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THE COMMUNITY BOUNDARY DE-PARADOXIFIED

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ABSTRACT

Communities and firms increasingly gather in collaborations in order to enhance value and produce innovation. It is in the interfaces between communities and firms that the potential for innovation lies. However, it is also in these interfaces that different rationales clash and conflicts arise. In order to improve connections and collaborations across interfaces, it is therefore necessary to improve our understanding of the community boundary construct. Existing studies of community boundaries within the user innovation literature predominantly describe boundaries as incentives for user participation without a clear distinction of what is part of the community and what is not. This gap is intensified by the emergence of virtual communities, where the notion of boundary is even more distorted.

The paper suggests a new construct of virtual community boundaries that sets up the distinction between community and its environment differently from existing studies of virtual communities. Instead of taking its starting point in the users, the paper takes an organizational approach and focuses on the function of the community boundary construct. Hereby, the paper shows how community boundaries related to user attributes, identity and power produce specific managerial implications that firms must be reflexive about when inviting communities in.

Keywords: community boundary, user-driven innovation, systems theory

INTRODUCTION

The purpose of the paper is to add to the growing debate about community and firm collaboration within the user innovation literature. The paper follows the existing line of thought that community boundaries are enabling community growth and follow the notion of Jarvenpaa and Lang (2011) that virtual community boundaries have still not been fully described in the existing literature. In that regard, Jarvenpaa and Lang offer valuable insights into the interdependencies between different boundary logics, arguing that management of boundaries is essential in order to balance the tensions between community and firm rationales and avoid disintegration of communities (Jarvenpaa & Lang 2011). However, to our knowledge a proper concept of community boundaries that explains the complex and transformative dynamics at stake when communities and organizations interact is still lacking. Thus, responding to Jarvenpaa and Lang's call for a more complex understanding of boundary logics (Jarvenpaa & Lang 2011: 452) we propose a new construct of virtual community boundaries. Instead of approaching the community phenomenon from the outside, this paper explores the community phenomenon from the inside, thus combining the existing literature with an organizational view on community boundaries.

Context

A growing number of firms employ communities to create value, e.g. to build brands, support product use, collect feedback and ideas as well as charge community-

based customer access fees (Jeppesen & Frederiksen 2006). Collaboration with communities allows firms to get access to resources that cannot be bought in the market (Dahlander & Wallin 2006: 1247), and a growing stream of literature suggests that firms can benefit from sources of innovation that stem from outside the firm (von Hippel & von Krogh 2003). Interactions between communities and firms appear in many forms and communities can emerge and exist outside organizations (von Hippel 2007), inside organizations (Wenger & Snyder 2000), across organizations (Wenger & Snyder 2000), and in collaboration with organizations (Jeppesen & Frederiksen 2006). Thus, boundaries between communities and firms may be fluid as they depend on the community/organization set-up and may not be stable over time. Hence, it is difficult to demarcate what is part of the community and what is part of the organization. Furthermore, communities are beyond the hierarchical realms of firms, which makes it difficult for firms to manage the direction of development (Dahlander & Wallin 2006, Dahlander & Magnusson 2005, 2008). Therefore, interplays between communities and firms produce new managerial challenges and clashes between community and firm rationales cause conflicts (Dahlander & Magnusson 2005, Jarvenpaa & Lang 2011).

Even though user innovation related to consumer products, where innovation happens outside the firm, receives still more attention within the user innovation literature, the relations between firms and communities outside the formal boundaries of firms have been less examined (Dahlander & Magnusson 2005: 482, 2008: 630, West & Lakhani 2008: 229, Dhanarej & Parkhe 2006, Dahlander, Frederiksen & Rullani 2008: 116). Thus, a better understanding of the complex dynamics at stake in such relations seems pressing in order to strengthen the basis for collaboration and avoid disintegration of communities. Here a better understanding of the community boundary construct is crucial (Jarvenpaa & Lang 2011).

Virtual user communities

User communities represent a new kind of non-hierarchical, fluid organization where boundaries are not set up by traditional transaction logics (Williamson 1985), the cost of communication, coordination and new combinations (Kogut & Zander 1996 in Hoffmann 2012) or formal membership and decisions in force (Luhmann 2005). Instead, community boundaries seem highly permeable and dynamic, which poses a challenge to traditional organizational boundary literature – a challenge that has been intensified by the Internet and the emergence of virtual communities. Virtual communities are hardly restricted to a single medium in that member relationships sometimes are facilitated via face-to-face encounters and, at other times, are mediated by technology, which makes it even harder to demarcate what is inside and what is outside the community (Preece & Maloney-Krichmar 2005).

Within user innovation literature virtual communities have been studied in various forms such as virtual or online community (Ren, Karut & Kiesler 2007, Li & Salomo 2011), community of practice (Wenger & Snyder 2000, Muller 2006), innovation community (West & Lakhani 2008, Houman Andersen WP 2011), production community (O'Mahony & Ferraro 2007), open source community (von Hippel 2006, O'Mahony & Ferraro 2007), user community (Jeppesen & Frederiksen 2006), user innovation network (von Hippel 2007), and collaborative network organization (Dutton 2008)ⁱ.

Existing studies mostly examine the community phenomenon from the outside, employing a user-centric perspective on community boundaries as mechanisms for encouraging user participation. Boundaries have predominantly been related to the logic of power (West & O'Mahony 2008, Dutton 2008), identity (Ren, Kraut & Kiesler 2007) and particular user attributes (Jeppesen & Frederiksen 2006).

Although the existing literature has provided valuable insights on reasons for user participation and contributions, boundaries have typically been studied isolated relating to singular issues of interest (Jarvenpaa et al. 2011) and predominantly within open source software. Thus, the construct of community boundaries appear context specific and hard to apply in general terms, since software communities (where groups collaborate in software production for non-commercial or proprietary reasons) may have different perspectives on e.g. membership, knowledge-sharing and property rights than communities that produce other types of information and physical goods (West & Lakhani 2008). Furthermore, the focus on community boundaries is limited to individual cognitions and intentions. Such focus makes it difficult to explore managerial implications other than those related to the users and their participation.

Instead, this paper explores the community boundary as an organizational construct that constantly oscillates between what is part of the community and what is part of the organization, hereby affecting not only user participation but also the boundaries of the firm. Such a boundary concept provides a richer explanation than what is currently offered within user innovation literature regarding collaborations between communities and firms, by clarifying the interdependence between community and firm boundaries. Drawing on existing studies, the paper derives propositions of managerial paradoxes that are invited in when firms try to learn about their products and pick up innovations.

We use a theory that explicitly considers the existence of boundaries as a premise for the stability of the system, namely systems theory (Luhmann 2005). From a systems theoretical perspective we take the notion of boundaries – in particular the concept of environment - and test its applicability in explaining the concept of virtual community boundary. By introducing systems theory to the user innovation field, the paper develops propositions that can explore and enrich existing community theories and add to discussions on the interplay between communities and firms as well as between different communities with regard to user-driven innovation.

The paper is structured as follows. The following section reviews the user innovation literature on virtual community boundaries. Then, the premises of systems theory are briefly introduced and modified in order to explain boundaries of virtual communities beyond the users and their effect on organizations. On the basis of systems theory, the aim is to develop a boundary concept that can be first abstracted to a general concept and then re-specified to a variety of community types that represents the empirical field. We derive propositions concerning the managerial implications for firms when they invite communities to cooperate.

COMMUNITY BOUNDARIES DEFINED BY USER INNOVATION APPROACHES

Collaboration between communities and firms seem to have great potential and has been addressed by a still growing stream of literature. Literature on alliances (Gulati

1998) has emphasized reasons for collaboration such as reduced costs and time to market, network effects and opportunities for organizational learning, and questions about how firms can benefit from innovation emerging from outside firm boundaries have been raised by open innovation literature (Chesbrough 2003). However, studies within these streams have a firm-centric perspective and focus on interfirm cooperation within a given industry or sector. Even though this paper takes its starting point in organizations, the central theme is community boundaries, thus our review will be of the user innovation literature that more directly addresses the community phenomenon (von Hippel 1976, 1988)ⁱⁱ.

Scholars within user innovation literature have pursued the quest for discrete community characteristics. For example characteristics have been discussed as degree of openness (Dutton 2008), hands-off leadership (O'Mahony & Ferraro 2007), identity (Ren et al., 2007), social norms (Muller 2006), and motivation (Jeppesen et al., 2006). The characteristics discussed tend to relate to the users; their role in the innovation process (von Hippel 1976, 1988) and their practices within communities (Brown & Duguid 1991). Likewise, boundaries have predominantly been studied as incentives for user participation. Such studies have provided valuable insights on the rationale of the users, but have limitations when it comes to explaining community dynamics beyond the users.

The paper seeks to explore community boundaries as a distinction between the community and the users in order to analyze the two phenomena in their own right. Hereby, the paper avoids dissolving community boundaries into individual network relationships. However, the intention is not to marginalize individual relationships (and the role of users). Instead, the ambition is to explore the mutual correlations and interdependences between the internal elements of the community construct and its users (Seidl 2005, Luhmann 2005). Such perspective offers a more varied understanding of the complex dynamics at stake when firms interact with communities and their (external) users, hereby providing a better understanding for collaborations across interfaces.

User attributes as boundary logic

Communities usually have less authority and control over their members than established organizations and are therefore dependent on people's voluntary commitment and contributions. Thus, many studies have raised the question of how to attract quality contributions from voluntary members and users and explore the rationale for freely revealing innovations (O'Mahony & Ferraro 2007, Franke & Shah 2003, Jeppesen & Frederiksen 2006, Laat 2007, Ren Kraut & Kiesler 2007).

User commitment and voluntary participation have been explained in terms of attracting the right user attributes to the community (Jeppesen & Frederiksen 2006, Wenger & Snyder 2000, Franke & Shah 2003, Laat 2007). According to Jeppesen & Frederiksen (2006) members are driven by intrinsic motivation such as learning and improvement of skills and extrinsic motivation such as reputation and career opportunities. From their study of a firm-hosted community, boundaries encourage the motivation for sharing by including specific user attributes into the community (Jeppesen & Frederiksen 2006). That means that boundaries produce motivation by favoring and attracting the right user attributes. These attributes are related to work-status, firm-recognition and lead user characteristics. Firstly, hobbyists seem more

engaged in participating in innovation activities than professionals since they have a higher level of intrinsic motivation (Jeppesen & Frederiksen 2006: 57). Secondly, users are driven by recognition from firms and like to have their innovative work acknowledged openly in the community. This also indirectly leads to peer recognition. Finally, successful innovations are often made from lead users, since they have a desire to solve a given problem as well as a wish for recognition from the firm-hosting community. In sum, strategic boundaries of firm-hosted communities should include hobbyists and lead users in the community and encourage open and accessible acknowledgement of user contributions if innovation is the objective. Such concerns are valuable for understanding cognitions behind motivation. However, community boundaries are studied as a stable distinction between what is included and excluded from the community. It is not taken into consideration that different boundaries may interact and in doing so change the conditions for producing motivation (Jarvenpaa & Lang 2011) and that community boundaries constructed within an organization may transform/ and for example professionalize the hobbyist attributes.

Identity as boundary logic

In order to encourage voluntary user commitment, Ren, Kraut and Kiesler (2007) argue that the key logic of virtual community boundaries is identity. Drawing on common identity and common bond theory Ren et al. argue that people choose to be part of a community because they like the community group as a whole, its purpose or topic (group identification) or because they feel socially or emotionally connected to particular individuals in the group (individual identification). Hereby, boundaries determine the reasons for contributing to the community by favoring one of the two forms of attachment (group or individual). Through a review of research articles from the social psychological literature, Ren et al. show how online communities have created shared group identities by defining a collection of people as members of the same social categorization (e.g. organizational membership or political values). Interpersonal or bond-based attachment has typically been created through a high frequency of social interaction and self-disclosure that creates opportunities for learning about each other (e.g. through private messages and personal user profiles). Furthermore, manipulated perceived similarity among members has been used to strengthen the inter-personal attraction (Ren et al. 2007: 387). It is shown how the two dimensions of attachment produce different behavioral outcomes and depending on the goal of the community it is a strategic question which dimension to favor. Ren et al. argue that such design choices will always be a trade-off and a challenging task to manage so that emphasizing the personal bonds between members do not reduce their chances of becoming attached to the group as a whole.

Some communities may produce both forms of attachment (e.g. the Wikipedia community where personal pages provide an opportunity for contributors to get to know each other while discussion pages allow topic-based discussions) (Ren et al. 2007: 396) and some communities may transform from one kind of user attachment to the other. For example when group identity-based communities shift towards supporting and promoting interpersonal connections among members (Ren, Kraut & Kiesler 2007: 401). Ren et al. point to the challenge of managing communities in which both types of attachment are important. However, they do not elaborate on the potential of activating both forms of attachment simultaneously. Instead, they conclude that communities favor *either* group-based or individually based attachment and invite for more research on the dynamic evolution and transformation of online

communities. The current lack of a conceptualization that can grasp such boundary transformations and transgressions limits the visible scope of strategies that can handle conflicting demands in complex situations. This paper develops a boundary concept that can explore such strategies.

Power as boundary logic

Studies that describe boundaries related to power have mostly used the term to explore governance mechanisms and the design of community platforms (Dutton 2008, Pisano & Verganti 2008, West and O'Mahony 2008). From this perspective, boundaries reflect a constant trade-off between control of key resources and community growth and determine user participation by balancing control and openness (i.e. transparency to follow the community's process of development and accessibility for participants) (Dutton 2008: 223). West and O'Mahony (2008) compare autonomous, open source communities where the community arises from the users on a voluntarily basis to meet their own needs with sponsored onesⁱⁱⁱ. In the latter, the community is initiated and sponsored by a firm and the sponsor organization tends to take a lead on boundary activities such as availability and accessibility of resources in order to maintain control^{iv}. However, the firms often try to mediate between retaining control and providing open access for external participation in order to meet the conflicting goals of ensuring that communities remain aligned with corporate strategy as well as provide unfettered opportunities for participation (West et al. 2008: 162). Within autonomous open source communities boundaries typically favor not only transparency (of the code and software production process), but also accessibility, hereby providing a wider access for external participants to key decisions. West and O'Mahony argue that autonomous communities typically are more successful in attracting new members, since participants are attracted by the ability to make direct contributions to the code (West & O'Mahony 2008: 162).

West and O'Mahony note that boundaries of autonomous and sponsored communities may transform and a community therefore may transform from an autonomous community into a sponsored one or vice versa (e.g. Mozilla, now Firefox and Eclipse). However, they also acknowledge that examinations of such dynamics are scarce and call for more studies that can clarify transformations as well as their consequences for the community (West & O'Mahony 2008: 165).

Boundary management

Jarvenpaa and Lang (2011) criticize existing studies of community boundaries for not seeing the interdependences between different boundaries (Jarvenpaa et al. 2011: 442). They encourage to raising awareness of the combined effects and synergies of boundaries and hence the importance of boundary management. Boundary management involves mediation between boundary distinctions such as openness and control or standardization of production processes and availability and accessibility of diverse resources. Such mediation is necessary in order to balance the tension caused by conflicting goals within communities and avoid disintegration of the community (Jarvenpaa et al. 2011).

The review shows that boundaries so far have been described from three levels of complexity. On the first level, boundaries related to user attributes are described as a stable distinction that either include or exclude particular user attributes. On the

second level, boundaries related to identity and power are described with a transformative potential that makes it possible to mediate between the two (conflicting) sides of the boundary distinction, reflecting the dominant goal of the community. On the third level of complexity, boundaries are described with a ‘double’ transformative potential that opens up for not only mediations within the particular boundary distinction, but also between different and co-existing boundary logics that may reinforce or limit the effect of the individual boundary. These understandings of community boundaries are summarized in table 1.

Table 1^a Boundaries defined by user innovation approaches.

Logic of boundaries	Distinctions	Characteristics	Research strategy	Key papers
User attributes	Exposure/no exposure Hobbyist/professional Lead user/user	Boundaries produce user motivation by including visible acknowledgement of user contributions, hobbyists and lead users as part of the community. The distinction between what is preferably included and excluded is stable – only one side is favored	Case study of a firm-hosted user community	Jeppesen & Frederiksen (2006); Shah (2006)
Identity	Group/individual	Boundaries produce user attachment by establishing the community as a nexus of (interrelated and individual) members or as a collective unit. Both sides of the distinction can be productive but not favored at the same time (it is a constant trade-off)	Empirical and theoretical social psychological literature of online communities	Ren, Kraut & Kiesler (2007)
Power	Open/closed	Boundaries influence user participation and commitment by mediating between a closed and open platform design. Both sides of the distinction are emphasized reflecting conflicting goals, but not simultaneously (it is a constant trade-off and act of balance)	Case study of 12 sponsored open source communities contrasted with prior research on autonomous communities	West & O’Mahony (2008); Dutton (2008)
Interdependence	Identity ↔ power (and other boundaries)	Boundaries influence each other and should be managed in order to produce mutual synergies	Case study of 2 online communities (firm-hosted and autonomous)	Jarvenpaa & Lang (2011)

^{a)} The table partially draws on Jarvenpaa and Lang’s (2011) review of online community boundaries (Jarvenpaa & Lang 2011), but instead of exploring the combined effects of boundaries, we explore boundaries as transformative distinctions and as more than incentives for user contribution.

Based on the review it is possible to add a fourth level of complexity to the description of boundaries. From a system theoretical framework it becomes visible that boundaries not only mediate alternately between each other and their particular

distinctions, but also may oscillate between what is included and what is excluded *simultaneously*. Hereby, new explorations of how community boundaries can be managed in order to tackle conflicting external demands, without forcing the community or organization to neglect always one dimension of for example identity and power can be put forward. The next section develops such a transcending boundary construct by introducing the system theoretical notion of boundaries. Drawing on this boundary construct the paper puts into relief the managerial implications and paradoxes firms run into when they try to access resources that cannot be bought in the market.

THE NOTION OF BOUNDARIES ACCORDING TO SYSTEMS THEORY

A key element of systems theory is the divide between system and environment. A system only is what it is by virtue of its distinction from the environment. Therefore, the notion of boundary is essential (Luhmann 2006: 38, La Cour 2006: 42-43, Becker 2006: 121-122). A boundary is defined as the demarcation line between one system and another (the environment). From this perspective the existence of a system depends on its ability to set up an appropriate boundary that distinguishes it from the environment (Becker 2006). When firms collaborate with communities the construct of a community boundary challenges the firms own boundaries, which poses new opportunities and risks for the organization.

Organizations regulate their boundaries to the environment by appointing membership of the organization (Luhmann 2005: 240). Therefore, the demarcation line of the organizational boundary goes to the point where the decisions of the organization are no longer in force – if you are not a member of the organization, you cannot be linked to the decisions in force. In other words, you are no longer part of the organization if it has decided to exclude you from membership. Thus, organizations set up their boundary through the distinction member/non-member. Leifer and Delbecq (1987) define an organizational boundary as the demarcation line or region between one system and another that protects the members of the system (Hoffmann 2012: 69).

However, communities differ from organizations in the fact that membership is not formally decided and community boundaries form different distinctions (i.e. user attributes, identity and power). When firms invite communities in to cooperate, the community construct interferes with their organizational boundary and provides new opportunities for couplings between the organization and its environment. Therefore, in the following we describe key concepts that can be applicable in explaining the interdependence between organizations and their construct of community boundaries.

Autopoiesis

An organization is a social system and as such an *autopoietic* form that (re)produces itself on the basis of its internal elements. Autopoiesis is originally a biological concept used to describe what distinguishes the living from the dead, namely that a living system reproduces itself (Maturana & Varela 1975). Luhmann modified this concept and applied it to the social domain and non-living systems (Seidl 2005: 21). That means we speak of a firm as autopoietic whenever the elements of the firm are reproduced by the elements of the firm itself. Therefore, even though firms have contact to their environment, external events (such as user behavior) will always be operated from within the internal logic of the firm and therefore not allowing a direct understanding of customer needs, product use etc. The meaningfulness or

meaninglessness is determined by what makes sense or not for the firm in question (Wilke 1987: 30). Therefore, in order to pursue their desire to get to know users that do not let themselves be known, firms invite communities inside their organizational boundaries, hereby trying to make the externality of the community accessible. This creates a paradoxical constellation in that users are included and as such become members of the organization only due to their *non-membership* of the organization – only as an external resource that firms cannot access, the users are relevant to include in the firm, where they can be accessed and provide the desired value for the firm (cf. Dahlander & Wallin 2006).

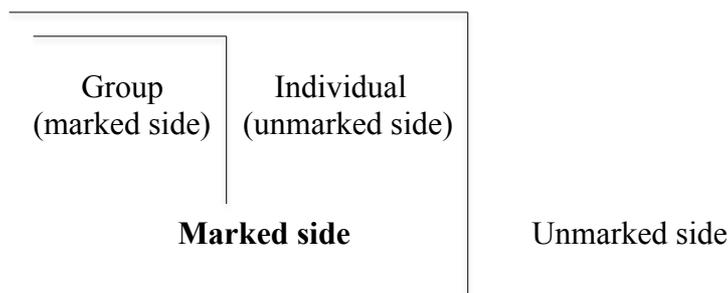
In order to improve the conditions for firm and community collaboration it is important to understand how the firms’ desire to know more about products and pick up innovation activities acts up and produces new risks and challenges as well as opportunities. To shed light on this, the next section applies the system theoretical notion of distinction to the concept of community boundaries as presented by the existing user innovation literature.

Distinction

A central building block in systems theory is the theory of distinction based on George Spencer Brown’s Laws of Form (1969) (Seidl & Becker 2006: 11). Drawing on the theory of distinction, boundaries are understood as a clear distinction between what is included and excluded into the system, by marking one of the two sides of the distinction (included/excluded) (Luhmann 2005: 75, Luhmann 2002: 101). The identity-related boundary is an example of this, when it mediates between including group cohesion and individual bonds (cf. table 1). What is marked is what is observed and as such gains meaning on the basis of something different – the other (unmarked) side of the distinction (Luhmann 2005: 75, Luhmann 2002: 101).

However, according to Luhmann, a strategy that more openly adapts to the dichotomous demands that communities are exposed to (e.g. demands of group identity *and* personal bonds to particular members) may also be applied by including both sides of the distinction at the same time. Hereby, the boundary logic of identity is visualized as *transboundary* and the community construct constantly oscillates between group forms and individual forms of identity, which is a paradox (Luhmann 2002: 101). This can be conceptualized as a nesting of two interlocked distinctions. The first distinction distinguishes the marked side (group) from the unmarked side (individual) and the second distinction distinguishes the chosen alternative (marked side) (i.e. group *and* individual) from the excluded alternative (Fig. 1).

Fig. 1



The decision that is made on the basis of the boundary distinction in question is the combination of these two distinctions, thus favoring group attachment and individual attachment at the same time. Such a transgressing boundary construction is paradoxical, because the community construct “*reappears as part of its own space, as part of what it distinguishes. It is the same and not the same, depending on the observing system that identifies or distinguishes the two levels of the re-entry*” (Luhmann 1993: 485). By transgressing the distinction between ‘group’ and ‘individual’ identity, the community construct becomes the same and not the same – at the same time. This means that what is different (group identity and individual identity) becomes the same, because the two sides of the distinction is favored at the same time. And what is the same (group identity) becomes different (individual identity), because group identity is now also marked as individual identity. Luhmann describes such a paradox as a *re-entry* of the excluded side of the distinction into the included side of the distinction by which both sides are being marked at the same time.

Applying such transformative attributes to the construct of community boundaries has implications for decision-making. When the distinction between group and individual attachment is no longer drawn, the decision communication cannot assign more value to one form over the other. So, when such a (paradoxical) strategy is applied, the communication is no longer definable, which means that it loses its ability for connection and continuity of further communication (Luhmann 2005: 71). Instead, the communication is caught in constant oscillation between conflicting expectations of group forms and individual forms of attachment. This opens up for challenging managerial questions of how to make design decisions, when for example it is not possible to make out whether to organize the community around common topics or personal connections and awareness of the individual members (cf. Ren et al. 2007: 395). Thus, paradoxes may seem paralyzing and threatening.

However, from a system theoretical point of view, paradoxes are productive in that they “force” the organization to “de-paradoxify” in order to continue communication and further decision-making. Hereby, paradoxes are understood as “*a starting point for further evolution*” and not as a destructive collapse of action (Teubner 2006: 47, Luhmann 2005: 72). In other words, paradoxes become productive when they are managed and in that connection community boundaries can be constructed as a means of “deparadoxization” (Seidl & Becker 2006: 26).

Community boundary as a de-paradoxifier

Drawing on the notion of *autopoiesis* and *distinction* we can construct the community boundary as a means for the firm to connect to its environment and manage the paradoxical demands this may produce. Hereby, the community boundary is constructed as a “de-paradoxifier”. As a de-paradoxifier boundaries are more than incentives for user participation. Instead of adapting to user behavior, the boundaries adapt to paradoxes. This functional approach to boundaries offers the analytical ability to explore transformative and transcending boundary dynamics and with that a new awareness of the managerial implications firms enter into when they interact with communities.

The next section will unfold such implications by first developing propositions of the opportunities a de-paradoxifying community construct creates for organizations and

hereafter elaborating on the risks that such a boundary construct may also trigger, deriving propositions for managerial challenges.

ORGANIZATIONAL IMPLICATIONS WHEN COMMUNITY BOUNDARIES ARE EXPLAINED AS A DE-PARADOXIFYER

The new construct that should be used when studying community boundaries is the de-paradoxifyer. Such boundary construct makes it possible to observe the logics of user attributes, identity and power not necessarily as a trade-off between conflicting goals (cf. table 1), but instead as a transboundary distinction that favors both sides of the three distinctions equally. This produces new opportunities for firms when managing identity, power and user attributes.

Applied to studies of identity (Ren et al. 2007), it becomes observable that the community boundary seeks to construct the community as both a nexus of individual members and a collective unit (cf. table 1). By including both of the two identity forms (“group” identity and “individual” identity), the community construct attains a *double attribution* of identity. That is, the community obtains an attribute of multiple identities. Such a double attribution of identity may open up for accessing new environments (i.e. users) that would not be accessible to the organization, were the community construct exclusively either a mere nexus of individuals or a mere collective unit (cf. Teubner 2006). Therefore, we suggest the two following propositions:

Proposition 1: Organizations that are confronted with user demands of diverse identity forms tend to use a “transboundary” community construct that favors group cohesion and personal bonds, simultaneously.

Proposition 2: Organizations that favor group cohesion and personal bonds at the same time are more likely to attract multiple users and access new user environments.

Likewise, when firms attempt to mediate between open access and hierarchical control (West & O’Mahoney 2008), they may unfold the paradox by constantly oscillating between the two opposing power forms. Hereby, firms can professionalize for the purpose of control and fulfill the function of open participation at the same time. Such a strategy invites organizational decisions (i.e. control) into the community, hereby seeking to bridge the hierarchical and formalized communication of firms with the community rationale of reciprocity (cf. Bommers & Tacke 2005, Dahlander & Wallin 2006, Dahlander & Magnusson 2005, 2008). This may open up for understandings of the code that drives the community as well as the organization and hereby makes it easier to connect and collaborate. Therefore we suggest the following proposition:

Proposition 3: Organizations that invite communities in tend to use a “transboundary” community construct that favors control and open participation, simultaneously.

By “inviting communities in” we refer to collaborations where firms approach and interact with an already existing community or invite external users to participate in a community created by the firm.

As described a transboundary (de-paradoxifying) construct of the power-related community boundary produces new opportunities for organizations that wish to access their user environment. Thus, we add the following proposition:

Proposition 4: Organizations that favor control and open participation at the same time are more likely to connect to the code of the community construct and develop successful collaborations.

Exploring the boundary construct as a de-paradoxifier hereby illustrates new strategies available for firms that wish to learn more about their products. Instead of examining the way communities mediate between open access and hierarchical control or between group identity and individual identity, it is thus possible to explore how firms may invite the paradox in through a transboundary and de-paradoxifying community construct. This exposes new possibilities for configurations and couplings across community and firm boundaries. However, it also triggers new constructs of user categories and produces new paradoxes that firms must be reflexive about when playing with the community construct. Even though paradoxes can be managed, the paradox cannot be solved or eliminated (Luhmann 2002: 102). The ultimate undecidability of the transboundary ‘identity’ and ‘power’ distinction is merely moved out of sight. This means that it is a matter of time before the paradox re-emerges. The following will therefore discuss the new risks and challenges that organizations also open up for when they collaborate with communities, including the emergence of new user categories.

When firms invite communities in, they play with their own boundaries and the distinction member/non-member. Users become members of the firm, but only because they are non-members and part of the organization’s (inaccessible) environment. This complex constellation poses paradoxical conditions for membership as well as new user categories.

From a system theoretical point of view the social is external to and separated from the psychological, which means that the community construct is not only demarcated from markets and established organizations, but also from its users (Seidl & Becker 2006). Such distinction may seem contra intuitive to our everyday beliefs and in contrast to existing community studies, but it has important theoretical advantage. It allows for a concept of the social distinct from the psychological that gives varied insights into the internal dynamics of the community construct. By separating social and psychic phenomena they can be analyzed in their own right. Applying this perspective to existing studies of communities the users visualizes as external to the organization and as such as a locus of desired knowledge that is inaccessible. To meet this desire, the community is invited into the organization. Hereby it becomes a construct that is an ‘outside’ of the organization *inside* the organization. This paradoxical constellation poses new challenging considerations for the firm to manage: When is the community construct authentic (that is, external enough in order to foster access to the authentic users) and when is the community construct merely an outside turned inside where the users, qua their inclusion in the organization, are “protected” from users outside the community?

Hence, the firms’ desire for getting to know users that do not let themselves be known leads to new multiple user categories, namely users as *non-members* and users as

members. Users as members may no longer be representative for the (authentic) users outside the community, which leads us to suggest the following proposition:

Proposition 5: Organizations that invite communities in risk compromising the representativity of the relation to users outside the community.

Apart from introducing new user categories, a transboundary community construct may also affect the *forms* of user participation and re-configure the present user attributes. For example, following Jeppesen and Frederiksen (2006), hobbyists are favored as users, since they have a higher level of intrinsic motivation than professionals and are therefore more engaged in participating in innovation activities. However, when users become part of a community construct that is an “outside-inside” they also become subject to more formalized conditions (e.g. due to the boundary logic of power). This may professionalize the behavior of the users, hereby affecting the boundary related to user attributes. That means that the distinction hobbyist/professional may transform so that user attributes are marked both as ‘hobbyist’ and ‘professional’ and hobbyists thus become professionalized. This may consequently influence the desired motivation and commitment related to the hobbyist attribute. Therefore, we suggest the following proposition:

Proposition 6: Organizations that invite communities in risk to professionalize the user attributes at the expense of intrinsic motivation and commitment to innovation activities.

The suggested propositions are summarized in table 2.

Table 2 Summary of propositions.

Logic of boundaries	Distinctions	Opportunities	Challenges
P6 User attributes			Multiple user attributes: The hobbyist attribute transforms at the expense of intrinsic motivation and commitment to innovation activities.
P1 Identity		P2 It is easier to attract multiple users hereby accessing new environments	
P3 Power		P4 It is easier to connect to the code of the community construct and tackle conflicting expectations	P5 Multiple user categories: The authenticity of the community phenomenon is “polluted” and the link to users outside the community construct may no longer be representative.

The paper has suggested propositions of some of the paradoxes that follow when firms acquire access to users. Hereby, the paper seeks to make organizations more reflexive about the managerial “breadth” they place themselves in when connecting to communities, and it hopes to contribute to the growing debate about collaborations between communities and firms.

The paper encourages more research on couplings between firm and community boundaries that can shed light on the consequences of multiple user categories and elaborate on when a community is authentic and external enough in order to foster access to the ‘real’ users.

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ⁱ There are no clear distinctions of the terms “community” and “network”. Some scholars present networks and community together, e.g. communities are understood as a network or part thereof (Porter et al. 2009). Others present networks as a replacement for traditional community forms, while others either ignore issue of community or of network entirely (Willson 2010: 751). Porter (2004) argues that communities can contain attributes of both small groups (socially close relationships) and network (geographically and socially dispersed) (Porter 2004: 18). This paper uses the term community, since it's most common/widespread within the user innovation literature.

ⁱⁱ Community studies have a long tradition in time and across disciplines, originally stemming from sociology (Bell 1971). However, these historical community studies typically consider the territorial area and emphasize solidary relations (cf. Tönnies 1887), whereas more recent studies within the user innovation literature point at possibilities of innovation and the role of the users in the innovation process (cf. von Hippel 1976). From this stream, studies of online communities have progressed extensively, hence our review.

ⁱⁱⁱ Autonomous (or member-initiated (Porter 2004)) communities exist within water sports (Heinerth et al. 2006), sports equipment (Franke & Shah 2003), open source software (Lakhani & von Hippel 2003, Lee & Cole 2003) and librarians (Morrison et al. 2004) (Dahlander & Magnusson 2005: 482).

^{iv} Examples of sponsored communities are communities within musical instruments (Jeppesen & Frederiksen 2006), fashion (Finotto & Di Maria 2008), FOSS (Dahlander et al. 2008), computer games and sporting goods (West & O'Mahony 2008: 165, Franke & Shah 2003).