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Sensemaking in collaborative networks: creating and balancing activities in open business models

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Abstract: The purpose of the study is to advance research on open business models as activity systems (Zott and Amit, 2010) in collaborative networks. We utilise Bradley's (1995) theory of exchange behaviour to discuss how new joint activities can be explored and how existing activities can be redesigned to strengthen collaboration between companies. To enable this discussion, we delve into the sensemaking literature and theory from loosely coupled systems. Our discussion leads to the development of the balanced activity system (BAS) model. The paper's key contribution is the prescriptive BAS model, which can be used strategically in collaborative networks to redesign or create new joint activities.

Keywords: collaborative networks; open business models; sensemaking; business development; innovation management.

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1   Introduction

It is not breaking news that maintaining competitive advantage is becoming increasingly difficult for organisations operating in complex markets with demanding customers (Amit and Zott, 2015). Different strategic responses to this changing context have been explored, and Miles et al. (2010), Herrala et al. (2011), and Tax et al. (2013) put forward that organisations ought to engage in collaborative networks to maintain, recreate or strengthen their position in the market. According to Daft et al. (2010), collaborative networks can be defined as "a group of different organizations that cooperate towards a common goal". Following this definition, scholars determine many advantages of being part of a collaborative network. For instance, Normann (2001) establishes that collaborative networks are key drivers of new market creation, and Day (1994) finds that new managerial capabilities of market relations are built because of this network participation. Moreover, Klincewicz (2009) reveals an increased degree of competitiveness and market development for companies participating in collaborative networks, and Achrol and Kotler (1999) and Allee (2009) conclude that collaborative networks can increase customer value. The arguments for organisations to engage in collaborative networks are strong. Therefore, we are interested in understanding how members and actors in collaborative networks can develop and rethink their offerings on a continuous basis so that the abovementioned benefits remain.

1.1   An activity system perspective

The argument for delving into this line of research originates from Zott and Amit (2010) and Capaldo and Petruzzelli (2011). They argue that it is a highly complex and daunting task to balance network activities so that the needs of both value creation and appropriability are covered for all collaborators. As a response, to mitigate the managerial issues of balancing network activities, Zott and Amit (2010) suggest an 'activity system perspective' that contains three core design elements, i.e., content, structure and governance. *Content* explains 'what' activities that should be performed, *structure* describes 'how' these activities are linked and sequenced, and *governance* clarifies 'who' is responsible for each activity and 'where' the activities should take place. According to Zott and Amit (2010), these core design elements function as key managerial levers to secure a fit between a single company's business model and the strategic purpose of the network collaboration (see also Amit and Zott, 2015). These core design elements are good explanatory constructions for analysing 'what is going on' and 'what happened in the past', but we argue that the full potential of the activity system perspective is far greater than pure description. In this study, we therefore seek to advance the activity system perspective of open business models. We do this by suggesting a prescriptive model that relates to the context of collaborative networks and thereby provides a

conceptual answer to the calls for research by Zott and Amit (2010) and Capaldo and Petruzzelli (2011).

1.2 Contributions

Relying on the sensemaking literature (e.g., Weick and Daft, 1983) and loosely coupled system theory (e.g., Weick, 1976; Orton and Weick, 1990; Dubois and Gadde, 2001), we suggest that 'narratives' and 'couplings' can lead to the retention of network members and thus create a balanced network collaboration that focuses on both individual actors' concrete activities and the appropriability pertaining to these activities. Based on these insights, we conceptualise the balanced activity system (BAS) model for collaborative networks. The novelty of the BAS model lies in the use of 'narratives' and 'couplings' as two dependent process elements that affect the core design elements, and vice versa. By integrating the process elements and the core design elements into the BAS model, we discuss how a collaborative network can be managed strategically as an activity system based on collaborative exchange behaviour (Bradley, 1995). With the term 'strategically', we imply that the BAS model enables managers to create new network activities proactively by utilising sensemaking to explore new opportunities together with other actors. Hence, the overall contribution of the study is twofold. First, we establish a wider theoretical perspective on open business models as activity systems. Second, we suggest using the BAS model as an operational approach to systematically manage collaborative networks as a concrete process of creating and retaining balanced activities to continuously secure the benefits of being an active part of the network. This study therefore responds to the call for further research by Zott and Amit (2010), Capaldo and Petruzzelli (2011), Amit and Zott (2015), Tax et al. (2013) and Brix and Jakobsen (2015) by presenting managerial implications that can improve collaborating organisations' search for competitive advantage when they choose to redesign and open their business models.

The paper proceeds as follows: first, we discuss how sensemaking enables the understanding of 'how' collaborative networks are created and managed. Thereafter, we utilise the outlooks of loosely coupled systems to discuss the issues of designing network activities in relation to an activity system's core design elements (Zott and Amit, 2010). Based on these discussions, we conceptualise the BAS model and discuss how the components of the BAS model interact dependently on one another. Finally, we present the paper's implications by stating how the BAS model can be operationalised, and we outline a future research agenda.

2 Review: collaborative networks – a sensemaking perspective

Traditionally, network studies informed by sensemaking depart from the IMP tradition in industrial marketing and purchasing research (see, e.g., Dubois and Gadde, 2002). In the IMP research tradition, the unit of analysis is either the firm or the network instead of the perception and cognition of individual network participants (Henneberg et al., 2010). Scholars have studied the actual interaction, for instance, who communicates with whom about what and for how long (e.g., Ellis and Hopkinson, 2010; Bergenholtz and Waldstrøm, 2011). Contrary to this perspective, we are concerned with

1   how actors make sense of their communication

2   how they explore potential new collaborative activities

3   how they shape their network understanding and succeeding actions to exploit the benefits and value of these activities.

This narrow focus on sensemaking related to the activity system perspective is interesting and highly relevant to study because creating, maintaining and developing valuable network collaboration requires a systematic process that can maintain balance between the activities and the outputs pertaining to an individual collaborator (Zott and Amit, 2010; Capaldo and Petruzzelli, 2011; Amit and Zott, 2015).

To study collaborative networks from a sensemaking perspective, we adopt Stohl's (1995, p.23) definition of a network as "an interactive process, shaped by multiple strands of activities [in which] the creation and interpretation of messages are built upon the associations, affiliations, and allegiances that bind individuals together". We are therefore determined to recognise collaborative networks and their core design elements as *interpretative systems* (Weick, 1979; Daft and Weick, 1984; Das and Boje, 1993). Our primary focus is the actions and behaviours occurring in the social space between actors in a collaborative network and the collective sensemaking that takes place in the creation or development of the network's content, structure and governance (Zott and Amit, 2010; see also Das and He, 2006).

2.1   Understanding collaborative networks as loosely coupled systems

Although Zott and Amit (2010) define the three core design elements that need to be understood formally in a network – the content, structure and governance – it is argued that there is more to the management of collaborative networks than answering questions pertaining to 'who does what, how and where?' See Figure 1.

Figure 1   Avoiding network disintegration via retention
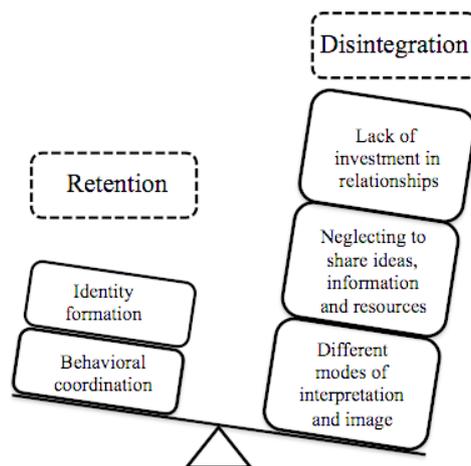
Source: The authors' own development

2.1.1 Disintegration

According to Zerrillo and Raina (1996) and Das and Teng (2000), collaborative networks have proven difficult to manage for a number of reasons. These reasons include

a   a lack of investment in relationship-specific assets such as training and knowledge sharing

b   a hesitation to share ideas, information and resources with other network participants (see also Ring and Van de Ven, 1994)

c   the possible inapplicability of individual participants' mind-sets to the mind-set of the collective network (e.g., Daft and Weick, 1982; Das and Teng, 2000).

If such issues are not taken into consideration when managing a collaborative network, it may cause the network to disintegrate, which is counterproductive for the value-creating capabilities (Das and He, 2006).

The overall challenge for managing collaborative networks is thus to stabilise and promote positive network relations and to make retention possible (Ebers and Grandori, 1999). This involves creating a strong social entity, in which customers and the system of collaborators are aware of the collective offer (Aldrich and Martinez, 2010). Putting the issues of network disintegration into perspective and attempting to determine the overall theories of network retention, a number of studies suggest that to meet the challenge of balancing a network, participants may shape their identity and coordinate their behaviour into loose couplings (see Figure 1). The first factor that contributes to counteracting the disintegration of the network relates to the identity formation process.

2.1.2 Retention

As a social system, a collaborative network is a complex system that is both self-generating and self-reproducing. Capra (2002) determines that social systems are networks of communication that create meaning and input for further communication, which, in turn, generate the entire network as shared meaning through multiple feedback loops,. In this self-generating, opinion-forming process, individuals create the identity of the network and simultaneously generate network boundaries based on shared expectations, confidentiality, legitimacy and loyalty (Capra, 2002; see also Vlaar et al., 2006). In line with this, Arndt (1986) argues that the *identity formation* process comprises four actions: demarcation, identification, decoding and control. Demarcation represents the establishment of a clear network boundary to distinguish between members and non-members. Identification occurs when internal cohesion and the sharing of mutual understanding is aligned in the network so that the network maintains its own identity. Decoding is the process of sensemaking among individual network participants in which a zone of shared meaning is created. Control is achieved through the norms of the networks, which often complement or neutralise more formal agreements in the form of, for instance, contracts and work descriptions. Similarly, Aldrich and Martinez (2010) argue that control involves the creation of new routines and competencies that can assist in legitimising the collective endeavour. For the former, new roles must be learned and knowledge transferred under uncertainty; for the latter, the network must establish legitimacy between customers, as committed users of a new product or service, and gain acceptance from other stakeholders. This leads to the second factor that creates network

retention: *behavioural coordination*. Due to variations in interpretation, contact and political influence among individuals in the network, a key aspect of managing collaborative networks becomes the continuous coordination of behaviour (Gandori and Soda, 1995). In this endeavour, network responsiveness has proven to provide coordination advantages and to facilitate adaptability (Kleinbaum and Stuart, 2013). Accordingly, responsiveness in the context of a collaborative network refers to the ability of organisations to respond quickly to both partners and customers while keeping network activities in full operation. Responsiveness consequently relates to the concept of loose couplings. A loosely coupled system is responsive in terms of having the ability to adapt to changes and to uphold an individual identity (Orton and Weick, 1990).

Hence, network stability is achieved through loose coupling because flexibility towards environmental change is handled locally and by relatively autonomous parts of the network. Nonetheless, such an endeavour depends on the interpretations and the ability to 'enact the relationships' of the people who serve as boundary spanners (Heath, 1994). Hence, focusing on strengthening the identity formation process and coordinating responsive, collaborative behaviour can lead to the mitigation of the network's retention and disintegration. Drawing from the abovementioned factors of disintegration and retention, we proceed to conceptualise the BAS model for collaborative networks based on Zott and Amit's (2010) research on open business models as 'activity systems'.
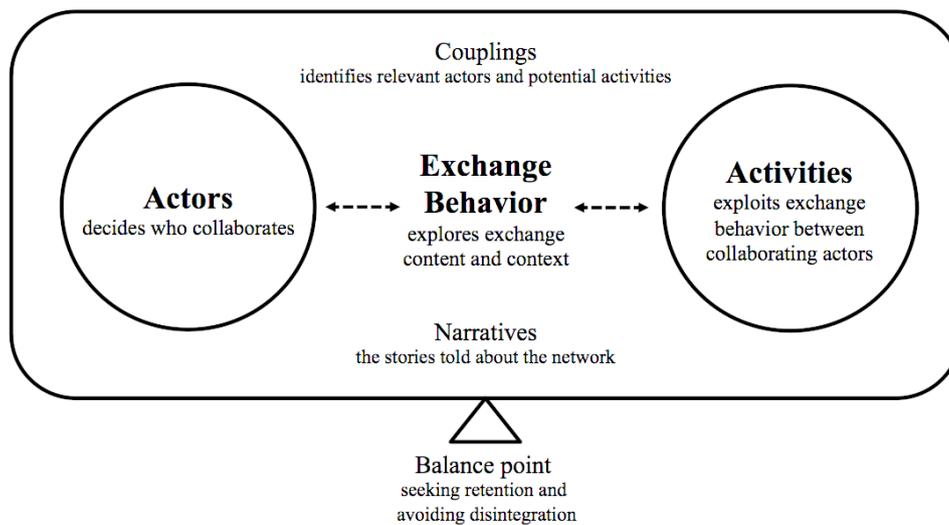
3   Building the BAS model for collaborative networks

Thus far, we have used the sensemaking literature and theories of loosely coupled systems to argue for the importance of establishing both a common identity and coordinating behaviour for a collaborative network to become successful. Nevertheless, we still need to understand how the identification process, together with coordinating behaviour, relates to the core design elements: content, structure and governance (Zott and Amit, 2010). As a reminder, *content* explains 'which activities should be performed', *structure* describes 'how the activities should be linked and sequenced', and *governance* outlines 'who should perform the activities and where' (Zott and Amit, 2010). According to Capaldo and Petruzzelli (2011), Zott and Amit (2010) and Amit and Zott (2015), this improved understanding will enable network partners to create the synergy needed by helping one another across organisational boundaries to improve customer value (see also Brix and Jakobsen, 2015).

Below, we conceptualise the BAS model (see Figure 2). Since we seek to further develop Zott and Amit's (2010) activity system perspective, we need to amend the original proposed vocabulary. This is necessary because the existing vocabulary does not make clear distinctions between the design elements. For example, Zott and Amit (2010) utilise the concept 'governance' to explain 'who' carries out an activity and 'where'. This, we argue, is a misleading concept because governance as a construct explains "(…) the processes of interaction and decision-making among the actors involved in a collective problem that lead to the creation, reinforcement, or reproduction of social norms and institutions" [Hufty, (2011), p.405]. Hence, the definition of governance relates strongly to the structure and content of the design elements, and it does not answer questions pertaining to 'who' and 'where'. Therefore, to make clear distinctions, the BAS model consists of two types of elements: *core design elements* and *core process elements*. Core design elements consist of the same three building blocks proposed by Zott and

Amit (2010): actors (formerly governance), exchange behaviours (formerly structure), and activities (formerly content). For the network to be in balance, there must be a fit between the number of and types of actors as well as the number and types of activities in the network. To maintain this balance, the BAS model can be managed by relying on the two core process elements: couplings and narratives. We start by discussing each of the five design elements and then discuss the relationships and dependencies between them. First, we start by discussing the role of the actors.

Figure 2 The BAS model for collaborative networks

Couplings
identifies relevant actors and potential activities

Exchange Behavior
explores exchange
content and context

Actors
decides who collaborates

Activities
exploits exchange
behavior between
collaborating actors

Narratives
the stories told about the network

Balance point
seeking retention and
avoiding disintegration

Source: The authors' own development

3.1 Actors (core design element)

Actors can be individual persons or social entities (White, 1992). Regardless, actors are crucial because without them, there would be no activities and consequently no network collaboration. However, identifying relevant network actors is a delicate matter because a large number of actors does not always lead to good network performance. Weick (1983) stresses that the larger the number of actors, the more complex and potentially unstable the network becomes because collective sensemaking depends on actors' shared cognitive structures and combined enactments, which may be difficult to obtain in larger groups. Moreover, it is not only the number of actors but the types of actors that affect network performance. Håkansson and Waluszewski (2002) determine that an increase in diversity between network actors makes it more difficult to transform new business opportunities into joint collaboration projects. It is therefore not surprising that Dev, Klein, and Fisher (1996) find that the selection of unsuitable network partners is the key reason behind many failures. In a more recent study, Das and He (2006) establish that the success or failure of a joint business opportunity largely depends on the beliefs and actions used of the actors in pursuit of the specific goal(s) of their collaboration. A crucial point for the network to become successful is thus the actors' capability to explore concrete joint business opportunities and to form their collective meaning. These

opportunities can be sought with existing actors or with new potential network members, and the opportunities must promote activities that provide mutual benefits for the actors (and for the customers). When actors agree on joint activities, the description of this activity sets the level of ambition and the boundaries for the collaboration (Arndt, 1986; Capra, 2002). For an additional discussion of collaborative opportunities, see the *Exchange Behaviour* section below.

To sum up, managing the core design element actors requires specific attention towards the following: It is imperative to select suitable actors to participate in the network since the wrong choice will most likely lead to failure. It is crucial to develop the capability to recognise new opportunities for joint collaboration between actors, both members and non-members of the network. Moreover, a high degree of diversity between actors leads to difficulties in transforming ideas into value-creating business. Finally, the network becomes more unstable and complex as the number of actors increases.

3.2   Exchange behaviour (core design element)

Exchange behaviour is the most important core design element in the BAS model. The idea of exchange behaviour (Bradley, 1995) is based on the interaction between actors who either provide and/or receive input from one another. The specific input is either transferred from one actor to another or transformed into an output with the goal of maximising value based on the activity (see also Sfandla and Bjork, 2013). In this context, Eisenberg et al. (1985) conceptualise a two-dimensional taxonomy of exchange behaviour relating to *exchange content* and *exchange context*. In the BAS model, this taxonomy serves to clarify the specific inputs suggested for exploring different potential joint activities among network actors. The taxonomy distinguishes between exchange content, which is related to the *exchange of information* and/or the *exchange of materials and other resources*. Moreover, Eisenberg et al. (1985) argue that the exchanged content can be located in three different exchange contexts. The first is the *personal context*, in which two or more actors exchange content privately. The second is the *representative exchange context*, in which employees from various organisations meet formally to exchange content. The third is the *institutional exchange context*, in which the exchange of content occurs without any interpretation, as in the automatic transfer of data or goods between companies (e.g., direct sales). However, the taxonomy alone does not assist in exploring the benefits of a concrete joint activity. Here, we delve into the marketing literature to find inspiration.

3.2.1   Exploring different types of collaboration

According to Anderson and Narus (1990), there are numerous forms of inter-firm activities. Some of the main activities include joint selling and value-added services. Bundling activities represents another typical network activity (Zott and Amit, 2010), and in the service industry, it is often observed how different experience flows are staged to increase the customer experience (Tax et al., 2013; Csikszentmihalyi, 1990). Likewise, Abraham (2000) introduces the logic of identifying profitable add-ons to the core business by observing what customers do before and after visiting a specific partner in the network. Additionally, Baron (2006) argues that there is much value to be found by 'connecting the dots' when seeking to understand how customer actions are linked. Equally important to the approach to exploring how value might be added to network

collaboration is Pine and Gilmore's (1999) argument that focus must also be directed at eliminating distractions (e.g., in an experience flow) and removing non-value-adding activities. According to Pine and Gilmore (1999), this will also lead to improved performance. Hence, well-known tools from marketing research represent useful approaches that can be used to inspire the exploration and development of new possible network activities. In any case, the key focus of network actors must be on exploring concrete exchange behaviours that can link their businesses together with other actors on a system level.

3.2.2 Creating value in network collaborations

The goal of exchange behaviour is to benefit or create value for all actors (and/or customer value) rather than focusing narrowly on increasing the produced value for individual actors' activity (Zott and Amit, 2010; Brix and Jakobsen, 2015). However, by exploring beneficial linkages, a major challenge for network actors is to reconcile profitability and customer value simultaneously (Capaldo and Petruzzelli, 2011; Brix and Jakobsen, 2015; Amit and Zott, 2015). In this regard, Parolini (1999) argues that companies [here regarded as actors] must recognise and accept each other as vital contributors and strengthen both their economic and social ties (Kothandaraman and Wilson, 2001) because the incentive to exchange content strongly relates to the behaviour and motivation of the actors in the network. Therefore, it is imperative to be explicit in how the generated value is to be divided among the actors joining the collaboration (Zott and Amit, 2010; Brix and Jakobsen, 2015). Consequently, to maintain good business acumen, individual actor ought to commit only to activities that are expected to be beneficial, e.g., by increasing value in such way that the redistribution of value corresponds to (or exceeds) the original value of the exchange content (Brix and Jakobsen, 2015). The decision to join a concrete activity therefore depends on the collective value of the exchange relationship and the operating risk of involving another actor with respect to performance on any dimension affecting the network, e.g., quality, fairness, and efficiency (Kothandaraman and Wilson, 2001; Ring and Van de Ven, 1994). Consequently, network performance depends on each actor and on whether everyone is being adequately rewarded for the network engagement (Klincewicz, 2009; Capaldo and Petruzzelli, 2011).

In sum, the purpose of proactive exchange behaviour is to explore how concrete activities might lead to new benefits or increased value through network-related activities. Information, materials and resources represent the content that can be exchanged, and this content can be shared in three different contexts: private, representative or institutional context. We discuss how operational tools from marketing research can represent concrete inspiration to explore potential joint activities. Moreover, we stress the importance of understanding the incentives and the motivation for actors to exchange information, material or other resources with one another. For reasons of retention, it is especially important for actors to be adequately rewarded for their activities, preferably using a cost-benefit analysis to estimate the overall value of a given collaborative project (Kothandaraman and Wilson, 2001). In the following, we present the activities.

3.3   *Activities (core design element)*

Activities represent the *active exchange behaviours* through which the collaborating actors seek to benefit by exploiting the strength of each other's businesses. Here, the perspective of 'what' is combined with 'how' and 'where'. Activities in the BAS model thus represent the concrete 'governance' of each network activity and not only the 'content' as suggested by Zott and Amit (2010). In addition to the redistribution of, e.g., financial value deriving from successful activities, the activities represent important value for individual actors. We described this in the introduction, where it was established that active participation in collaborative networks can lead to the creation of new markets, the development of new capabilities and increased competitiveness. Moreover, and equally importantly, the activities and the results stemming from the activities lead to stories about the network, which can support the retention or the disintegration of actors. Therefore, we introduce the process element 'narratives' in the following.

3.4   *Narratives (core process element)*

In the BAS model, collaborative networks are constructed through narratives (Orton and Weick, 1990). According to Abell (2004), narratives are stories that recount something that has already happened, and they may refer to a set of actions or events that constitute a common purpose between actors. For instance, Arndt's (1986) example of 'demarcation' consists of a narrative specifying how and why one network is different from other networks. Moreover, his example of 'identification' involves stories of inclusion, such as reasons for belonging to the network, statements of fascination and, on a deeper level, the fantasies and dreams that may provide direction for actors' mutual endeavour. The network narratives represent what Heath (1994) calls 'zones of shared meaning'. Therefore, the narratives provide actors with the interpretative codes and typification to make sense of their joint relations and the context in which they collaborate. It is therefore anticipated that collaborative networks may become more successful by stressing the importance of narratives, thereby giving actors the opportunity to make mutual sense of who they are and what they represent together in their joint efforts. The outcomes of this sensemaking approach is that the collaborating actions will facilitate "[new] perspectives and let people know what is expected of them as they enact structure with others" [Heath, (1994), p.226]. Following this line of reasoning, Ellis and Hopkinson (2010) stress the importance of meta-communication, i.e., 'talk about talk', for networks to develop. However, it is important that the dialogue and the sharing of narratives be carefully considered so that the stories are constructive and value adding. Eisenberg (1995) suggests that network collaborators ought to focus on accounts of actual experiences. In addition, the focus of conversation can be on the diversity of experience and not necessarily on a united agreement. Most importantly, slander must be avoided.

In sum, we argue that it is important to recognise the role of narratives in the development of successful network collaboration between different actors. Actors ought to be encouraged to provide coherent interpretations of what is occurring and how new joint opportunities can be realised in the realm of the network. This way, every actor has a voice in developing the collective narrative – or, as White (1992, p.83) puts it: "Stories cite behavior and behavior guides stories".

3.5 Couplings (core process element)

Following Daft and Weick (1984), the collective act of combining loosely coupled activities may be viewed as an interpretation process in which a business opportunity is identified by combining opportunity construction with opportunity recognition and enactment (Vaghely and Julien, 2010). In this process, actors seek to capture perceived value by translating data into a meaningful understanding of the environment, and based on this understanding, the actors exchange relevant content to satisfy the needs of the network and/or customers (also cf. Vlarr, Van den Bosch and Volberta, 2006). The coupling process therefore commences as soon as the actors explore potential exchange content and contexts with one another, or as they engage in active exchange behaviours (activities). Here, loose coupling implies that the activities are organised so that the information needed for each actor to carry out his or her part of the joint activity is low (e.g., Weick, 1976; Eisenberg, 1995). Because of the low level of information processing, it is difficult for individual actors to monitor the actions or performance of the collaborator(s), and therefore, plans and tactics in collaborative networks will often be based on sensing the environment rather than through rational decision-making (Vanharanta and Easton, 2010). Thus, rather than relying on a fixed procedure for information sharing or a detailed information structure for how to engage in active exchange behaviour (activities), collaborating actors will benefit from a looser approach. Moreover, because customer preferences may change over time, it is difficult to engage in strategic planning and to create standardised work-task processes in collaborative networks (Dubois and Gadde, 2002). This is not to argue that managerial considerations should be neglected concerning the management of loose-coupled systems.

3.5.1 Managing couplings

Weick and Roberts (1993) suggest that *collective mindfulness* can be used to create and manage loosely coupled systems. Collective mindfulness involves the exploration and interpretation of opportunities and is less concerned with decision-making processes and safeguards (Weick et al., 2008). Although the concept was originally applied to highly reliable organisations, such as nuclear plants and hospitals, it is also useful in relation to collaborative networks. This is argued because the acts of developing new business opportunities are associated with complexity and risks, thus spotlighting network partners' ability to be alert, to discover and to respond proactively to unexpected events with new or redesigned activities (Weick et al., 2008). Therefore, intuitive thinking and collective mindfulness must be encouraged when creating or maintaining couplings. This is especially important because rational choices are difficult to make in a network context where goals are often ill defined (Das and He, 2006). Furthermore, if effectively adopted, collective mindfulness may not only improve activities and exchange behaviour between actors but also support the development of a network culture and improve system outcomes (Arndt, 1986; Weick and Roberts, 1993; Weick et al., 2008). As a complement to the mindfulness approach, Eisenberg (1995) prescribes a five-step approach to coordinate actions in loosely coupled systems. *First*, actors need to listen to the voices of the target group(s). *Second*, actors must postpone any master plan and instead focus on small, attainable goals. *Third*, actors must develop weak ties for new knowledge to emerge. *Fourth*, all network participants must create joint plots for customer value but with tolerance for the emergence of sub-plots. Finally, Eisenberg (1995) stresses as his

fifth key message that actors should act globally and reap locally. Thus, to restate one of our messages in Section 3.2.2: Actors must avoid an overly narrow focus on their own business and try to see how the broader patterns of business activities may provide increased customer value (see also: Capaldo and Petruzzelli, 2011; Brix and Jakobsen, 2015; Amit and Zott, 2015).

To sum up, the creation of loose couplings is a process in which participants seek to explore and capture perceived customer value. They do this by translating data into a meaningful understanding of the environment, and based on this understanding, the actors exchange relevant content to satisfy customer needs. It is imperative that actors avoid rigid plans and over-documentation so they can have a responsive collaboration that designs and redesigns activities to align with changing customer preferences. Finally, the process of collective mindfulness is discussed, and Eisenberg's (1995) five-step approach to creating and maintaining a loosely coupled system is described.

3.6   Interactions between the core design and process elements

Actors use couplings to identify new opportunities and to make sense of them in their search for value-creating activities. During the sensemaking process, actors relate market data to the potential exchange behaviours that can lead to the definition of a joint activity. When a joint activity is identified, the concrete exchange content and context must be elaborated and negotiated, and the redistribution of value to the actors must be clarified. As the activity becomes operational, the benefits of taking part in the activity will arise (in theory). Based on the activity, narratives will emerge telling stories about the successes (and failures) of the joint collaboration. If positive, these narratives will reinforce the network participation creating retention; if negative, they will most likely contribute to the disintegration of the actors' participation in the network. Here, it is important to stress the balanced approach to the network as an activity system because retention is imperative for the network to survive and thus for increased customer and actor value to occur (Zott and Amit, 2010; Capaldo and Petruzzelli, 2011; Amit and Zott, 2015). In the following, we present the study's implications. We explain how the BAS model can be used to orchestrate a collaborative network as a BAS, and we present the theoretical contributions.

4   Implications

4.1   Managerial implications

When a network actor seeks to create a new value-adding activity, s/he uses couplings and narratives to analyse and make sense of accessible information (Weick, 1983; Daft and Weick, 1984). When the actor makes sense of the information and a new insight emerges for drafting a potential new activity, the actor can use this knowledge to identify potential collaborators in the network (or close to the network). However, identifying relevant co-actors is one specific task, but selecting and convincing appropriate co-actors to join the activity is another task. This is argued because our discussion establishes that it is easy to create an imbalanced collaborative network if too many actors participate or if the degree of diversity is too large. To cope with this fuzzy dilemma and to maintain network balance – where there is a fit between actors and activities – our model relies on

Bradley's (1995) theory of exchange behaviour. Actors can use this theory to explore, identify and negotiate potential actions with other prospective co-actors before new actions are initiated and exploited. The primary goal of exploring joint exchange behaviours is for the actors to elaborate how value can be maximised through the initiation of a new (or changed) activity with other co-actors. To be more specific, we divide exchange behaviour into

1   exchange content

2   exchange context.

Exchange content is either information or materials and other resources. Exchange content can be shared in three different *exchange contexts*: private, representative or institutional contexts (for further explanation, see Section 3.2. *Exchange behaviour* or Eisenberg et al., 1985).

Before an activity can be commenced, it is imperative to understand individual actors' incentives and motivation for joining the collaboration and to answer important related process questions, i.e., "Why should actors exchange content and context with one another?" And "How is each actor rewarded for his/her exploitative exchange behaviour when joining the activity?" Answering these questions can assist in creating clear agreements in the activity, which is fundamental to retaining the network collaboration. When the negotiation is over and an agreement is made, the activity can be commenced.

The activity represents the active exchange behaviour by which collaborating actors seek to create increased value by exploiting the strengths of each other's businesses. Moreover, the activity and the results stemming from it lead to stories about the network, which can support the retention or the disintegration of collaborating actors.

Hence, we argue for the importance of recognising narratives as a core design process that actors can use to support the development of the network and the activities in the network. According to White (1992, p.83), "Stories cite behavior and behavior guides stories". Therefore, actors ought to be encouraged to communicate about their perceived benefits (interpretations) of the exchange behaviour: "How is the activity performing?" and "Does the activity lead to the development of new activities, or not?" Hence, the stories told via narratives do have an impact on the performance of the activities as well as the retention or disintegration of network members (White, 1992). Actors' narratives can lead to new couplings, which, as a reminder, are utilised to make sense of the world of accessible information. This information is used to identify and choose (new) co-actors, to explore new/changed exchange behaviours, and, if agreed upon, to exploit the results of activities.

4.2   Academic implications

According to Zott and Amit (2010), Capaldo and Petruzzelli (2011) and Brix and Jakobsen (2015), it is a highly complex task to balance network activities so that actors' needs for both value creation and appropriability are covered. As a response to their calls for research, we conceptualise the BAS model for collaborative networks. As an activity system (Zott and Amit, 2010), the BAS model consists of three core design elements: actors, exchange behaviour, and activities. These core design elements are influenced by the two process elements: couplings and narratives.

The originality of our research lies in the identification and the conceptualised interaction between the core design and process elements. The explicit utilisation of Bradley's (1995) theory of exchange behaviour enables us to discuss concrete managerial practices of how new joint collaborations can be explored, developed and initiated as activities. Exchange behaviour theory facilitates the division of

1   clear roles

2   explicit responsibilities

3   clear agreements about how the value is divided among the co-actors when (if) created.

Hence, our conceptualised model simplifies the complex process (Zott and Amit, 2015; Amit and Zott, 2015; Capaldo and Petruzzelli, 2011) of designing value-seeking network collaborations among companies with open business models (Puranam et al., 2014).

When the collaborative network is in operation, our study argues for an explicit focus on

1   the strengths/weaknesses of narratives in retaining or disintegrating the network collaboration

2   the use of couplings to identify new or redesigned opportunities.

These two process elements add new viewpoints to activity system theory (Zott and Amit, 2010).

5   Conclusions

We respond to the call for research by Zott and Amit (2010), Capaldo and Petruzzelli (2011), Amit and Zott (2015), and Brix and Jakobsen (2015) by developing the BAS (BAS) model for collaborative networks. Our conceptualisation discusses how actors can utilise loose couplings and narratives to explore potential exchange behaviours, and we suggest how new value-seeking activities can be exploited among the actors in collaborative networks. Moreover, we explain how existing network activities can be redesigned so the benefits of being an active network member are maintained (cf., the introduction).

The BAS model represents a prescriptive approach to the activity system literature on value creation and appropriability in collaborative networks. Existing research (Zott and Amit, 2010; Amit and Zott, 2015) facilitates descriptive explanations of past or existing activities and not the strategic creation and management of future value-creating collaborations. Because our contributions remain conceptual, we invite practitioners and scholars to test the BAS model empirically or to challenge it theoretically so it can be further developed.

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