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Central components of open business models. What makes an open business model open?

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Abstract

The literature review in this paper connects with reviews on business models in general and aims to further increase the level of depth and specificity of the notion of 'open' in open business models (OBM). Our starting point was the idea that an OBM "serves as an organising principle for structuring and coordinating various resources and functional units" (Cheng, 2011, p. 232) that transcend a focal firm's boundaries through "interactive forms of value creation" (Wirtz, 2011, p. 223; Chesbrough, 2006a). By juxtaposing general and open business models, our analysis sheds light on new and open ways to (re-)combine individual business model components—such as customer relationships and key resources—and specifies what makes a component open against the backdrop of general business model components. We present five central topics that characterise the literature on OBM.

Keywords

open business model, openness, community, innovation

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Contents

1. INTRODUCTION

The concept of the business models has successfully found its way into the very core of the analysis and management of firms (Birkinshaw & Ansari, 2016; Zott et al., 2011; Morris et al., 2005). In recent years, openness of business models has gained attention in the research on business models. This perspective allows us to describe how firms "systematically collaborat[e] with outside partners" (Osterwalder & Pigneur, 2010, p. 109) to create and capture value. It was Chesbrough's (2006a) work on the open business model that kickstarted an academic debate on open configurations of revenue models, partnership formats, and product design processes (Weiblen, 2014). In particular, the R&D for new technologies and products appears to link OBMs with the paradigms of open innovation, crowdsourcing, and co-creation (De Medeiros et al., 2014; Lehoux et al., 2014; Saebi & Foss, 2014; Chanal & Caron-Fasan, 2010; Enkel et al., 2009) and specifically with open licenses for soft- and hardware (Howard et al. 2012; Lakka et al. 2011; Pearce 2017). Apart from this reasonably specific application of openness—here R&D—the analysis tends to remain on a meta-level and focuses on the strategic opportunities associated with an OBM. This includes the openness of the business model as a means to "overcome organisational inertia" (Cheng, 2011, p. 232), openness of the company to new ideas from other industries (Bucherer et al., 2012; Chesbrough, 2007; Chesbrough & Schwartz, 2007), or openness as an element of business model innovation (Lindgren et al., 2012; Davey et al., 2011; Johnson, 2010; Wang et al., 2009).

The literature on OBMs remains fragmented and proposed definitions are often unspecific, i.e., it remains unclear what differentiates the OBM from other business models. A more nuanced analysis is thus necessary to describe the specific notions and effects of openness on business models. To date a number of attempts to attain generalizability have been made. Romero and Molina (2011) analysed the sets of organization patterns of customer communities which can be utilized to collaboratively create value. Dahlander and Gann (2010) specified measurable dimensions of outbound versus inbound openness, financial rewards for community members, and the selection of parties that are included in the open sharing of knowledge, ideas, and work.

This paper builds on previous reviews of the general business model literature and aims to further increase the level of depth and specificity of the notion of 'open' in open business models. Our research questions are (1)

'Which business model components enjoy particular importance in an OBM?' and (2) What are the idiosyncratic themes of an OBM?' By juxtaposing general business models to those that are labelled as open, our analysis sheds light on new and open ways to (re-)combine individual business model components—such as customer relationships and key resources—and specifies what makes a component open against the backdrop of general business model components.

Our literature review also expands on the review prepared by Weiblen (2014), who examined scholarly articles to clarify the nature of the OBM paradigm in general. Weiblen found OBM to be "a subclass of the business model concept in which collaboration plays a central role in the value creation and capturing activities of a focal firm" (p. 25). This, of course, highlights the strong overlaps OBM literature has with open innovation (Chesbrough, 2006b).

Based on the review of 35 articles on business models and 38 articles on OBM from 2003 to 2016, we find that both concepts share most components and structures, but that OBMs also feature various idiosyncratic attributes. Our findings include: a) In the OBM literature, communities, partnerships, knowledge sharing, ecosystems, motivations, and the management of IP take centre stage. A focus not just on collaboration, but also joint value creation and capturing is clearly visible. b) The reviewed papers present evidence for the difficulties in distinguishing between internal and external activities and resources and the commercial partners of a focal firm and a non-pecuniary community that supports value co-creation. c) The business model literature views partners mostly as other firms or organizations. In OBM, individuals—i.e., users, customers, private contributors—are introduced as a new group of partners. This sparked a discussion on ways to incentivize and motivate communities and individuals. d) Most OBM papers view openness and the modes of collaboration with communities as a continuum that acts as a core theme—i.e., as a functional principle of the business model. This corroborates previous ideas by Dahlander and Gann (2010), Sandulli and Chesbrough (2009), and Frankenberger et al.'s assessment that the "collaboration of the focal firm with its ecosystem is a decisive or novel element of value creation and capturing" (2014, p. 5). e) External partners such as communities are primarily viewed as supporters of value creation, but not as stakeholders in value capturing activities.

2. THEORETICAL BACKGROUND

Although the use of the term business model reaches back to the 1950s research on business models only took off with the wide diffusion of the internet and its associated new business practices (Da Silva & Trkman, 2014; Zott et al., 2011). The number of publications per year on the topic rose since then signifying the ongoing importance of the concept. Because of the burgeoning research on the topic and the ongoing need for a consolidation of the diverse business model research, literature reviews are regularly conducted and have enjoyed great attention in the past (Weiblen, 2014; Zott et al., 2011). Theory on business models is highly fragmented. Generally speaking, categorizations of these fragments can follow the categories of schools that scholars follow. These categorizations are equally applicable in the case of OBM literature.

2.1 Business model schools and perspectives

Seven schools of business model though can be distinguished: the activity system school, the process school, the cognitive school, the technology-driven school, the strategic choice school, the recombination school, and the duality school (Gassmann et al., 2015). Of those schools, the paper at hand is likely closest to the technology-driven school lead by Chesbrough (e.g., Chesbrough, 2006), who also (co-)coined the term open business model. The paper also has overlaps with the recombination school of Gassmann though, as this research group added to the understanding of OBMs as well (e.g., Frankenberger et al., 2014).

Zott et al. (2011) in their literature analysis found that business model theory mostly focuses on "(1) the networked nature of value creation, (2) the relationship between business models and firm performance, and (3) the distinction between the business model and other strategy concepts" (p. 1031). The analysis of the case at hand primarily fits into the first category proposed by Zott et al., which is highlighted by their assertion that a "business model cannot be reduced to issues that concern the internal organization of firms" (2011, p. 1032). Business models can rather be seen as activity systems that help to explain value creation and capturing activities

This links to Teece's (2010) proposition of a triadic business model system of (value) creation, delivery, and capture. A business model thus ultimately "reflects management's hypothesis about what customers want, how they want it and what they will pay, and how an enterprise can organize to best meet customer needs, and get paid well for doing so." (Teece, 2010, p. 191).

Future research may focus on the elements of business models and their respective innovation processes (Schneider & Spieth, 2013) to clarify the building blocks of business models (Zott et al., 2011) and specifically the management of boundary-spanning resources (Chanal & Caron-Fasan, 2010).

2.2 Openness as a defining element of OBM

A firm is defined by its boundaries, which enable the firm to control the cost of coordination of the firm's activities and resources (Coase 1937; Schilling and Steensma 2002). In the context of innovation a firm's boundaries allow it to profit from innovation by secretly developing new solutions and introducing them to the market sooner than competitors (Teece, 1986). The advantageousness of uniformly and absolutely upholding these boundaries has been challenged since the early 2000s when Chesbrough (2003) described an increasing number of organizations as opting for greater degrees of coordination across their boundaries. This shift is in part influenced by the broad availability and usage of information and communication technology, which has significantly lowered transaction cost (Hitt 1999), has allowed for a higher effectivity of network arrangements (Shapiro & Varian, 1999) and has led to new arrangements such as Bazaar-style organization models (Demil & Lecocq, 2006).

The term 'openness' in the context of business research is thus concerned with the choices, preconditions, and impacts of opening a firm's boundaries to information flows and access to resources. Dahlander and Gann (2010) have identified sourcing and acquiring as inbound processes and revealing and selling as outbound processes in the IS literature. Rather than exchanging information firms open internal resources to external or shared access or by explicitly working with external complementary resources (Boudreau, 2010). In the case of internal resources, firms can grant access to resources or give control over these to external partners.

But why should a firm open up in the first place—particularly by exchanging with non-professional actors as can be observed in the open source hardware and software domain? Benkler (2006) explains that such nonmarket collaborations “can be better at motivating effort and can allow creative people to work on information projects more efficiently than would traditional market mechanisms and corporations” and that the “flourishing nonmarket sector of information, knowledge, and cultural production, based in the networked environment” (pp. 6) gives birth to nonmarket production that can exceed market or firm-internal solutions in terms of efficiency and speed.

3. METHOD

The literature review aims to demarcate OBM from other business models, and to further explicate what openness in fact means in this context. To do so, we compare the business model components discussed in the general business model literature to the components discussed in the OBM literature.

3.1 Screening previous reviews

In a first step, we identified five previous literature reviews on business models (Birkinshaw & Ansari, 2016; Morris et al., 2005; Osterwalder et al., 2005; Shafer et al., 2005; Zott et al., 2011). We call these meta papers, and used them to compile a list of 35 papers that were featured in these reviews. Next, we screened these papers, coded them, and identified themes. These themes were then categorized under the business model modules of the framework proposed by Osterwalder and Pigneur (2010). Osterwalder and Pigneur (2010) developed a widely recognized business model concept that consists of nine building blocks: value propositions, customer segments, (distribution) channels, customer relationships, key resources, key activities, key partnerships, cost structure, and revenue streams. The concept allows us to quickly map a firm's approach to doing business. We chose it as a categorization system for the literature review's findings due to its ability to categorize vastly different configurations of concrete business model tactics and configurations. Two researchers each read the paper and coded statements relevant to business model components, derived and compiled conflating themes that fit into the components, and then discussed any misalignments.

3.2 Preparing the literature review

In a second step, we modelled our literature review on OBM to describe and, to some degree, critically arrange previous works. It is thus not only a summary but also an interpretation of academic inquiries into OBMs. A systematic literature review as a basis seemed most suitable, because the literature on the topic is highly fragmented, features a plurality of definitions, and—especially on a component level—presents merely anecdotal evidence (Petticrew & Roberts, 2006).

To prepare the review, we followed the systematic approach suggested by Jesson et al. (2011) and defined a research question before commencing the planning, searching, weeding, and synthesizing steps. Based on a previous review, we found two question to be critical in setting OBMs apart from other business models:

RQ1: *'Which business model components enjoy particular importance in an OBM?'*

RQ2: *'What are the idiosyncratic themes of an OBM?'*

Next, we defined the selection criteria to be a paper published in a peer-reviewed journal and publications that were heavily cited—such as Chesbrough's (2006a) seminal work on OBM. The JSTOR search filter was applied to limit the results to the fields of 'business', 'finance', 'economics', 'management and organization behavior', and 'technology'. We furthermore decided to only include those publications that discuss business models with regard to organizations. An advanced search of JSTOR's databases was used between September and October 2016, with the command '(ab:("business model") AND (open))', to check for the occurrence of the strings in the abstracts of publications. Because this first search yielded 21 publications, we followed the approach used in Weiblen (2014) and searched for the same terminology with Google Scholar's search engine. Additionally, SSRN was used as a source of work-in-progress papers. Quality control was more difficult in this case, but it enabled us to include most recent academic contributions, e.g., pre-publication or conference papers. Again, abstracts were read and we determined whether the paper integrated or looked into the notion of OBM. Both searches combined yielded a total of 38 papers and books that were included in the final list of OBM publications. This extends Weiblen's (2014) list by 13 papers and represents an updated overview on the topic as a whole.

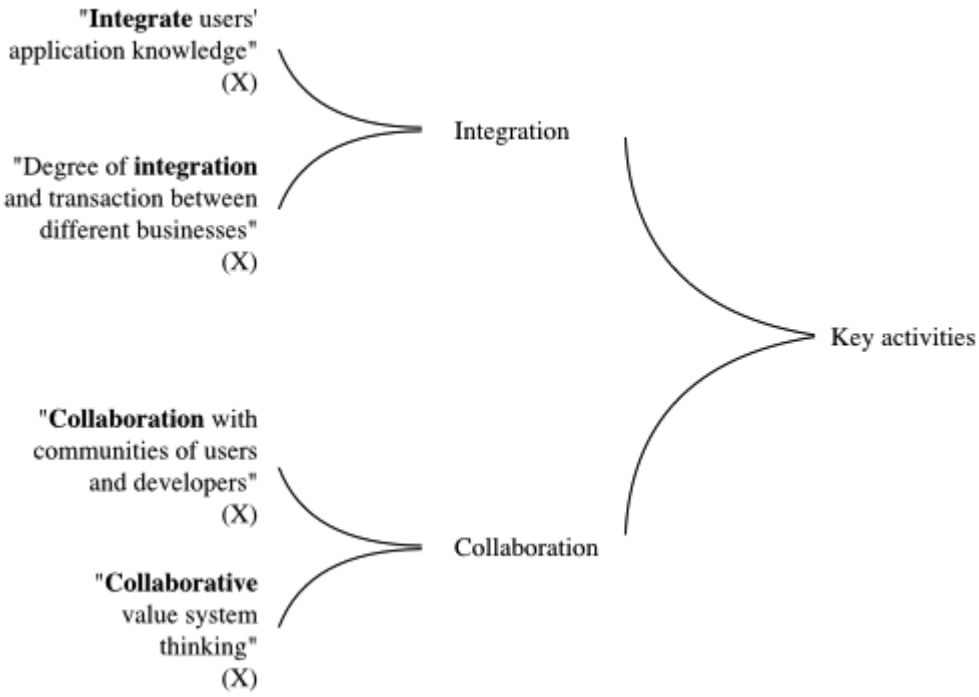

Figure 1. Codes, themes, and matching business model components

Lastly, the literature was screened in the same way business model papers from the meta papers were analysed. The coding and the identification of themes was conducted in a similar manner to the categorization system of the general business models. We provide an example of the coding-theme-component matching in figure 1. Ultimately, we used a total of 166 codes that conflated into 63 themes, and were categorized under the model's nine components by Osterwalder and Pigneur (2010). Table 1 provides an overview over the number of themes and codes in each component category.

BM components	Themes	Codes
Key partners	9	24
Key activities	13	31
Key resources	12	34
Cost structure	1	2
Value proposition	5	23
Customer relationship	7	7
Distribution channel	4	7
Revenue model	7	26
Customer/ user	5	12

Table 1: Modules, themes, and codes of open business models.

4. FINDINGS

Based on the review of 35 articles on business models and 38 articles on OBM from 2003 to 2016, we find that both concepts—general and open—share most components and structures, but that OBMs also feature idiosyncratic attributes. To examine whether one building block of an OBM received more attention than it did compared to general business models, we mapped the relative abundance of citations that each component received.

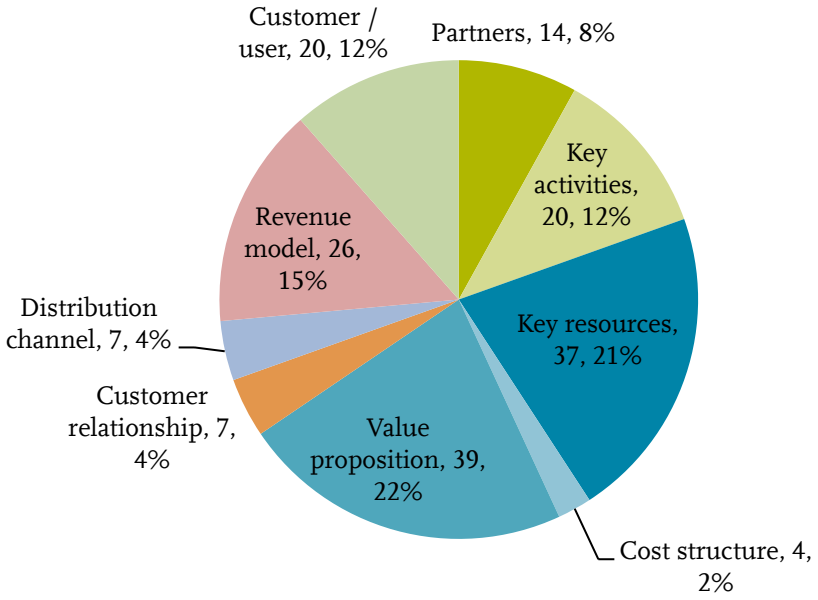

Figure 2: Occurrence of themes in traditional business model papers.

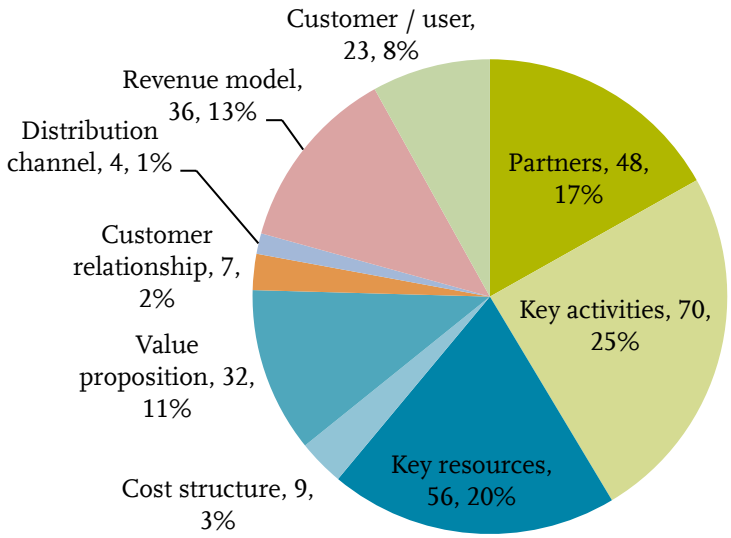

Figure 3: Occurrence of themes in open business model papers.

Figure 2 shows that the literature of general business models emphasize key resources and value propositions, while the OBM literature focuses more on key partners, key activities, and key resources. OBM scholars appear to be twice as likely to talk about partner and activity constellations as the general business model literature.

4.1 Joint value creation

The review shows that there is a new theme in openness literature: joint value creation and capture. We suggest that a shift occurs from linear open innovation and co-creation—i.e., directed in- or outflows of resources—towards circular collaborations. In these settings, multiple stakeholders create and capture value from innovation through a continuous virtuous circle. The authors describe a shared resource that remains transitive, i.e. that can be used by a focal firm and outside stakeholders over an extended period of time. This phenomenon differs from the predominant depiction of information flows (Gassmann & Enkel 2004; Mazzola et al. 2012) in the open innovation literature where resources and/ or IP is either transferred into the firm or outwards from the firm. In the lens of open innovation resources do not remain present at the boundary of the firm. Similarly, in the co-creation literature intense collaborations between different actors are described (Prahalad & Ramaswamy 2004) but the outcome of the collaboration always remains clearly associated with and governed by the focal firm. An example is the co-creation scheme of Lego as described by Schlagwein and Bjørn-Andersen (2014). Co-creators are able to buy products that are based on their ideas but are not be able to access shared designs or IP.

4.2 Differentiating key partners, resources, and activities

We find that key partners and partnerships—exemplified by a scholarly focus on stakeholders (Alexy & George, 2011; Purdy et al., 2012), communities (Bonaccorsi et al., 2006; Colombo et al., 2016), and ecosystems (Purdy et al., 2012; Sabei & Foss, 2015)—take centre stage in the OBM literature. Furthermore, a focus on not just collaboration, but on open joint value creation is clearly evident. Key resources and key activities thus receive great attention in the OBM literature. This leads to two observations: it is difficult to distinguish between, first, internal and external resources and activities that are being used to create value, and, second, commercial and professional firms and non-commercial and non-professional outside communities or individuals.

When papers refer to “outside partners” (e.g., Saebi & Foss, 2015; Chesbrough & Schwartz, 2007; Schaffers et al., 2007) or “external collaborators” (e.g., Colombo et al., 2016; Schaffers et al., 2007), they may be describing professional firms, communities, or single amateur tinkerers alike, and papers rarely define what is meant precisely. Such ambiguity can be readily observed in the domain of open source hardware and particularly in open source software development where collaborators are oftentimes thought of as private citizens, but in reality much of the development work is sponsored by commercial stakeholders (Schrape, 2016). This is combined with a lack of clear divisions between the resources that a focal firm owns and uses through its own activities and the external resources and activities that also partake in the value creation. Figure 4 shows that under the OBM notion there are several manifestations of key resources and key activities. This figure juxtaposes (a) key partners, (b) key resources, and (c) key activities of the general business model and OBM paradigm. Colombo et al. (2016), Saebi and Foss (2015), Chesbrough and Schwartz (2007) and Schaffers et al. (2007) explicitly mention and discuss these characteristics.

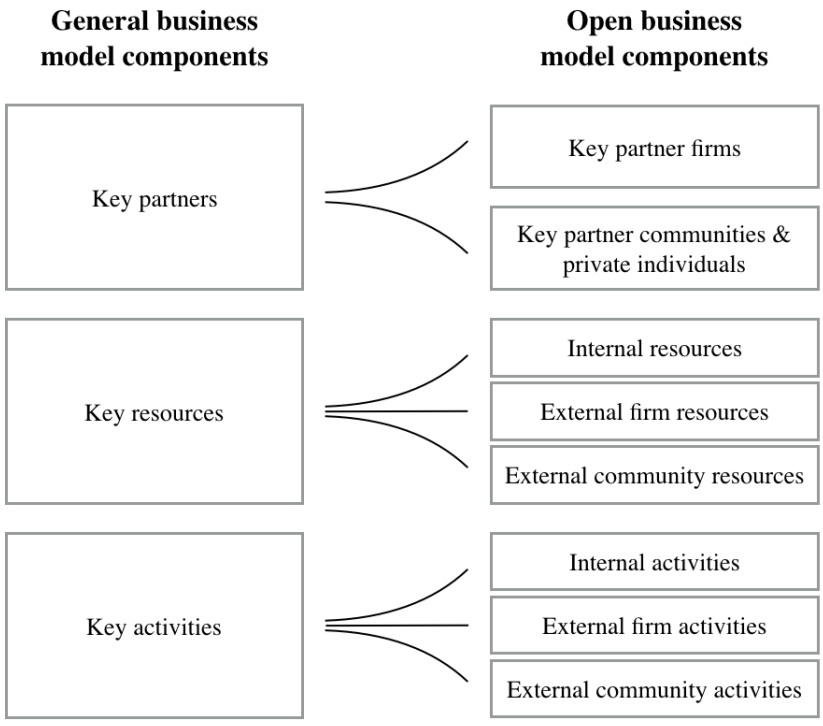

Figure 4: Partners, internal and external key resources and activities

Furthermore, key activities and key resources appear to combine new themes as well. First, licensing and IP management stand out as dominant themes within these modules. This includes an extensive discussion of public

domain resources as part of OBMs (e.g., Chesbrough, 2013; Fitzgerald, 2006). Second, the incorporation of external contributions—again, often IP relevant support—is a key activity under OBM regimes (e.g., Colombo et al., 2016; Bonaccorsi et al., 2006). Third, effective collaboration with agents and efficient interfacing and trust-building appear as pivotal activities in an OBM (e.g., Saebi & Foss, 2015; O'Reilly, 2007). Fourth, the ability to motivate and to foster commitment with the ultimate goal of maintaining a community of external contributors enjoys an amplified scholarly interest in the context of OBM (e.g., Colombo et al., 2016; Krishnamurthy, 2005).

4.3 Opening up the pool of potential partners

As we briefly pointed out above, private individuals are also introduced as a new group of partners. Up to now, business model literature viewed partners mostly as other firms or organizations. Under the OBM logic, single and private individuals can play influential roles in the value creation of a business model. Some authors—such as Colombo et al. (2016), Saebi & Foss (2015), and Krishnamurthy (2005)—make no distinction between the significance of individuals and of large corporations. The network-of-firms and coalition themes—often found under the 'partnerships' module of the previous business model literature—are now partly replaced by a new theme: Any partner, private or corporate, is seen as an equal co-creator within a community. This goes hand in hand with more flexible and more short-term collaborations that focus on specific challenges. Their management by the focal firm thus results in an involvement- and problem-driven cooperation with increasingly individual agents.

4.4 Creating value, but not capturing it

As we discussed above, business models can be viewed as systems of value creation, delivery, and capturing (Teece, 2010). In most reviewed papers we find references to value creation activities within an OBM. External communities and individuals are viewed as supporters of value creation. However, they are not referenced as stakeholders of value capturing or delivery. External developers are merely seen as being possible users of the final product, thus benefiting from its increased utility. They are, however, not considered as participators in the value capturing activities—consequently stripping them of monetary compensation in relation to the product's success, for example. This theme is prevalent in the majority of papers.

4.5 Openness is a continuum

The notion that openness is a critical element of an OBM can be confirmed by this literature review. What is more, openness is not expressed as a condition that is present or not, but rather as a continuum (Dahlander & Gann, 2010; Sandulli & Chesbrough, 2009). Lindgren et al. (2012) explicated that "the degree of openness is really a strategic choice of the business manager. [...] Which part of the business to open? When to open? When to open part or the whole core of one's business" (p. 28). Soloviev et al. (2010) added that "the open and proprietary business models cannot exist in the pure form [because] the proprietary business model gives very little space for innovation, while the open business model gives too weak opportunities for collecting profits." (p. 693).

Finding	Authors
1. Joint value creation	Weiblen 2014; Saebi & Foss 2015; Schaffers et al. 2007; Gassmann, Enkel & Chesbrough 2010
2. Differentiating key partners, resources, and activities	Kindström & Kowalkowski 2016; Chu & Chen 2011; Saebi & Foss 2015
3. Opening up the pool of potential partners	Saebi & Foss 2015; Colombo et al. 2016; Gassmann et al. 2010
4. Openness is a continuum	Sandulli & Chesbrough 2009; Lindgren et al. 2012; Soloviev et al, 2010
5. Creating but not capturing value	Chanal & Caron-Fasan 2010; Weiblen 2015; Holm et al, 2013

Table 2: Central findings and authors.

5. DISCUSSION

This paper's discussion focuses on the theoretical and practical implications of the emphasized themes in OBM. Based on the review, we suggest to split the components of 'resources' and 'activities' into internal and external components to account for the extensive and often diffuse value creation within ecosystems and through communities (Colombo et al., 2016; Chesbrough, 2013; Gassmann, 2010).

5.1 Theoretical implications

One finding that stood out was the identification of new business model components that are specific to OBM. Weiblen (2014) found that scholars are inclined to focus on the value creation rather than the value capturing phase of a business model when relating to applications of openness. We can confirm and corroborate this finding. On top of this, we find evidence that the value

creation perspective—and especially the component of partnerships—now includes any partner that supports a focal firm's value creation. No difference is made between private and corporate partners as equal co-creators within a community. This confirms the observations by Schrape (2016). We can also determine that focal firms and their activities remain the main research interest—rather than networks or communities.

In terms of collaborations, there is an emergent theme of more flexible and more short-term collaborations that focus on specific challenges. Their management by the focal firm thus results in an involvement- and problem-driven cooperation with increasingly individual agents.

Several authors assumed a positive effect of openness, e.g., with regard to an increased customer centricity (Fuller, 2010; Chesbrough & Schwartz, 2007). While seven of the reviewed papers explicitly suggested that consumer communities partake in the value creation, they do not provide clear evidence of this fact. This idea links back to the concept of user innovation suggested by Lakhani and von Hippel (2003) and Raymond (1999). Intrinsic motivations and extrinsic motivations positively affect participation. Intrinsic motivations can include the simple joy of working and a "flow experience" (Lakhani et al., 2002; Raymond, 1999; Csikszentmihalyi, 1975) as well as adhering to the community norm of reciprocity and gift culture (Rose-Ackermann, 1998). An extrinsic motivation can be in the form of gaining reputation in the eyes of their peers or the community as a whole (Lakhani & von Hippel, 2003; Raymond, 1999). In contrast with the notion that contributors are also users, we refer to much focused communities that are working on specific and increasingly technical questions, thus narrowing the field of possible community members to the few who are equipped with a specific skill set. A given contributor may not decide to solve a particular problem specifically because she has experienced it herself. Thus, It is equally possible that community members who are part of an OBM's resource and activity portfolio are not the ones who ultimately buy the product or service. Further research should improve our understanding of this relationship.

Nonetheless, the literature review clearly suggests that the unidirectional logic of business models—which was presumably influenced by the equally unidirectional value chain paradigm—does not perfectly fit the OBM logic. For example, partners and communities can consist of contributors, users, and customers, thus creating a feedback loop and a continuous backflow of ideas and capital from the far right of the canvas to the far left.

5.2 Practical implications

Business models are being used in research and practice as scale-models, scientific models, and as a kind of recipe (Baden-Fuller & Morgan, 2010). As simplified "scale-model" BMs facilitate the identification of defining characteristics for new businesses. In theory building research, business models act as a base for theorizing and investigation of the business reality. For practitioners business models are simplified plans that guide firms' innovation and experimentation. Opening one's business model has thus far been discussed as a means to increase firm performance and capacities to innovate (Davey, 2011; Johnson, 2010; Chesbrough, 2006a). The systematic and comprehensive analysis presented in this study allows practitioners to holistically examine their business model and tactically adjust individual components of it. The review indicates the degrees of openness of specific components and thus serves as a guide for managers and their own adjustments.

Finding	Practical Implications
1. Joint value creation	● OBMs can facilitate access to IP, ideas and talent ● Firms might need to attune their own IP approach to commit to shared resources ● OBMs can facilitate differentiated feedback on complex solutions
2. Differentiating key partners, resources, and activities	● Legal requirements of the focal firm have to be flexible enough to accommodate a fluid set of contributors ● To account for contributions, distinctions between internal and various kinds of external elements is key
3. Opening up the pool of potential partners	● Any partner, private or corporate, can be seen as an equal co-creator within a community ● Operations need to be (re-)tailored to account for a variety of potential stakeholders
4. Openness is a continuum	● Need for continuous balancing of degree of openness ● Steps towards gradual openness are feasible and complete openness is not a prerequisite
5. Creating but not capturing value	● Joint value capture could secure long term motivation and commitment of all partners ● Viability of early stage initiatives could be improved by joint value capture

Table 3: Central findings and practical implications.

Joint value creation—Our findings suggest that businesses are only beginning to take advantage of joint value creation and continued sharing of resources. However, when firm engage in such behaviour it can facilitate access to IP, ideas and talents. In the case of open source software leading

corporations like Intel and Microsoft are known to be the largest contributors to open source project while in the case of open source hardware only few and smaller firms like 3D Robotics, Ultimaking and Local Motors Firms actively use the approach. Both large firms and SMEs might need to attune their own IP approach to commit to shared resources. Both software projects and the case of Ultimaking show how the approach facilitates differentiated feedback even in the context of complex solutions.

Openness is a continuum—The review also corroborates the notion that there are only degrees of openness. For managers, this implies that they ought to strive for strategic gradual and not necessarily complete openness—or closeness for that matter (Lindgren et al., 2012). We also showed that the dichotomy between internal and external resources—such as information or capital—is likely to grow in significance with an OBM. Practitioners will have to pay close attention to the appropriability of innovations that were created in collaboration with an, often indefinite and vague, community. Firms might be quickly accused of parasitic behaviour (Dahlander & Magnusson, 2005) if they misinterpret or ignore rules of their communities. The value capturing components of an OBM ought to be a central element of a manager's strategy to generate profits. Sustainability can only be achieved if a business is able to actually capture the value that was created under an open regime. OBMs are likely to make this more difficult, but they might also be the only configuration that allows for quick and efficient adjustments to changing market environments.

5.3 Limitations

The main motivation for this literature review is also its main limitation: Due to the newness of the notion of OBMs and the fragmented discussion on components, characteristics, and definitions, we could only draw on a limited number of journal articles and books that met our quality standards. This paper's consolidation of terminologies across the sample of publications also certainly reduced the nuances that individual authors added to the description of an OBM. As this paper is a literature review, we also did not engage in extensive discussions about new OBM categorization systems or use practical examples other than the ones mentioned in the reviewed literature.

5.4 Future research

There is an obvious lack of quantitative analyses of OBMs. Only Kindström & Kowalkowski (2016)—who used a set of over a hundred practical examples of open setups—contributed a perspective that goes beyond the anecdotal. Such

empirical research might also allow for the differentiation of business model components that are truly idiosyncratic to an OBM. It would also be worthwhile to further investigate the notion of user-contributors versus contributors who do not buy or use final product but participate in the value creation interval nonetheless. A more in-depth analysis of (a) what drives these individuals and (b) why they do not consume the fruits of their labour would greatly add to our understanding of openness in the context of business models and beyond.

6. CONCLUSION

In this paper, we highlighted new and differentiated attributes of OBMs and five central topics of OBM. The activity of continued and joint management and generation of IP was identified as an integral part of an OBM. Collaborators now appear to stretch beyond formal organizations and communities to individual and private agents that enjoy the same level of importance for value creation and can play different roles in the business model. There is also evidence that the mode of collaboration stretches from short-term and problem-driven openness to openness as a central element throughout the business model thus showing that openness can have different levels on a continuous scale. Most papers we reviewed suggest that OBM do not follow the unidirectional value processing that general business models exhibit. Rather, users and customers contribute to the value creation activities and consequently gain from the increased quality of the final product. However, while the review clearly showed that openness-driven value creation is well discussed, value delivery and even less so value capturing that involves and benefits more than a focal firm is not. Why this is remains a matter for future research.

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