



## Online Communities and Open Innovation

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**Editorial**

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# **Online Communities and Open Innovation: Governance and Symbolic Value Creation**

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## **Introduction**

How can firms make use of online communities as part of an innovation strategy aimed at leveraging resources and ideas outside the four walls of the enterprise? Online communities are today a widespread phenomenon that takes a variety of forms. Free and open source software is probably the most well-known case, where geographically dispersed individuals collectively develop new software and produce innovation. In 1991 Linus Torvalds founded the Linux kernel, the heart of an operating system with the ability to have a real impact on Microsoft's market share. Torvalds' initial ideas led to the building of a community that collectively developed the Linux kernel. From the original incorporation of some 10,000 lines of source code, by 2005 the community had developed more than 6,000,000 lines of code. But online communities are more than simply free and open source software. For instance, social networking sites such as Facebook and MySpace, which have memberships of millions, have grown rapidly, allowing individuals to share experiences and socialize with each other. From initially being exclusively for participation by Harvard students, Facebook, according to recent estimates, now has more than 60 million users worldwide. The popular press has been swift to document these successes, and it is tempting to conclude that online communities have great potential. Yet, their diversity, in terms of objectives, typology of organization, production and reasons behind individuals' use of them, is becoming obvious.

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Using different theoretical lenses, a growing body of literature in social sciences attempts to unfold this phenomenon (see, e.g. recent special issues in *Research Policy*, 2003; *Management Science*, 2006; and *Organisation Studies*, 2007). Much of the research on online communities suggests that the nature of these communities with permeable boundaries and self-organization makes them a new powerful *locus* of collective creativity and innovation (Lee and Cole, 2003). This is because individuals distributed across the globe can work with other individuals with whom they have affinities and shared interests. There has been much less research on how firms use communities where they have limited control, which might even jeopardize their competitive advantage, as part of their business models.

In recent years, a growing number of papers has adopted the open innovation concept to highlight that innovation processes span organizational boundaries. As Chesbrough (2003: XXIV) puts it: “firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology”. This stream of research highlights that firms have to rely on ideas from the external environment to stay abreast of competition (Chesbrough, 2003). Research on open innovation focuses on situations where firm boundaries are permeable, resulting in an interactive and distributed innovation process in which ideas, resources and individuals flow in and out of organizations (Laursen and Salter, 2006). Some contributions to this line of thinking suggest that firms can adopt strategies to integrate ideas that originate from communities, into their internal processes (Dahlander and Wallin, 2006; Jeppesen and Frederiksen, 2006). Firms can act strategically, by selectively revealing internal resources (Henkel, 2006) or by establishing communities to enable individuals to start using their products (Jeppesen and Frederiksen, 2006).

Online communities, therefore, can constitute an important external source of innovation for those firms able to implement a constructive relationship with them (Dahlander and Magnusson, 2005). Individuals in these communities may not only be able to develop innovations that can be integrated into the firm, but also may come up with new perspectives on and ways of framing problems. The community may develop a shared and mutual understanding of what it is about, what in the new product design or features is valuable; it may create product/firm loyalty and establish among community participants a sense of belonging and meaning (Rindova and Petkova, 2007).

Despite these benefits, there is also a range of challenges for firms that adopt the open innovation approach (Chesbrough, 2006). This is particularly evident when managing online communities as individuals participating in these communities are beyond the firms' hierarchical realms. Individuals can decide where to work, who to work with and what to work on, making it difficult for firms to steer the direction of development (Dahlander and Wallin, 2006). Moreover, in online communities the social processes behind members' participation are intrinsically dissipative because in such self-organized processes, many individuals have to be mobilized to make the most productive ones emerge (David and Rullani, forthcoming). This greatly increases the resources firms have to pour into these communities, and increases the risk of such investments. A large number of involved parties with misaligned goals, different capabilities and diverse degrees of involvement, raise the issue of governance of online communities.

In order to advance our understanding of the open and distributed nature of the innovation process taking place through online communities, this Special Issue revolves

around the two themes identified above as crucial: (1) the importance of conceptually including the symbolic value of the artefacts in the innovation process, as online communities can be fundamental tools by which firms can innovate in this sphere thickening the symbolic value of their product; and (2) the issue of governance and how it is associated with the way in which firms try to harness these communities. Both themes have been relatively unattended by earlier research. The papers in this issue were selected precisely on the basis of the questions and answers they might generate with respect to these overall themes.

We structure this editorial piece as follows. We begin by placing the collection of papers within the themes of governance and symbolic value creation. We then conclude by charting areas for future research.

### **Theme I: Governance in Online Communities**

Many scholars are interested in how online communities are governed. Sometimes these communities emerge quickly and appear to be successful, without the reporting mechanisms and organization charts visible within firms (Fleming and Waguespack, 2007). Firms are often involved in online communities as the protagonists of a single community (Jeppesen and Frederiksen, 2006), hosts of a system composed by a myriad of project-centred communities (David and Rullani, 2008) or collaborators integrated in an existing community (Dahlander and Wallin, 2006).

Research on governance in online communities looks at how individuals in these communities make collective decisions about future directions, control and coordination (see, e.g. the discussion by Markus, 2007). Dealing with governance is not a simple matter, as it is clearly a composite and dynamic concept, based on the nexus between very heterogeneous actors (O'Mahony & Ferraro, 2007; Shah, 2006). The dimensions that it is necessary to take account of are several, and their links are not always clear.

The paper by Langlois and Garzarelli, "Of Hackers and Hairdressers: Modularity and the Organizational Economics of Open-Source Collaboration", is the first paper in this Special Issue and sets the stage for a discussion on governance in online communities, allowing us to tease out what are the important dimensions. In this mainly conceptual paper, the authors employ the empirical illustration of an open source online community to explore the generic question in organizational economics of how the division of intellectual labour is based on a trade-off between modularity (i.e. specialization) and the opportunity to integrate various individually developed components of knowledge. The paper claims that the trade-off allows the individuals populating the open source community to exchange efforts rather than products, under a regime in which the providers of code self-identify themselves as suppliers of products in a market, rather than employees in a firm. Through their discussion, Langlois and Garzarelli build a useful two-by-two matrix of product vs. efforts on one axis and self-identification of contributors vs. no self-identification on the other. In this matrix the firm, the market, outsourcing and voluntary production as it occurs in open source communities are situated and, hence, presented as different modes of innovation production.

This provokes a series of questions on how communities can be managed when the connection between incentives—that is, the voluntary basis upon which the community is built—and the particular dynamics of the organization of labour in an open community—exchanging effort and not product—is taken into account. Firms and communities have

diverse and sometimes incommensurable goals (O'Mahony, 2003), and it is a challenge for firms to derive benefits from working with communities.

The West and O'Mahony paper, "The Role of Participation Architecture in Growing Sponsored Open Source Communities", offers an answer to the previous implicit question about governance structures and the contradictions of a series of open source communities classified according to the typologies of firms' participation in these communities. Based on a qualitative study the paper shows that firm-sponsored online communities or open source online communities initiated by a firm, differ from organically grown open source communities. To demonstrate the differences between these two archetypical forms of open source online communities West and O'Mahony develop the concept of "participation architecture". The concept is created by the joining together of three important design dimensions for the coordination of tasks and communication in an online community: management of intellectual property rights, development approach and model of community governance. The study makes it explicit that various participation architectures exist in the two kinds of open source communities. The authors find that corporate sponsorship in open source communities influences the design and evolution of them and that this affects: (1) the degree of transparency of community participants to follow the community's collective process of development; and (2) accessibility for participants, to contribute to code development. Despite oftentimes trying to imitate the organization and design of organic open source communities, firm-sponsored communities face the classic tension between control and growth. This is because firms that are sponsoring an open source community struggle to maintain an open structure supportive of growth in the community in parallel with managing and maintaining control over the direction of and the activities taking place in the open source online community. For example, a firm sponsoring a community may define and potentially limit the opportunity structure for others to enter the community, as well as deciding who has access to the code/core of the community. The final contribution of this paper to the debate invoked in this Special Issue demonstrates that it is rarely the technical architecture and set-up of online communities that single-handedly determines participation frequency and structure. To better understand the differences in the character and quality of participation in different types of online communities, and thus be better informed about how innovation through these communities is managed and incentivized, we need to note that the organizational structure hinges upon the community sponsor's decisions regarding the design of governance mechanisms.

The paper by den Besten and Dalle provides an opportunity to explore this issue from a different perspective, taking a very timely phenomenon as the empirical setting. Stretching the argument presented in the paper by West and O'Mahony, they offer an intuition on the relationship between organizational structure and governance of online communities: the coordination devices the community uses in its everyday work embodies, "expresses", its (implicit or explicit, consciously or unconsciously taken) decisions relative to governance. Evaluating the role of these mechanisms in the effectiveness of the community activity develops into an interesting exercise, as it suggests visions of new ways—and new mechanisms—by which firms can realize the effective governance of an online community.

The paper by den Besten and Dalle focuses on the exciting example of Wikipedia, the online encyclopaedia, developed at tremendous pace by a vibrant online community. From its inception in 2001 to the end of December 2007, the Wikipedia community had collectively written an astonishing 9 million plus articles, in over 200 languages. Interest has surged

among organization and management theorists to understand how the community's efforts have been organized to develop at this pace. The paper studies Simple Wikipedia—an offspring of Wikipedia—which develops articles written in Basic English, aimed at children, people with learning disabilities and individuals who are not fully literate in English. Simple Wikipedia has a mechanism that allows members to label pages as “unsimple”, to ensure readability. Using an impressive data-set of more than 25,000 pages written by almost 20,000 contributors, the paper investigates how this labelling influences the readability of articles. The paper adopts methods used in linguistics and information science, such as the Flesch formula, which measures the readability of articles, counting the number of syllables per word and the number of words per sentence in texts. The results suggest that labelling plays a key—yet insufficient—role in ensuring articles are readable. The implications, suggested by the authors, are that an artificial companion—configured as a managerial and editorial assistant—could be developed using the relatively straightforward metrics suggested in the paper. These companions could continue work left unattended by members of the community, and also free up time for them to do more creative tasks.

Because such mechanisms as the companion mentioned above, would have an impact on the content of the everyday work of contributors, it could also be used to shape the governance of the community. Drawing on the Simple Wikipedia example analysed by den Besten and Dalle, we can imagine a wider application of “bots” able to grease the coordination between contributors. Once the “bots” are set, only certain tasks will be left to human coordination and discussion—for instance, to confrontation of different interests—while other issues will be “hidden” and taken care of by the automatic procedures for specific tasks. This would have a great impact on the evolution of governance structure in online communities.

## **Theme II: Different Types of Value Creation in Online Communities**

The literature has underlined the role of users as innovators. The usual perspective uncovers the role of lead users as those individuals whose everyday life is affected by the consumption of the firm's product, and who have the skills to modify and personalize the product. The innovation process, however, most of the time is described as “atomistic”: the user tries to match her needs with the features of the product, and produces a modified version of it. Users in online communities are embedded in a social environment where they can get advice from others to solve particular problems. As suggested by the user innovation literature, communication plays a function as a propagation device, distributing innovative features or voicing needs in the user community and eventually carrying them to the firm. While being sympathetic to this argument, we would contend that communication among users is more than this. In other words, we need to look at the communication that was going on before, during and after Schumpeterian inventions and innovations proliferated, because that is the mechanism that joins together the two processes allowing invention and innovation to link up to produce the potential to become both creative *and* valuable.

In line with this perspective an emergent view on value creation in the context of innovation is that consumers or potential consumers are not only attracted to the functional aspects and features of products (Rindova and Petkova, 2007). Issues such as symbolic and aesthetic value as well as sense-making qualities seem equally important for creating

value through successful product development (Ravasi and Rindova, 2007). The literature on user innovation and online communities, in our view, has frequently focused perhaps too narrowly on innovation as improvements to technological features and innovative task partitioning, and seldom recognized that innovation and invention in online communities also takes place through communication among participants and thus through the recombination of ideas, voicing of future product wants and convergence towards a common perception of what is valuable. Being part of the community and making sense of one's practices with the product by interacting with fellow users may be an important driver of innovative behaviour.

In a growing number of online communities where transparency in the actual product development process is relatively low and access to the product source code is restricted, the value created for the consumer lies as much in being part of the community, infusing the product with an extended meaning beyond the utilitarian one. As such, firms that in different ways are involved with online communities may benefit from the communication among product users and their sense-making of their activities with the product.

The contribution by Finotto and Di Maria in this Special Issue is an example for this reasoning. As the authors state: "Understanding and managing innovation in the present competitive scenario requires a stronger integration between innovation studies—traditionally focused on R&D and technological innovation in product development—and the analyses offered by the marketing and customer behaviour framework." They refer to the concept of brand communities to capture the process of value creation through communities. "A brand community is a specialized, non-geographically bound community, based on a structured set of social relationships among admirers of a brand" (Muniz and O'Guinn, 2001: 412). They initially review the literature in both fields and argue for a mixed approach. They then focus on brand communities and discuss how taking account of innovation in collective sense-making processes could become a fundamental element of firms' strategies. The core of their argument is that in mature sectors, where technological progress has reached a *plateau*, the *locus* of value creation resides mainly in the immaterial features of the product. They report fashion as the most important example of this process, where product innovation along dimensions such as the identity and lifestyle carried by the brand are the main determinants of consumers' choices. To give an empirical illustration of this process they report two case studies from low-tech firms exploiting consumer communities to deepen and broaden the sets of meanings coupled to their products. The two firms analysed are particularly interesting as they are among the most important representatives of the "Made in Italy" industries. Predominantly present in low-tech industrial districts, firms representing "Made in Italy" have always benefited from geographic proximity to the customers. Proximity was at the basis of the processes of information gathering, of adaptation to new trends and tastes. Nowadays, the changes induced by the widening of worldwide markets have exposed firms to a different, mostly unknown and heterogeneous, demand. As the authors argue, small Italian companies can overcome the sudden gap between them and these new markets by means of online communities. The two case studies they develop offer an interesting first step to thinking about possible strategies firms could apply to reach this goal.

The paper by Finotto and Di Maria focuses on the symbolic value of the product for the consumer. This, however, is just one side of the coin. In communities where consumers also play the role of innovators, the meanings carried by the product are not confined to the

consumption sphere. Production becomes a matter not only of maximizing job opportunities, the fitting of the product to one's own needs or simply earning money. The drivers behind innovation include also intrinsic motivation, where the meaning of the action and the symbols the product embodies create the context that nurtures enjoyment and a sense of fulfilment.

The paper developed by Kaiser and Müller-Seitz, "Leveraging Lead User Knowledge in Software Development—The Case of Weblog Technology", helps to illustrate the point made above. It demonstrates that the same incentive schemes based on the coexistence of extrinsic and intrinsic motivation, which previous studies found in open source communities, can be found in firm-centred communities operating in the blogosphere.

The authors analyse the motivations driving individuals' participation in a peculiar online social environment: the Microsoft Longhorn Blogosphere (MLB). The authors explain "the blogosphere" as a network of messages posted online, where all refer to a specific topic, environment or interest and are connected by means of a series of interlinks (blogrolls, permalinks and trackbacks). MLB is a corporate blogosphere centred on discussion of bloggers' experiences and developments of the Microsoft product "Microsoft-Longhorn". Despite the peculiarities of the environment, the tools, and the typology of participants and contributions, the main message of the paper is that the bloggers' incentive structure is not so very different from that observed in open source communities. The paper makes this point through an accurate analysis of the contents of the messages posted on MLB, classifying them and matching the categories obtained to the literature on open source developers' incentives. They show that bloggers are motivated both intrinsically and extrinsically. In particular, intrinsic motivations are found to belong to three main "realms": (1) feelings of freedom to choose (topic, task and time allocation, etc.); (2) feelings of having an impact on the reality; (3) socialization. The authors highlight that the minimum common denominator of these three sets of motivations is the concept of "flow state", that is, an experience that totally captures an individual's attention and stimulates intrinsic feelings of enjoyment. Extrinsic motivations are summarized by the categories of signalling one's abilities, participation perceived as a means to get support for one's activities and writing on the blog as a self-reflective learning activity. These motivations are found to closely map those emerging from the empirical studies of open source software. This result leaves the door open for generalizing our discussion, as it shows that online communities share similar incentive structures irrespective of the specific means of interaction through which they develop or their "corporate-centred" nature.

## **Conclusion**

This editorial has elucidated the richness of the online community research field when considered in the light of firm-based open innovation strategy. The selection of papers for this Special Issue allowed us to identify two themes that are central for the management of online communities: (1) governance and (2) symbolic value creation. As argued in this Special Issue, these themes have implications for how we think about online communities and how firms can go about managing them.

The papers in this collection contribute to an ongoing debate on open, distributed, cumulative and collaborative innovation processes by highlighting the role of individual



users embedded in online communities. The papers highlight a number of intriguing new perspectives and introduce new empirical settings, with implications for research and managerial practice. After having read them and the concluding research note, answers to some of the important questions about the nature of online communities emerge, but many new questions proliferate.

This emphasizes that studies on online communities for innovation may propose important improvement to conventional theories developed for other empirical settings. It appears that researchers interested in online communities have been moving into this area because of an interest in the phenomenon itself. Scholars from different backgrounds and using different theoretical perspectives have all written contributions to how online communities work. As a consequence, the body of knowledge is diverse and points in various directions. Apart from only being fascinated by the research settings—we as a community of scholars—could do a better job in building theory and think more carefully about the theoretical implications of our research. This was also discussed at the conference leading up to this Special Issue by two keynote speakers. In the first keynote at the track, Joel West discussed how different theoretical streams fit together. In the second keynote, Karim Lakhani talked about how researchers within the community define the core concepts. Indeed, as argued by West and Lakhani in the final piece of this Special Issue, several fundamental core concepts remain ambiguously defined. In order to build a more coherent body of literature, scholars pursuing research in this area therefore need to think carefully about these core concepts.

The existence of online communities, we argue, has many implications for how we think about innovation processes, and we hope that researchers will continue to address the issue, extending research and our understanding in this area.

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In the autumn and winter of 2006 a call for papers was issued inviting researchers to submit papers to the track “Managing Open Innovation Through Online Communities” at the European Academy of Management conference (EURAM) in Paris, May 2007. During a few wonderful days in Paris, a group of highly qualified scholars was brought together for a lively discussion. Given the very constructive debate, it is believed that all the authors left the track with lots of ideas and suggestions for how their papers might be improved. Participants in the track were invited to submit their papers for publication in this Special Issue. After another round of peer review, five papers were selected for inclusion. Lots of help and guidance were received on the way. First, the authors who submitted manuscripts for the EURAM conference track 2007 and for review for this Special Issue are thanked. Second, the guest editors are grateful to Mark Lorenzen for inviting them to edit this Special Issue and for assistance in bringing it to print. It has provided great opportunities to develop an active community of researchers working on online communities and their relationship to open innovation. They are also very grateful to the EURAM conference and the more than 25 Special Issue reviewers whose constructive comments significantly improved the quality of the papers. Finally, the guest editors acknowledge Taylor & Francis publishers and the Innovation and Entrepreneurship Group, Tanaka Business School, Imperial College London for financial support.

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