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HOW WELL DO WE UNDERSTAND BOUNDARY PRACTICES? EMPIRICAL EVIDENCE FROM A PRACTICE OF BUSINESS ANALYSTS

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Abstract

While there is a growing literature in boundary spanning, there is very little research that (a) examines boundary practices (b) empirically locates boundaries in experiences and expectations of actors involved in boundary interactions and (c) provides actionable advice to practitioners in boundary roles. This paper attempts to address such concerns by investigating the boundary practice of business analysts (BAs) that connects users and IT staff. We report findings from an interpretive case study of a group of business analysts working in a large company that provides mail and parcel services. For boundary practice, our findings include: (a) boundary practice introduces new boundaries (b) ‘boundary practitioners’ face challenges not only in spanning boundaries between practices they connect but also in negotiating boundaries that they introduce. For BAs, we note that (a) having business and technical knowledge is not the most important requirement to meet expectation of users and IT staff (b) they would better meet expectations by focusing on analytical abilities and enabling users to better understand their requirements (c) they are expected to play an increasing role throughout the project lifecycle and (d) they are expected to increase their solution orientation.

Keywords: Boundary practice, boundaries, business analyst, boundary spanning.
1 Introduction

The concept of communities-of-practice (CoP) (Lave and Wenger 1991; Wenger 1998) has been applied in many areas like knowledge management (e.g., Brown and Duguid 1991), project management (e.g., Garrety et al. 2004), communication (e.g., Iverson and McPhee 2008), information systems (e.g., Klein and Hirschheim 2008), engineering management (e.g., Scarso and Bolisani 2008), and computer science (e.g., Smeds and Alvesalo 2003). Despite its growing presence in many areas, the discourse on understanding practices has paid little attention to the concept of boundary practice, a practice whose purpose is to connect other practices by addressing conflicts, reconciling perspectives, and resolving differences (Wenger 1998, p. 114). A small literature on boundary spanning in a number of disciplines has accumulated, but even in this literature it has been noted that the practice of boundary spanning has not been adequately examined (Johnson and Duxbury 2010; Levina and Vaast 2005a; Marrone 2010).

Extant research has not only paid little attention to boundary practices but has also not appreciated the importance of boundaries in shaping communities and practices. This could be attributed to the fact that research on boundaries has remained largely conceptual (e.g., Santos and Eisenhardt 2005). Such conceptual investigation of boundaries, however, may not reflect actual practices (Shailer 1993) and it is only in a specific empirical context that one can define and locate boundaries (Aldrich and Herker 1977). Little attention has been paid to the ideas that boundaries are socially constructed (Heracleous 2004), dynamic (Zietsma and Lawrence 2010) and contain characteristics that come to the foreground only in the experience of people at boundaries (Diamond et al. 2004). We take the view that research in boundary practices would be insightful if it examines the boundaries (Oliver and Montgomery 2005) that are involved. Such efforts would address our limited understanding of boundaries (Heracleous 2004) and provide insights into boundary practices. Scholarship in boundary practice that examines boundaries has the potential to address concerns in applied disciplines like information systems (IS), specifically those that arise through issues in requirement analysis. Taking note of observations that failure to identify ‘real business requirements’ (Goldsmith 2004, p xvii) and an inability to satisfactorily bridge the ‘reality-design’ gap (Heeks 2006) contribute to IS failure, we are of the view that understanding the role and practices of business IS analysts (BA) as a boundary practice that liaises with users and IT staff could provide new insights into the practice of identifying business requirements.

The objective of this paper is to understand the roles and practices of BAs and in doing so (a) advance scholarship in boundary practices and boundaries and (b) seek insights that would enable boundary practitioners like BAs to be more effective in their work. The results reported in this paper are part of a research project that adopts a practice perspective in understanding the practice of business analysts and is guided by communities-of-practice (Wenger 1998) and boundary practice concepts.

The paper is structured as follows. First, we discuss the relevant theoretical concepts and outline how we intend to use these concepts. We then discuss the research methodology (case study) and design that underpins the research discussed in this paper. This is followed by a section that presents the results of analysis of our interviews and the findings of this research. We conclude with implications for research and practice.

2 Theoretical Foundations: A Practice Perspective

In following a practice perspective, we assume that individuals are both enabled and constrained by shared ‘practices’ by which they interpret the world and behave in corresponding ways (Reckwitz 2002). There is no unified practice perspective (Schatzki 2001) and previous IS research has adopted Bourdieu’s theory of practice (e.g., Levina and Vaast 2005b), Giddens’ structuration theory (e.g., Orlikowski 2000), and Brown and Duguid’s (2001) networks of practice (e.g., Vaast & Walsham
2009), and Wenger’s communities of practice concept (e.g., Klein and Hirschheim 2008). The practice perspective we adopt is the communities-of-practice (CoP) perspective (Wenger 1998) and its attendant concept of boundary practice.

2.1 A communities-of-practice and boundary practice perspective on the practice of business analysts

Based on Wenger (1998), we understand CoP to be a social configuration whose members engage with each other in achieving shared goals. The interaction among the members results in collective learning and a shared practice consisting of resources, frameworks, and perspectives (Wenger 1998, p.4). Practices can be classified as explicit and implicit. Explicit practices refer to elements like tools, documents, and codified procedures that are made explicit amongst the practitioners, while implicit practices refer to elements like implicit relations, untold rules of thumb, and underlying assumption (Wenger 1998, p. 47). These practices are related to community by three dimensions. The first dimension, mutual engagement (ME), explains that actions of individual become meaningful as result of engagement among individuals in a social configuration. The second dimension, joint enterprise (JE), explains that as a result of mutual engagement, the members of a social configuration arrive at a shared purpose or joint enterprise. This purpose need not be stated explicitly and results in “relations of mutual accountability” (Wenger 1998, p. 78). The third dimension, shared repertoire (SR), includes elements like tool, methods, and activities that are shared by the members of the community.

There are a number of reasons for adopting the CoP concept as a suitable lens for understanding the roles and practices of BAs. First, CoP concept is suitable for studying organisational practices, and has been widely applied in organisational settings (Brown & Duguid 1991; Garrety et al. 2004; Iverson & McPhee 2008). Second, its attendant concept of boundary practice provides us with a frame to study the work of BAs. The boundary practice concept is based on the assertion that an organisation could be viewed as a ‘constellation of practices’ (Wenger 1998, p. 129) and that these practices are connected by boundary spanning activities and boundary objects. These connections over a period of time may become part of what is called a boundary practice which has a purpose to maintain connections between several CoP. We view business analysis as a boundary practice that provides a connection between the users and the IT staff (Vashist et al. 2010) (See figure 1).

![Figure 1. Business Analysts as a Boundary Practice (Vashist et al. 2010)](image)

While there is literature in other disciplines on the notions of boundaries, Information Systems research in boundary spanning has largely considered boundaries as a given and there is very little IS research invested in empirically examining and conceptualising boundaries. For example, boundaries are assumed to be cultural (e.g., Mason 2003), between business units (e.g., Pawlowski and Robey 2004), and professional (Kimble et. al 2010). We consider boundaries to be areas of differences among social configurations that need to be empirically located in the experiences and expectations of the members of social configurations (Diamond et al. 2004). In our research, we seek to understand boundaries that BAs face with users and IT staff.
3 Research Method and Design

This research follows an interpretive research paradigm. Our ontological position is relativism and we believe that “what is said to be the ‘the way things are’ is the ‘sense we make of them’” (Crotty 1998, p. 64). Constructionism explains our epistemological orientation and enshrines a belief that we do not discover meaning but rather construct meaning in our engagement with the world (Crotty 1998, p. 64).

Walsham’s (1995) suggestion on how interpretive studies can use theoretical concepts without being constrained by them has been adopted for a number of reasons:

To create an initial theoretical framework which takes account of previous knowledge, and which creates a sensible theoretical basis to inform the topics and approach of the early empirical work… [but also] preserve a considerable degree of openness to the field data, and a willingness to modify initial assumptions and theories [resulting in] initial theories being expanded, revised, or abandoned altogether ( p. 76).

The concepts of CoP, boundary practice, and boundaries were used to frame our research perspective and inform our empirical work. In analysing data we remained open to field data and were not constrained by the theoretical concepts. We revisited these concepts, where required, in discussing our findings.

A case study method was adopted to understand the practice of BAs. It is an appropriate method to understand practice based issues (Benbasat et. al 1987), to capture the reality of practice in considerable detail (Galliers 1991), and for areas where theory and understanding have not been well developed (Darke et al. 1998). This paper is part of a research that adopts a multiple-case study design. In this paper, we report findings from the case presented by a group of BAs employed by Expressmail1, a large company providing mail and parcel services. BAs had been working on a project to integrate several applications running on different database systems into one application running on one database system. The BAs were located in the IT department and liaised with users engaged in this project. (Table 1 summarises the information about the interviewees.) While the focus was on understanding the practice of BAs, an attempt at understanding a boundary practice would be incomplete without the perspective of other participants in the practice. Thus, we interviewed not only the BAs but also the users and IT staff that interact with the BAs. Semi-structured interviews of 30-60 minute duration were conducted in October 2010 and audio recordings were transcribed. The interview guide was informed by the theoretical concepts discussed earlier but we remained open to other questions that became relevant to the research objective and emerging analysis.

<table>
<thead>
<tr>
<th>Interviewee role</th>
<th>Job titles</th>
<th>Nature of work carried out by interviewees</th>
</tr>
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<tbody>
<tr>
<td>Business Analysts (4 interviews)</td>
<td>BA1 - Lead BA BA2 - Lead BSA BA 3, BA4 - BAs</td>
<td>BAs were working together on database systems integration project. Their work involved ongoing engagement with users and IT around a 400 page requirements documentation.</td>
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<tr>
<td>Users (2 interviews)</td>
<td>U1 - Program Manager U2 - Program Manager</td>
<td>U1 was the program manager for the optimisation of the logistics network. U2 was the manager for the department that depended on the database integration project. Both had worked with the BAs during requirements elicitation</td>
</tr>
<tr>
<td>IT staff (2 interviews)</td>
<td>IT1 - IT Manager IT2-Development team Manager</td>
<td>IT1 provided a high level direction to the IT team and had been responsible for developing the IT resources in the department including a pool of BAs. IT2 was managing the software development and delivery team.</td>
</tr>
</tbody>
</table>

Table1. Summary of interviewees

1 Pseudonyms have been used to maintain anonymity for participating organisation, departments, teams, and individuals.
Since our interest in the cases was largely instrumental in understanding something beyond the particular case, we followed Stake’s (1995) suggestion that the data analysis approach should focus on abstraction by coding and categorisation and thus followed grounded theory data analysis techniques from Charmaz (2006). Interpretive case study research in the area of boundary spanning has effectively used grounded theory techniques for data analysis (e.g., Levina and Vaast 2005b). Microsoft Excel was used for implementing data analysis techniques. The coding followed a two step process: Initial coding and focused coding. Initial coding had a focus on interpreting participants’ meanings and actions (Charmaz 2008, p. 49) and involved, as far as possible, line-by-line coding of the interview transcripts. Focused coding required that we used the most significant initial codes to label larger amounts of data (Charmaz 2006, p. 57-58). This resulted in 83 focussed codes and 284 text segments. Focussed codes and associated data segments were compared with each other to raise the analysis to a higher level of abstraction and to form 26 categories. These categories provided data to compare experiences and expectations of BAs, users and IT staff. The results of the examinations are discussed under four themes in the next section.

4 Results and Discussion

4.1 Understanding of the BA role

The data analysis suggests a lack of agreement about what is expected from the BA’s role. The perception that BAs are required to be ‘bi-lingual’ and have the ability to ‘translate’ between users and the technical IT staff (Vashist et al. 2010) was evident in this case:

You’re kind of the mediator between the two areas so you’re the one who has to understand the business process, but then you have to have the technical knowledge to understand how to apply it to an application and how they’re going to code it and what the rules are (BA4).

The BA’s understanding of being a mediator seems to result in their emphasizing the importance of both business and technical knowledge in their work. Though it would be difficult to ignore the role of these two skills in business analysis, the response of users and IT staff suggests a different emphasis and thus a different expectation from the BA role. For users, the role of BA was not about bringing business knowledge into the discussion:

Our journey through that was an interesting one because we started with people with obviously a skill set but no background knowledge as such and who don’t understand Express mail and the BA that did it, did a great job... she was really good at what she was doing ...she brings the skill set which is about business analyst, I bring a whole pile of background knowledge (U2).

The users seem to expect a specialised skill set from the business analysts and are willing to share their business knowledge with the BAs. The IT manager went a step further and was of the view that excessive business knowledge could even be detrimental in the practice of business analysis:

A lot of people also think that to be a good business analyst you need to know an awful lot about the domain...I’m not necessarily of that belief ...I think the danger with bringing someone who’s got a great deal of domain expertise to a business analyst’s role is that often their thinking is blinkered. So again, I would think a good business analyst would be someone who’s potentially new or relatively new to the domain area (IT1).

Thus, there is an expectation from the IT staff that BAs need to have an open mind and a willingness to analyse the situation without pre-conceived ideas.
We note that the BAs’ emphasis on technical and business knowledge does not match what users and IT staff expect of the BA role. Even though the technical and business knowledge may make it easier for BAs to work with users and IT staff, we need to ask the question: Is the emphasis on technical and business knowledge really serving the interests of users and IT staff or is it helping in making the BAs’ work easier when dealing with IT and users? This seems to suggest that the enterprise of a boundary practice, in this case of acquiring business and technical knowledge, has more to do with the interest of the boundary practitioners than to do with the interest of the practices they connect. This suggests that there is a pragmatic boundary (Carlile 2002) not only between users and IT staff but also between both BAs and users and between BAs and IT staff.

The IT manager expected the BAs to remain engaged beyond the analysis phase:

> I think the role of a business analyst should be to provide that continuity to do the work up front, capture the requirement, validation, making sure that the understanding is clear and then having a role through the life of project to make sure that intent is still on track (IT1)

It seems the IT staff expect the BAs to monitor the project on an ongoing basis and provide continuity by taking ownership of requirements until they are delivered.

### 4.2 BA-User dealings

The users expect BAs to have the ability to make the users better understand their requirements:

> We’ve had two goes at it and it didn’t work... So that set us off on a journey through [IT] group of engaging a business analyst to answer numerous questions about what it is that we wanted do to (U1).

The users expected the BA to provide an insight into their requirements, when they were proving elusive to them despite their domain expertise. There was also an expectation of adding value to the requirements or information the users supplied to the BAs:

> If a BA lacks ability then they’re the types of BA’s who will simply give you back what you’ve already given them. Whereas if you’re engaged with a BA who is capable and competent then they can, through a logical line of enquiry, lead you through to articulate issues and risks that perhaps you had not considered (U2).

BAs experienced their own challenges in dealing with users which made it difficult to deliver on the users’ expectations. For example, the BAs faced difficulty in collecting information:

> In many cases it’s not easy to find out information. You do have to really go down a number of avenues, it’s not “go here, go there” that will give you all the answers that you need. Because a lot of information that you need is in people’s heads (BA3).

So while the users expect the BAs to add some value, the BAs seem to be challenged by dealing with multiple sources of internalised information.

While users may not express a need for BAs to have domain knowledge, the BAs themselves perceive a trust deficit when they lack domain knowledge:

> So you might have quite a specific niche of an area, like a data warehouse thing and someone might be really financially savvy or something and you don’t have that background. So they might not have faith in the work you’re doing because they’re probably getting the gist that you don’t understand it (BA4).

While users may not express a need for BAs to have domain knowledge, for the BAs, having domain knowledge seems to be matter of being confident in their dealings with users and was perceived to help to build trust in users.
4.3 BA-IT staff dealings

Not only did BAs value business knowledge so that users could have faith in their ability, they also considered having a technical background to be important in dealing with IT staff:

*I’ve been in many situations where developers will try to say oh we can’t do that. But if you have a technical background you’ve got the confidence to grill them a bit further, you often find its they don’t want to do it, too much work (BA1).*

Technical knowledge is considered important as it helps BAs to recognise IT staff’s attempts to avoid delivering on certain requirements. This seems to be in agreement with the earlier suggestion that BAs’ need for technical knowledge might not be entirely motivated by acquiring the ability to translate between users and IT staff that the BAs serve.

Another area of difference between the BAs and IT staff was around the requirements’ documentation. The BAs were happy with as much detail as was possible while documenting user requirements:

*Our business requirements specification is close to a 400 page document. So a lot of effort was put into making sure that all the requirements were approved, committed and endorsed by the business. There have been little things missed in this project but nothing of any consequence really (BA3).*

Quite clearly there is a preference for having all requirements documented in detail right at the start and then signed by the business. However, the development team manager preferred more agility:

*I’ve seen business analysts right up a spec 300 pages or something. Dump it on the table, someone signs it off who has not read the 300 pages. This document full of defects goes into development, development puts more defects into it and we have our blown out testing cycles and all that sort of stuff (IT2)*

They didn’t like lengthy requirements documentation as such documentation was seen as likely to have defects that would be amplified in the later stages of the systems development lifecycle. The differences were not only about the length of the requirements documentation but also about the level of technical details in specifications that came from the BAs to the IT developers:

*But normally in a BA role we probably document to a pretty low level but in terms of what the programmer would want there’s always a few more questions so there’s always another level that they might want more information (BA4).*

The BAs seem to be inclined to provide specification to a very technical level for the programmers. However, the IT staff were not pleased with this level of specification:

*The functional specs are down to pseudo code level in a lot of cases and there’s almost no room to design…. Because [functional specification] was so minutely described that there was no room to move (IT2).*

The level of details took away flexibility in designing systems. The IT staff also expected the BAs to not only focus on analysing the problem domain but also on working towards the solution:

*Whilst there’s some people who think it’s heresy to talk about the solution...I believe it’s thinking not just about the ‘as is’ situation, but asking the questions about the ‘to be’ (IT1)*

This view of the IT manager challenges suggestions that a solution-oriented approach to problem analysis is not likely to work well in field of system development (Jackson 1999). It appears that BAs are expected to not only focus on the problem domain but also be more oriented towards solutions.
The IT staff, like the users, expected more analysis from the BAs and was clearly not impressed by their business knowledge alone. The view that BA role was more about analysis and thinking abilities was also highlighted by the development team manager:

*And this is where, my number one gripe about business analysts, the term is BA and I see a lot of B, I see almost no A. I come across very few business analysts that can actually think. Who can analyse* (IT2)

### 4.4 BAs’ Repertoire

The BAs emphasised a variety of software tools to be part of their ‘tool-kit’:

*So Visio in terms of process maps, Excel like for logs and Microsoft Word. What else have we used, previous roles you know Microsoft Project and stuff like that, PowerPoint (BA4).*

*We use Microsoft Visio for drawing business process maps. We use Microsoft Word for all our documentation basically, business requirements use case documents and things like that. We use Excel quite a bit (BA1).*

BAs rarely mentioned that important tools extended beyond the electronic variety. As an exception, a BA noted the role instincts could play in a BA’s role:

*The one that comes above the shoulder gets used a lot. The difference between a good BA and an average BA is how they think and what their instincts are (BA2).*

This indicates the appreciation for BAs using intuition in their work. The limitations of using electronic tools in BA work were highlighted by both BA and the IT manager but for different reasons. For BA automation by such tools constrained their work:

*I have found where we’ve used things that are automated but anything that is automated that constrains you becomes quite a barrier. So quite often in the business systems analysis or the analysis phases you quite often want to start with a blank whiteboard and a blank piece of paper (BA2).*

If the tools are constraining business analysts then whose or what purpose do these tools serve? The question becomes more relevant when considering IT staff’s concern about electronic tools:

*We had a conversation, I sketch some things out on butcher paper, I came up with software. Then the other way I went to elaborate lengths. I did UML diagrams galore and I came out with a piece of software. The difference in investment between the low fidelity requirement and the high fidelity requirement is much higher than the difference in the piece of software that comes at the end. So was it really worth it is my question. I think people have gotten tools blinded (IT2).*

For the IT staff, the costs of acquiring and using the tools outweighed the benefits. The users showed little awareness about the electronic tools that played a role in interactions with BAs. One manager in the user role highlighted an appropriate way of enquiry to be an important tool for a BA:

*There’s an assumption that we have been taught how to ask questions and how to enquire... But when either party are deficient in being able to ask logical enquiring types of lines of pursuit, then there is always the risk that either party may accept information at a certain stage or level which is some way inadequate (U2)*
4.5 Discussion

We consider boundaries to be differences among social configurations that need to be empirically located in the experiences and expectations of the members of social configurations (Diamond et al. 2004). Expressions like “living in two different worlds” that the BAs use in dealing with IT staff and users (Vashist et al. 2010), emphasise the more obvious boundaries they are designated to span: boundaries between IT staff and users. The manager of the development team, when asked, confirmed how obvious such boundaries were:

That is completely obvious, of course that’s true. Like why would you think that wouldn’t be the case? (IT2)

The results suggest other boundaries that are not so obvious: boundaries that seem to appear between the BAs and users and BAs and IT staff. The four themes discussed in the previous section highlight the experiences and expectations of BAs, users, and IT staff and provide insights into potential boundaries involved in the work of business analysts. These boundaries have been summarised in Figure 2.

![Figure 2. Boundaries between BAs and IT staff and BAs and users](image-url)

In the BA-user dealings, while the BAs aspire for and emphasize business knowledge to gain the users’ trust, the users expect the BAs to provide a more specialised business analyst skill set and to leave the business knowledge for them to bring into the discussion. Then there is the users’ expectation that BAs need to be able to reflect on their requirements and add value to the information that they provide to them. The BAs, however, experience great difficulty in getting information from users let alone enabling reflections and adding value to it. When asked about the tools used in their interactions, while BAs emphasised use of electronic tools, the users seem to suggest that the BAs should focus on their ability to follow a logical line of enquiry when interacting with users.
In the BA-IT staff dealings, the BAs’ emphasis on business and technical knowledge didn’t match with the expectations of the IT staff. The IT staff was of the view that domain expertise could be detrimental to BA’s work and expected BAs to play a more analytical role. The BAs seem to have different views on (a) how much effort should be spent on eliciting detailed requirements at the start of the project and (b) how much technical details need to be specified in the functional specifications. The IT staff felt that BAs could be more solution oriented.

The findings advance our understanding of boundary practices. First, we note that a boundary practice with a designated enterprise of connecting other practices is likely to introduce new boundaries. For example, while the BAs are designated to span the boundaries between users and IT, the BAs introduced new boundaries. Second, ‘boundary practitioners’ will face challenges not only in connecting practices but also in negotiating the boundaries that appear between them and such practices. For example, the business analysts will need to span boundaries with users and IT staff in order for them to successfully span the user-IT divide. Third, suggestions that boundaries shape communities (Abbot 1995; Hernes 2004) and practices within the communities reinforce boundaries (Zietsma and Lawrence 2010), raises more concerns for boundary practices. For example, if the pursuit of technical and business knowledge, as opposed to pursuit of analytical skills expected by users and IT staff, becomes the joint enterprise of BAs, it will become institutionalized in their practices. The resulting practices would further prevent BAs from meeting the expectations of the users and IT staff. This self-involvement has been noted as a risk for boundary practices that may prevent them from creating connections (Wenger 1998, p. 115).

5 Implications for Practice and Research

From our study of the roles and practices of business analysts, we can draw a few implications for practice of business analysis. First, BAs are not expected to be experts in business and technical domain. They are likely to better meet the expectations if they focus more on (a) their analytical ability, and (b) ability to ask the right questions and enable the users to better understand their requirements. Second, BAs are expected to play a role throughout the project lifecycle. This would impact the skill set and attitude required in their work. For example, they should expect to participate more beyond the analysis phase and accept more participation from the technical IT staff in the analysis phase. Third, BAs need to get the right balance between problem analysis and solution analysis. Fourth, the use of electronic tools should be guided by the understanding that the tools could have a constraining effect on the business analysts’ ability to model requirements and such tools may not stand the test of a cost-benefit analysis.

The findings have implications for future research. First, further research is needed to identify boundaries that are introduced by a boundary practice and understand their possible consequences. Second, since the experience of ‘boundary practitioners’ are largely shaped by the experience arising from the boundaries rather than by the mutual engagement at the core of the practice, we need to ask the question “whether the dimensions of practice specified for a CoP (i.e. mutual engagement, shared repertoire, joint enterprise) need to be altered or further specified for a boundary practice?” Instead of seeing this as a case of CoP theory lacking specificity to explain empirical evidence (Storberg-Walker 2008), we view this as an opportunity for researchers to evolve existing concepts and further develop understanding of boundary practices (Walsham 1995). Third, we found little evidence of reflection on the use of documentation and tools to enable connections between the users, IT staff and BAs. The boundary object literature explains this as invisibility of boundary objects and a measure of their stability (Harvey 2009). Such an explanation, however, prevents further insights into the role the documentation and tools play or have the potential to play. Taking note of suggestions that technology use influences boundary spanners’ understanding of the boundaries (Lindgren et al. 2008) and that an artifact can push boundaries (Lee 2007), future research needs to investigate how the documentation, tools, and processes used by business analysts reflect and shape the boundaries that they encounter.