation of shared business/IT understanding and its role for effective collaboration among business and IT.

Keywords: Shared understanding, Mutual understanding, Shared knowledge, Shared Cognition, Joint language, Literature review.

1 Introduction
Researchers have acknowledged that shared understanding between business and IT (B/IT-SU) as part of the social dimension of alignment (Reich and Benbasat, 1996) is a crucial determinant to the level of business/IT alignment that needs to be carefully governed (Johnson and Lederer, 2010, Preston and Karahanna, 2009, Tan and Gallupe, 2006). Consequently, one should expect extensive research, detailed conceptualizations and operationalizations, which adequately reflect the richness of this construct. However, the reality seems to be contrary. In addition to the small number of research studies on the social dimension of alignment (Chan et al., 2006) there is not even a general agreement on the meaning and definition of shared understanding (Bittner and Leimeister, 2013); this becomes particularly prevalent if looking at the operationalizations used for measuring shared understanding in empirical studies. While some researchers identify the shared cognition of the role of IT as relevant dimension to measure shared understanding (e.g. Preston and Karahanna 2009), others analyze (only) the occupational cultures (e.g. Rao and Ramachandran, 2011) or the usage of a joint language (e.g. Holten et al., 2010) as indicator for shared understanding. However, even at the conceptual level, the majority of papers focus only on single aspects of shared understanding without capturing the whole picture.
Moreover, different strands of IS research have developed and used different conceptualizations of shared understanding: While papers in the field of (strategic) business/IT alignment research (which
make about 50 % of all papers that conceptualize B/IT-SU focus on task-specific shared knowledge or understanding, the influence of joint cultural values, beliefs or different language styles have barely been explored. By contrast, papers that study Information Systems Development (ISD) or other forms of IT/business collaboration focus much more on interpersonal attributes, like language or values, but mostly neglect the equally important meaning of having a shared task specific understanding. This dispersion in research which considers shared understanding as an often elemental part of their studies leads not only to inconclusive findings but also to the problem of diverging or superficial recommendations for governance mechanisms that aim at improving the level of shared understanding. For example, while some papers recommend the implementation of knowledge transfer mechanisms (Fisk et al., 2010, Pan and Mao, 2013, Vranesic et al., 2011), others analyze the importance of the communication medium or frequency (Johnson and Lederer 2005, 2007), mutual trust (Stoel and Muhanna, 2012) or language skills (Charaf et al., 2010). Since the concept is conceptualized differently in those works, the recommendations target different “real-world” aspects, which are often just pieces of the overall concept of understanding each other and speaking about and acting for the same thing.

Therefore, we believe that it is time for clean-up and for bringing the different existing conceptualizations of shared understanding back together in order to provide a broader and richer fundament for all fields that take shared understanding into consideration within their studies. This paper provides a literature review on the different conceptualizations of shared business/IT understanding (B/IT-SU) in IS research. We collect major findings from the different research strands, such as on alignment or ISD, and assemble them to one big picture of shared understanding. Our leading research question is: What are the central aspects that have been considered in the conceptualization of Business/IT Shared Understanding, so far? The results will inform future research which applies B/IT-SU and they help to consider the richness of this construct and to establish more consistent approaches across different IS research strands. Moreover, dedicated research on both the impact of and management for achieving B/IT-SU will be more effective and conclusive if it draws on a comprehensive concept instead of taking only single facets into account.

In section 2, we will briefly introduce the theoretical concept of shared understanding, which helps to frame the search for the literature to be considered in the literature review. Section 3 describes our approach for retrieving and analyzing the literature. Then we will present our findings structured by research strands. These findings will be consolidated to a unified and comprehensive ‘big picture’ of Business/IT Shared Understanding, which comprises all major aspects discussed in the literature. It will be shown, for instance, that alignment research has focused too much on just one aspect of B/IT-SU and that further research should include further aspects and their interplay among each other to achieve more consistent and richer results.

2 What is Shared Understanding?

To understand the meaning of ‘shared understanding’ we start by focusing on the meaning of understanding. Epistemology focusses on the question of how individuals understand the world, how knowledge can be acquired, and how it will be justified to be true. In the discussion of how an individual understands the social environment, Craik (1967) described the sense-making perception of a person as a “small-scale model of external reality” within the person’s head and thereby established the concept of mental models. According to this view, the individual’s action relates to the mind’s construction of the world that is influenced by previous experience. Similar to this concept, psychologist Kelly (1955) asserts that individuals use personal patterns of interpretation to understand events in their social environment. This concept has been applied a few times in the field of IS labeled as social cognition (e.g., Tan and Gallupe, 2006, Easterby-Smith, 1980). Thus, we conclude that an individual’s understanding is a subjective construction of the social environment as a small-scale model, which is constantly adjusted by individuals experiences and sense-making perception.
To describe the intersection of these small-scale models, which reflects shared understanding, we apply the communicative action theory. According to Habermas (1985) the overall objective of an ideal communication is a discussion, which results in mutual consensus. The philosopher describes the communication process as follows: first, the hearer needs to understand the meaning of what is being said – he needs to at least know the vocabulary and grammar of the language in use. After understanding the content of the message the hearer needs to reply through a validity claim. By this he or she informs the partner about the truth, which can be objective, subjective or normative. By accepting the validity claim, consensus about the communication content is reached. We apply this idea of consensus-making in a communicative action and apply it to any interaction form. Here, three different forms of truth can be distinguished. Objective truth refers to the need for creating a shared understanding about the objective environment in which the partners interact simultaneously. Generally, this aspect can be declared as knowledge about the collaborative task environment (e.g. Nelson and Cooprider, 1996). The second type of validity claim is described as subjective truthfulness and implies the subjective interpretation of information. Thus, following Cannon-Bowers and Salas (2001), the partners need to share an understanding for their respective strength, weakness and preferences, which form the subjective interpretation. The last type of a validity claim is described as a normative rightness which is defined by the cultural norms and rules in which the partners interact. As an example, Chua et al. (2012) analyze the social control of clans and identify groups’ shared norms and values as important factors in building and leveraging a clan.

3 Methodology

In the following literature review, we seek for a comprehensive and detailed description of B/IT-SU by comparing and analyzing different IS research strands that have investigated or applied B/IT-SU and related concepts. Our approach follows the recommendations of Webster and Watson (2002). The first step of retrieval uses a keyword-based search in the journals of the ‘AIS Senior Scholars’ Basket’, in related journals in which we assumed relevant research, and in the proceedings of the main IS conferences (cf. Table 1); the search was applied to the title, keywords, and abstract. Table 2 lists the keywords used in the retrieval process, which represent synonyms and related concepts of shared understanding. Because our aim is to present a comprehensive analysis of the current understanding about the B/IT-SU concept, we focused on research publications between 1996 – 2013.

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<tbody>
<tr>
<td>Communications of the AIS</td>
<td>Information Systems Research</td>
<td>Journal of the Association for IS</td>
<td>European Conference on Information Systems</td>
</tr>
<tr>
<td>Decision Sciences</td>
<td>International Journal of Information Manage-</td>
<td>Management Information Systems Quar-</td>
<td>Hawaii Internat. Conf. on System Sciences</td>
</tr>
</tbody>
</table>

Table 1. Outlets considered for the literature review

<table>
<thead>
<tr>
<th>Mutual/Shared/Common Understanding</th>
<th>Mutual/Shared/Common Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutual/Shared/Common Cognition</td>
<td>Mutual/Shared/Common Vision</td>
</tr>
<tr>
<td>Mutual/Shared/Common Mental Models</td>
<td>Cognitive Capital</td>
</tr>
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</table>

Table 2. Keywords used during the search
Overall, this keyword-based search resulted in the retrieval of 278 papers. 33 of them are dealing with the shared understanding between Business and IT (or synonyms or related terms), while 92 papers use shared understanding in general (i.e., not in a business/IT context), 153 papers apply shared understanding without any definition or conceptualization.

To ensure that we have not missed a relevant study the papers found in the first step served as seed for forward and backward searches in the ISI Web of Knowledge provided by Thomson Reuters (www.webofknowledge.com). The relevant papers are selected based on a screening of the abstract. During this screening process, we focused on studies that applied the concept of shared understanding (or related concepts) in the context of business/IT collaboration. In this process we found 17 additional papers which apply the concept of shared understanding in their studies, so that our literature analysis is eventually based on 50 papers dealing with the shared understanding of business and IT.

The identified papers were categorized in terms of research field, type of study (empirical vs. non-empirical, research method, etc.), way of how they used the concept in focus (shared understanding or synonyms; was it, e.g., used as determinant or dependent construct?). Further, we extracted the definitions and – in case of multi-dimensional constructs – the different dimensions of the concept and we also captured the determinants/antecedents of and/or outcomes resulting from high/low B/IT-SU.

4 Findings

The following presentation of the literature review findings focuses on the theoretical descriptions and conceptualizations of B/IT-SU. Basically, we found that the theoretical conceptualization is strongly bound to the particular research strand each work belongs to. We found different research strands focusing on different dimensions of shared understanding. Hence, the following analysis will discuss the conceptualizations along those research domains. Based on these discussions, we will finally present a B/IT-SU map, which highlights how the B/IT-SU in certain research domains could be enriched by integrating conceptualizations from other strands.

4.1 Conceptualization Related to Research Streams

First, we allocated each paper to one of three research fields as follows (see Table 3):

<table>
<thead>
<tr>
<th>Research strand</th>
<th>Number of papers</th>
<th>Sources</th>
</tr>
</thead>
</table>

Table 3. Research streams in the discussion of B/IT-SU
Most papers belong to the field of (social) alignment research, followed by the field of information systems development (ISD) research, and studies on operational collaboration among business and IT in or between organizations (e.g., in outsourcing relationships).

In terms of theoretical perspectives applied, the papers can be categorized to communication quality research (3 papers), language based research (6 papers), social capital theory (6 papers), relational/social exchange theory (9 papers), social cognition theory and other epistemological approaches (17 papers), knowledge management theory (15 papers) and boundary object/spanning (5 papers) (some papers used multi-theory lenses). While B/IT-SU has been part of research works using knowledge management theories or communication theories since the 1990ies, studies applying social capital theory or boundary object theory have emerged more recently (since 2010).

Interestingly, each of the three research domains listed in Table 3 has its own primary approach in conceptualizing B/IT-SU. While alignment research understands it mainly as mutual understanding or agreement “about the role of IS in an organization” (Preston and Karahanna, 2009), ISD research applies a more language-based approach and defines B/IT-SU, e.g., as “shared representation, interpretation, and systems of meaning, such as shared language and codes and shared narratives.” (van den Hooft and de Winter, 2011). Within the research of change and operational processes and collaboration among business and IT, we find again a more knowledge-based interpretation about the concept of shared understanding and identify the shared understanding about the work environment and processes as a central definition (e.g. Nelson and Cooprider, 1996, Subramani et al., 1999).

Table 4 gives an overview of the different identified B/IT-SU dimensions as they have been conceptualized in the different research fields. In addition we analyzed the occurrence of the several concepts over time starting from 1996 until 2013. A tabular overview and short discussion of the time-related occurrence of the distinctive dimensions is presented in the appendix. In the following discussion, we will describe every dimension and their relevance in the respective research field. Hence, we compare the discussion with the research domains and expose the differences in conceptualizations.

<table>
<thead>
<tr>
<th>Research field</th>
<th>Strategic Alignment</th>
<th>ISD</th>
<th>Change/Operations</th>
</tr>
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<tbody>
<tr>
<td>Role of IT</td>
<td>11</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Future Role of IT</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Objectives</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Shared Business/IT Knowledge</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Business Knowledge of IT</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>IT Knowledge of Business</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Language</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Culture</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Not specified</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>31</strong></td>
<td><strong>23</strong></td>
<td><strong>11</strong></td>
</tr>
</tbody>
</table>

Table 4. B/IT-SU dimension applied in relation to the research domains (sums are higher than total number of papers in each category because in some cases B/IT SU captured more than one aspect)

4.1.1 B/IT-SU in Research on Social Alignment

The mostly cited papers in social alignment research which consider B/IT-SU are (Reich and Benbasat, 1996) and (Reich and Benbasat, 2000). In their first paper, the authors present the now generally accepted definition of the social dimension of alignment as “the level of mutual understanding of and commitment to the business and IT mission, objectives, and plans” (p. 58). In their conceptualization, they distinguished between mutual understanding about current objectives as short-term alignment and
the congruence of IT vision as long-term alignment. Three other papers have adopted this separation into mutual or shared understanding and shared vision (Cohen and Toleman, 2006, Johnson and Lederer, 2007, Preston and Karahanna, 2009). Nevertheless, Zhao et al. (2009) state that “most of the authors identify two aspect of shared understanding, namely short-term and long-term shared understanding.” (p. 356) Thus, the concept of shared understanding includes, in most of the alignment research studies, a current and future role of IT dimension.

While Reich and Benbasat (1996) discuss the objectives that need to be jointly understood, other works define shared understanding as “the degree of shared cognition between the [business] and [IT professionals] on the role of IS in the organization” (Preston and Karahanna, 2009, p. 162). Besides the focus on the role of IT (e.g. Johnsons and Lederer 2010, Lahdelma 2010, Preston and Karahanna 2009) we found several papers that describe shared business/IT knowledge or just the business knowledge of IT (like business needs) as crucial components of a shared understanding (Rosenkranz et al. 2010, Vermerris et al. 2012, Wagner et al. 2010).

While Preston and Karahanna (2009) advocate a sharp discrimination between shared knowledge and shared understanding, other researchers use the terms knowledge and understanding interchangeably (Ray et al. 2005, Nelson and Cooprider 1996, Ajjan 2009). Because knowledge has been defined as justified true belief (Blumenberg et al., 2009), we support the argument that shared understanding (in terms of ‘agreement’) and shared knowledge (as justified true belief) within a social group are the same. Therefore, we analyze all dimensions of understanding and knowledge that have been discussed related to the task within the collaboration. The ‘collaborative task’ is any activity which is, to more or lesser degree, done jointly among business and IT, such as strategy development, planning, development and project management, or coordination of change processes.

We found that a huge portion of the alignment research papers describe shared understanding as the shared understanding about the role of IT (11 papers), future role of IT (6 papers), or objectives of IT (3 papers) (in total 20 out of 31 categorizations, cf. Table 4) – interestingly, almost none of the papers from the other research fields used a similar conceptualization of shared understanding. Further eight papers understand the shared knowledge about business needs, work environments and processes as crucial components of B/IT-SU. Interestingly, we found no paper which interprets shared cultural norms or shared language as components of shared understanding. Nevertheless, a recently published article at least recognizes shared language (and social cognition of the role of IT) as a component of cognitive social capital, which in turn is defined as “shared representations, interpretations, and systems of meaning among parties” (Karahanna and Preston, 2013).

Whereas Reich and Benbasat (1996, 2000), Preston and Karahanna (2004, 2009), Johnson and Lederer (2005, 2007, 2010) mostly formed the research on B/IT-SU related to social alignment there are two papers which apply more unique ideas within this research field (see “others” in Table 4). First Joachim et al. (2011) applied the concept of shared mental models in their description of B/IT-SU and thus explicitly included a task- and team-specific layer of shared understanding. The approach of explicitly differing between task and team has been applied several times in IS-related research like in the analysis of (virtual) team coordination (e.g. Fransen et al., 2011, Yang et al., 2008, Thomas and Bostrom, 2007) and just this one time in the analysis of business/IT shared understanding. Second, Tan and Gallupe (2006) described shared understanding through a psychological lens based on the ideas of Kelly (1955), who proposed understanding of humans as individuals’ pattern of interpretation that need to be shared. The authors applied the 15 factors of alignment developed by Luftman et al. (1999) that need to be jointly understood.

Nevertheless, one aspect all papers in social alignment research have in common is the presumption that shared understanding does not just mean pure understanding but also the mutual consensus between business and IT professionals. Johnson and Lederer (2010) for example define mutual understanding as the “degree of agreement between individuals on a topic”. If we argue that “shared understanding […] in no way implies mutual agreement about the validity of [the partners] positions” (Mar-
shall and Brady, 2001) it could be discussed, whether previous works have investigated rather shared understanding or shared agreement (consensus). We support the argument that there are different levels of shared understanding. A sufficient level is achieved, when partners understand each other’s positions. A high-level shared understanding on the other hand will be achieved when partners understand and agree on the validity of each other’s positions.

4.1.2 B/IT-SU in Research on Information Systems Development

Compared to alignment research, where B/IT-SU is commonly conceptualized in relation to the role of IT, research in ISD ties B/IT-SU most frequently to the process of requirements elicitation (e.g. Charaf et al. 2013, Rosenkranz et al. 2010, Vranesic et al. 2011) or system implementation (e.g. Davis et al. 2009, Pan and Mao 2013). By contrast, we could not find any paper, which applies the role of IT as critical component that must be understood. With a focus on ISD processes, the critical component is generally the business domain (“business knowledge of IT professionals”) (e.g. Vranesic et al. 2011, Charaf et al. 2010, Rosenkranz et al. 2010). Interestingly, we could not find a similar conceptualization in alignment research and just one paper in the research field of IS change & operations. In total, five papers identify IT professionals’ knowledge about the business as critical part of the relationship that needs to have knowledge about the business but not explicitly the other way around (i.e. IT knowledge of business professionals is usually not seen as a (relevant) part of shared understanding). Further, “business knowledge” is instantiated as “business needs” (Beimborn et al., 2007) or “requirements” (Rosenkranz et al., 2010). In this context (Vranesic et al., 2011) states that “it is up to IS developers to have the communication competence and use effective patterns and behaviors in order to establish rapport with users”.

To achieve this rapport, researchers in the ISD domain commonly highlight the importance of shared language, which earns much more attention here than in the other research fields. For example, Charaf et al. 2013 analyzes the language-based shared understanding by focusing on the symbols and concepts used in communication about requirements elicitation. Holten et al. (2010) even measure language quality as indicator for B/IT-SU. In alignment research, we just found three papers (Preston and Karahanna 2004, 2009 and Preston et al. 2006) that applied shared language at least as an antecedent of shared understanding. An argument for this deviating importance of language lies in the nature of the research domain. While alignment research focuses commonly on strategic aspects, ISD research addresses the developer and user who often use different terms or concepts in the descriptions. Because of this reason, shared language might have been developed as a much more centric part in ISD research over time and, as already mentioned, is usually seen as an obligation of the IT professionals to speak the “proper” language, which both understand. Drawing on Habermas, we identify the first step in the communicative action as the understanding of the spoken message. Hence, we support the argument that there needs to be a shared understanding about the terms, vocabulary and concepts, which forms the dimension of shared language as a fundamental component of shared understanding.

All five papers that conceptualize language as component of B/IT-SU were found in the ISD research field. Three of them apply the theory of social capital to structure their research. They describe cognitive capital as “shared representation, interpretation, and systems of meaning, such as shared language and codes and shared narratives” based on (Nahapiet and Ghoshal, 1998). An interesting, recently published study in this field analyzes the clan control in complex IT projects by applying social capital theory (Chua et al., 2012). The authors argue that clan control can be enacted by building cognitive ties to create “common representations, interpretations, and systems of shared meaning across stakeholder groups.” The authors argue further that an ideal clan aligned project group with strong social capital shares values and beliefs aligned to the project needs. While values and belief are rather limited in B/IT-SU research, IS-related researchers acknowledge the importance of shared values regularly as essential (and often only) component of shared understanding (Cannon-Bowers and Salas, 2001, Galvin et al., 2005, van Knippenberg et al., 2013).
4.1.3 B/IT-SU in Research on IS Change & Operations

The research domain of change & operations focusses on the daily business between business and IT in terms of operational interactions during change or maintenance related collaboration. One of the first aspects we noticed was that there is very limited research on these daily interactions between the operational workforce which takes B/IT-SU into consideration, at all (10 papers).

Wagner and Weitzel (2012) have mentioned the overall limited research in this domain, compared to the vast amount of research on alignment at the strategic or higher management level. Beside their work, we found rarely other studies that explicitly focus on the shared understanding among lower level employees from business and IT units. In these few studies the focus has been on analyzing the occupational culture (Rao and Ramachandran, 2011, Day, 2007) or factors that drive mutual performance (Nelson and Cooprider, 1996, Subramani et al., 1999, Stoel and Muhanna, 2012). The analysis on basis of operating staff seems to be more of a side effect than an intentional research focus. Thus, it is difficult to identify a primary type of conceptualization in this research domain.

Still we see that most of the papers acknowledge shared knowledge of business and IT as crucial component of shared understanding. The work of Nelson and Cooprider (1996), which has been considered and applied in several research domains, defines shared knowledge as “an understanding and appreciation among IS and line managers for the technologies and processes that affect their mutual performance” (p. 411). In their analysis, they focus especially on the understanding of the work environment, problems, tasks and roles. A more structured and detailed definition was given by Ray et al. (2005). They defined shared knowledge as “knowledge that the IT manager possesses about the customer service process, the knowledge that the customer service manager possesses about the potential opportunities to apply IT to improve customer service, and the common understanding between the IT and the line manager regarding how IT can be used to improve customer service process performance” (p. 630). In this definition, Ray et al. (2005) cover three aspects of shared knowledge: first, the business knowledge of IT; second, the IT knowledge of business; third, the role of IT or how to deploy IT.

Whereas most of the studies apply shared knowledge of processes, work environments and business needs to describe B/IT-SU, we found two paper that apply (occupational) cultural beliefs to discuss shared understanding between business and IT. Day (2007) applied the grounded theory approach to determine the relationship between business and IT. Her results show great importance of congruent beliefs that are defined similar to the definition of culture as “set of ideas, beliefs, and values of a group” (Rao and Ramachandran 2011, p. 582). In this study, the author introduced 19 categories of beliefs. While some categories are more related to other relational aspects, like trust (e.g. “belief in the capability of another work group”), some of them are related to shared understanding (e.g. “perception of similar goals or intentions” or “knowledge, role and work space setting”).

The idea of a group with social beliefs has been applied by Rao and Ramachandran (2011) in detail. The authors describe business and IT professionals as two distinct occupational cultures within one organizational culture. The authors found that not just the understanding for the working routines is important, but “that systems developers should understand the rituals, myths, metaphors (i.e., cultural artifacts) of users” (p. 586). The list of beliefs that must be shared comprises 12 items, like “beliefs about the role of technology”, “beliefs about use of jargon by IS personnel/management”, “beliefs about the role of management principles”. Some items of this list have been similarly conceptualized in other research domains. The great difference to other works is, first, that the authors do not ask whether the person understands but whether it beliefs in the items’ content and, second, that the belief-construct is multidimensional. The first difference is similar to our introduced description of shared understanding: above, we argued that there is a difference between understanding and agreeing on (or believing in) something. Thus, we can understand another person’s position but not agree on the validity of this position. This becomes especially interesting, when working in globally dispersed teams. If
western workers understand that some Asian workers prefer to avoid saying “no”, the western worker does not need to believe in the validity of this behavior, but as long as he understands and tolerates the cultural value within this act, we can label this as shared understanding of cultural values. As Chiravuri et al. (2011) state “shared understanding helps to structure and minimize cognitive conflict, making it easier to attain consensus” (p. 313) but it is not the same with consensus. Still, we understand the agreement on a topic as an optimum level of shared understanding.

As a final note, we found several papers during our literature review that focus on shared understanding, but not among business and IT professionals. Those studies focus mostly on the coordination and success of virtual or globally distributed (ISD) project teams. However, the question remains the same: how important is (which kind of) shared understanding? Nevertheless, the conceptualizations of shared understanding are quite different. In these research fields, shared understanding in a team has been acknowledged several times as being a complex and multidimensional variable. For instance, Cannon-Bowers and Salas (2001) identify four dimensions that must be jointly understood. Besides two dimensions about knowledge of the task, the authors include knowledge about teammates (their strength, weaknesses and preferences) and shared attitudes and beliefs. The structuring into task- and team-specific shared understanding has been applied many times in the research of (virtual) teams (Espinosa et al., 2007, van Knippenberg et al., 2013, Thomas and Bostrom, 2007) but just once in the context of the business/IT relationship (Joachim et al. 2011).

5 Discussion, Contribution and Further Research

Our literature review on Business/IT Shared Understanding based on 50 papers has shown divergent conceptualizations in three different IS research fields. Moreover, while we found 22 papers in the research domain of alignment and 17 papers in ISD research addressing B/IT-SU, the domain of IS change & operations, focusing on the daily business between operational employees has been rather left out of focus (10 papers). The unrelatedness – or isolation – of the discussions of B/IT-SU in the different fields becomes even more immanent when analyzing the cross references. Within each of the research strands, we found only a few papers, which do draw on ideas that are generally common in the other research domains. For instance, several papers in the ISD domain do not refer to any social alignment works like (Reich and Benbasat 1996, 2000), (Preston and Karahanna 2004, 2009) or (Johnson and Lederer 2005, 2007, 2010). Similarly, there are almost no linkages from social alignment research to ISD research. Research in IS change & operations is also only loosely linked to alignment research. The only cross-references we found were on (Reich and Benbasat 2000). We believe that these cross-references occur because of the novelty and heterogeneity of research in this domain which takes B/IT-SU into account. Our literature review contributes to future research because it allows now for easier tapping into the B/IT-SU conceptualizations of the respective other fields. Accordingly, we claim for more cross references into other research domains to develop and apply richer and improved conceptualizations that allow for analyzing different aspects of a relationship.

We believe that this isolated development of, particularly, alignment and ISD research, is partly responsible for the very different conceptualizations of B/IT-SU. While the alignment papers around Preston and Karahanna (2009) and Johnson and Lederer (2010) define the understanding for the role of IT as B/IT-SU, many other works analyze the understanding for the work environment, processes and business needs as B/IT-SU (Nelson and Cooprider 1996, Stoel and Muhanna 2012, Wagner et al. 2010). Instead, shared language as a dimension of B/IT-SU has only been conceptualized and discussed in detail in the research of ISD. Although we acknowledge that the different unit of analysis of the various research fields might require different conceptualizations of B/IT-SU, it seems not reasonable to leave the respective other dimensions completely out. Thus, we believe that the divergence stems rather from historical, path dependent developments of the research fields than from theoretically grounded conceptualizations.
Our research contributes to the literature by extracting the different conceptualizations of B/IT-SU from different research fields and by providing an overview of the several dimensions, which have served as, often uni-dimensional, instantiations of B/IT-SU. Based on the findings, Table 5 presents a map which comprises the current state of Business/IT Shared Understanding in the respective research streams and exposes aspects of insufficient, or at least under-developed, research related to the specific domain. The map can point researchers to potential lacks of conceptualization of B/IT-SU in their research domain and will help to cross borders among different research strands, which can all profit from a more holistic and comprehensive investigation of the shared understanding and its role for effective business/IT collaboration.

As we can see, there has not been much attention on the shared understanding for cultural values and rules in the research of alignment or ISD. Furthermore, shared language as a fundamental component of shared understanding has been analyzed in ISD and change & operations but not in the research of social alignment. Accordingly, we demand for further research on the role of shared language and understanding of cultural values and rules, similar to Rao and Ramachandran (2011) in the field of social alignment.

Further, we found that shared values and beliefs are especially important in complex IS projects (see Chua et al. 2012). Nevertheless, this aspect has not been of much consideration in the research of IS. Thus, we demand for the inclusion of further studies on beliefs in the research of ISD. Moreover, this research domain has commonly just focused on IT as being responsible for obtaining shared understanding. We believe that a higher understanding for IT processes and working routines on the business side would be valuable for the business/IT relationship in ISD projects, as well.

As already mentioned, it is difficult to provide recommendation for the research of IS change & operations because it has not emerged to a consistent and mature literature strand, yet. Nevertheless, we assume high research potentials in this field. Similar to Wagner and Weitzel (2012), we support the argument that the daily operations between business and IT have not been much in focus yet, even though they are a fundamental part of the collaboration between business and IT. Thus, we generally demand for more research on B/IT-SU within this research domain.

To effectively analyze the level of shared understanding within organizations, researchers should focus on every aspect of a shared understanding and not just on single dimensions like understanding of the task or speaking the same technical language. This one-dimensional examination causes limited operationalization and thus wrong or limited insight into the real potentials of shared understanding within a collaboration. Based on findings in research of (virtual) teams, we claim for a broadening the discussion on aspects like task characteristics, knowledge about teammates, and (cultural) rules and values within the team, which includes perception about teammates and values within that team.

Thus, future research that draws on this literature analysis, could develop a detailed and broad conceptualization of Business/IT Shared Understanding including all facets identified. This concept should then also be operationalized to support the collection of quantitative data. However, the great chal-

<table>
<thead>
<tr>
<th>Social alignment</th>
<th>ISD</th>
<th>IS Change &amp; Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task characteristics (25)</strong></td>
<td><strong>Task characteristics (12)</strong></td>
<td><strong>Task characteristics (3)</strong></td>
</tr>
<tr>
<td>Cultural values and rules (0)</td>
<td>Cultural values and rules (3)</td>
<td>Cultural values and rules (2)</td>
</tr>
<tr>
<td>Language (0)</td>
<td>Language (5)</td>
<td>Language (4)</td>
</tr>
</tbody>
</table>

Table 5. B/IT-SU map of current research state (The intensity of the grey shades implies the level of consideration of the particular SU concept by research in the particular field)
Challenges in the operationalization is asking the right questions. Schein (2010) points out such difficulties by analyzing culture, which appear to be very comparable to analyzing shared understanding. The nature of the problem makes it quite impossible to ask the right questions, making sure that the interviewee understands the questions and is motivated to answer them correctly (Schein, 2010) for which reason more cognitive approaches are necessary (Tan and Hunter, 2002). Within the operationalization, we recommend a contextual analysis of shared understanding. We believe that all previously mentioned dimensions are necessary to achieve a comprehensive shared understanding, but related to the context one dimension could be relatively more important than another. For example, a strategic relationship could focus more on cultural commonalities, while short-term ISD projects will require shared language as most critical aspect. The result of this research would be a detailed conceptualization and operationalization that covers all relevant aspects of shared understanding. Furthermore, the concept can be adjusted to different contextual situations and thus makes it possible to present reliable results on every level and every activity within the collaboration.

Overall, we hope that this literature review can be a first step for bringing research of B/IT-SU from hitherto more or less isolated IS research fields together in a way that they could inform each other and jointly lead to a more comprehensive and consistent shared understanding about the true and rich nature of Business/IT Shared Understanding, its role in IT business value creation, and its determinants which could be addressed by appropriate management actions in order to help close the gap between business and IT.

Appendix

The following table highlights the occurrence of B/IT-SU dimensions over time starting from 1996 until 2013. The dimensions Future Role of IT, Objectives and Shared Business/IT Knowledge has been applied in 1996 by Reich and Benbasat (1996) and Nelson and Cooprider (1996). While Shared Business/IT Knowledge has been applied several times, the restriction on the Business Knowledge of IT professionals as the responsible part of the relationship in achieving B/IT-SU is relatively new (first paper found in 2007). A bit earlier, works started to apply the Role of IT as dimension of B/IT-SU. Major research in this direction have been conducted by Johnson and Lederer (2005, 2007, 2010), Preston et al (2006) and Preston and Karahanna (2004, 2009). Finally, we found the dimensions of Language and Culture as the most currently occurring dimensions of B/IT-SU. This reflects a shifting research focus on more social and interpersonal aspects of a relationship than (just) the understanding or knowledge for the task and processes.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Year: '96 '97 '98 '99 '00 '01 '02 '03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role of IT</td>
<td></td>
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<tr>
<td>Future Role of IT</td>
<td>1 2 1 2 1 2 1 2 2 1 1 1 1 1 1</td>
</tr>
<tr>
<td>Objectives</td>
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</tr>
<tr>
<td>Shared Business/IT Knowledge</td>
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</tr>
<tr>
<td>Business Knowledge of IT</td>
<td>1 2 1 1 1 2 4 1 4 2</td>
</tr>
<tr>
<td>Language</td>
<td>1 1 2 1</td>
</tr>
<tr>
<td>Culture</td>
<td>1 1 1 1</td>
</tr>
</tbody>
</table>

Table 6. B/IT-SU dimension occurrence over time

The following tables highlight further results of the literature review. Table 7 lists the different dimensions which where theorized as outcomes of B/IT-SU, while Table 8 lists the various antecedents of B/IT-SU which were part of the research models of the different papers analyzed.
<table>
<thead>
<tr>
<th>Research field:</th>
<th>Outcome variable:</th>
<th>Performance Quality</th>
<th>Alignment</th>
<th>Satisfaction</th>
<th>Knowledge Integration</th>
<th>N/A</th>
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<td>3</td>
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<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
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<td>19</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**Table 7. Outcomes of B/IT-SU applied in relation to the research fields (sums are higher than total number of papers in each category)**

<table>
<thead>
<tr>
<th>Research field:</th>
<th>Antecedent variable:</th>
<th>Shared Experience</th>
<th>Relational Quality</th>
<th>Language</th>
<th>Communication</th>
<th>Knowledge (Transfer)</th>
<th>Structural Capital</th>
<th>N/A</th>
<th>Others</th>
</tr>
</thead>
<tbody>
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<td>5</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>2</td>
<td>10</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ISD</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Change &amp; Operations</td>
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<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<td>1</td>
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<tr>
<td>sum</td>
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<td>9</td>
<td>7</td>
<td>10</td>
<td>14</td>
<td>3</td>
<td>19</td>
<td>3</td>
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</tr>
</tbody>
</table>

**Table 8. Antecedents of B/IT-SU applied in relation to the research fields (sums are higher than total number of papers in each category)**

**References**


