The Benefits and Challenges of Collaborating with User Communities

User communities can be a fertile source of new innovation, but the collaboration must be carefully managed.

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OVERVIEW: User communities are potentially rich sources of new product ideas and innovations. However, accessing these communities brings significant challenges, including how to identify users, how to engage with them, how to integrate user innovations into corporate process, and how to manage intellectual property and other aspects of the relationship. The LEGO Group's experience engaging with user innovators, explored in a longitudinal study of the firm's interactions with independent and corporate-sponsored user communities, illustrates both the challenges and the rewards of collaborating with user communities.

KEYWORDS: User innovation, User community, New product development

Most companies turn to their internal R&D departments when they need a new product. This had been the approach followed by the LEGO Group, the Danish toy manufacturer renowned for their building toys. The launch of the LEGO Mindstorms set (also known as the Robotic Invention System) in 1998 changed this. This set attracted enthusiastic adult consumers in a way that earlier products had not and saw higher levels of user innovation than prior sets. With the introduction of this set, the LEGO Group discovered that there were many adult fans of LEGO (AFOLs) and that the innovations these users created were of great potential value to the firm. Gradually, the LEGO Group began involving these fans in their innovation projects to a growing degree. Today, AFOLs have participated in the development of several products, and more than 20 LEGO users have been hired as LEGO designers (Antorini, Muñiz, and Askildsen 2012).

LEGO's user innovators are not unique. A first-ever national study of U.K., U.S., and Japanese consumers aged 18 and over shows that between 3.7 percent and 6.1 percent of citizens in these countries innovate (von Hippel, Ogawa, and de Jong 2011). Even higher innovation rates are found among consumers who belong to communities of engaged and active consumers; up to 37 percent of such consumers innovate, according to at least one study (von Hippel 2005).

The improvements and innovations created by user innovators represent substantial value, and there are benefits to be accrued by companies that adopt them. Engaging with user innovators can help reduce the often considerable economic risks involved in launching new products (Ogawa

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and Piller 2006; von Hippel 2005). Users, working on their own time and often with the support of a community, generate ideas, develop prototypes, and evaluate their creations (Jeppesen and Frederiksen 2006)—activities the firm would typically undertake as part of product development. In this way, picking up user innovations can save development costs. As a bonus, user innovations typically emerge in response to real needs, problems, or desires, reducing the risk of product failure by identifying the potential market in advance.

However, these advantages do not come without their own challenges. The deep knowledge and specialization of many user innovators may result in innovations that are too narrowly focused to be of benefit to the firm. Locating the best user innovators can be difficult, and user innovations can be difficult to integrate with the firm's product standards and development processes. And intellectual property rights and assuring fairness so that both sides benefit can become tricky. Despite the many good reasons to include user communities in their innovation processes, many companies fail to do so, suspecting that the frictional costs presented by these challenges will outweigh the potential benefits.

But these challenges can be surmounted, as the LEGO Group's experience demonstrates. Between 2003 and 2011, we engaged in a longitudinal study of the LEGO Group's collaboration with user innovators. Based on that data, we show how companies that want to initiate or optimize collaboration with independent user communities can manage these issues.

Accessing User Innovation: The LEGO Group

There are two main ways in which the LEGO Group gets access to user innovations: either users come to the LEGO Group with their innovations, or the firm asks users for them. The LEGO Architecture sets, LEGO jewelry, and the robotics sensors for the LEGO Mindstorms NXT products were all initially proposed by adult LEGO users and co-developed with the LEGO Group. For example, the LEGO jewelry line was developed by Lisa Taylor, a LEGO user who "loved wearing LEGO bricks and wanted to wear it in a sophisticated way," as her website says, and was allergic to the metal used in lower-priced jewelry. In collaboration with the LEGO New Business Group, Taylor developed a series of silver rings and cufflinks embellished with interchangeable LEGO bricks. These products, which are all designed to be used by adults, are sold from her website, bylisataylor.com. For its efforts, the LEGO Group enjoys another mode in which consumers can interact with the brand and develop a stronger relationship with it.

During the development of the LEGO Mindstorms NXT product, users involved in the process agreed that sensors of different kinds would be essential to the product's performance. One of the users on the development team, John Barnes, was also the co-owner of HiTechnic, a manufacturer of high-tech sensors. He developed and proposed a series of sensors that were eventually marketed on LEGO.com. Today, 12 advanced sensors (such as infrared receiver sensors, sensor multiplexes that allow for more connectivity, barometric sensors, and touch sensors) help expand the possibilities of the LEGO Mindstorms system. These were the first components manufactured by an independent external developer to be included in a LEGO kit. It is unlikely that the LEGO Group would have been aware of the existence of HiTechnic or of the relevance of the firm's products to LEGO had Barnes not offered his ideas and prototypes to the LEGO Group. The same goes for the architectural product line proposed by Adam Reed Tucker. Here, the LEGO group was again exposed to ideas less likely to have been executed by the firm itself, with its focus on toys. As a result of this exposure, the LEGO Group extended its distribution into new categories, such as museums, souvenir shops, and bookstores, and opened up markets not usually associated with LEGO products.

LEGO's online platform, LEGO Cuusoo offers another avenue through which users can bring their innovations to LEGO.[1] LEGO Cuusoo allows users to upload their designs to a webpage where other users can vote on the design. Models that receive 10,000 votes are reviewed by the LEGO Group for their potential for commercialization. If an idea is selected to be commercialized, the LEGO Group takes over the development process and the innovator receives 1 percent of the total net sales. The first product to be commercialized from the Cuusoo platform was the Japanese expeditionary diver, the Shinkai 6500, released in Japan in February 2011. It took 420 days for the model to garner 1,000 votes (the threshold during the platform's beta test stage). The second product—Hayabusa, an unmanned Japanese spacecraft— took 57 days to reach the same number of votes. The third project to be commercialized is the LEGO Minecraft Micro World set. This set took only 48 hours to win 10,000 votes worldwide. It also received 30,000 likes on the LEGO Facebook and Minecraft Facebook pages combined and was tweeted more than 4,000 times. The fourth project, which is currently under development in collaboration with Universal Partnerships & Licensing, is the *Back to the Future* Time Machine from the 1980s adventure-comedy

[1] LEGO Cuusoo (lego.cuusoo.com) is an idea collection system that asks consumers to submit ideas and vote for their favorite ideas for new LEGO products. CUUSOO, which means "imagination," or sometimes "wish," in Japanese, has been developed with CUUSOO System, a subsidiary of Japan-based Elephant Design that has worked with open innovation and crowdsourcing platforms for more than 10 years.

film series. That idea took nine months to gather 10,000 supporters. During that time, the set was viewed over 400,000 times and attracted over 2,000 comments. Many of the comments offered advice on how to improve the design and where to find inspiration for additional models. Such input is very valuable in the product development stage.

Besides connecting the firm to innovative users, LEGO Cuusoo helps the LEGO Group deal with what we call the deep knowledge and specialization issue. By putting proposed designs to a community vote, the LEGO Group maximizes the likelihood that a suggested product will have broad appeal. Asking users who vote for a given set to list the price they are willing to pay for it allows the firm to better assess the idea's commercial potential.

In other instances, the LEGO Group has initiated the innovation process. The LEGO Modular Building series, introduced on the market in 2007, was the result of a process in which the firm asked adult users to propose ideas for LEGO sets specifically targeted to adults (Meno 2007a). Many users' ideas were centered on houses and buildings, prompting the firm to consider a set of buildings that could be connected together to create a village or cityscape. The design process was led by Jamie Berard, who had been hired by the LEGO Group as a designer and was an avid LEGO fan himself. During the development process, Berard worked closely with a German AFOL selected by community manager Jan Beyer; the fan was selected by Beyer because of his great knowledge and experience building houses in the particular style adult fans liked and because he was known as a very reliable and collaboration-oriented person.

As it became clear that the LEGO Group wanted to continue to launch more building sets to the market, three more fans were invited to contribute their ideas. The ideas that came out of the extended group's work were then shown to over 100 user attendees at a LEGO event in Germany. These users provided their feedback and ideas to further improve the building sets. Drawing on his wide network of AFOLs all over the world, community manager Jan Beyer made possible an evolving approach to the development process, in which different users at different times offered their contributions and improvements.

In an interview with *Brick Journal*, an independent magazine for adult LEGO fans, Berard summarized the outcome of the process by saying, "I definitely feel fan involvement greatly enhances our ability to deliver premium products and an exciting building experience back to the adult fan community" (Meno 2007b, 29). Where the Modular Building series was developed from a close collaboration between LEGO designers and AFOLs, in other instances the LEGO Group has chosen to hand the entire development process over to fans. The development of the LEGO Hobby Train represents such an example. Having noticed that some LEGO fans used the LEGO Digital Designer toolkit to design their own trains and accessories, the LEGO Group decided to gather a group of the best user train designers to create a physical train set that could encourage more adult train enthusiasts to make use of the toolkit. The group, referred to as the UTB team (Ultimate Train Builder, LEGO Hobby Train's initial name), was composed of 10 fans from around the world. Because of its international scope, the project was coordinated online; none of the group members met face to face during the project. The group was given a few weeks to come up with five or six LEGO train models using a preselected pool of 1,800 parts. The group ended up proposing 76 different models. Acknowledging the high quality of the models, the UTB team and the LEGO Group decided to develop building instructions for 30 models. The instructions came with the LEGO Hobby Train set that was sold thorough the LEGO online shop in 2007. Compared to a typical LEGO product, which usually has fewer building instructions, the LEGO Hobby Train gave users many more opportunities to try out a variety of designs.

The group members were involved in all parts of the development process, from idea conception to marketing. One UTB team member, Mike Walch, reflected on the work process:

> It has been very interesting to see how the work had been divided up by the UTB team. At various phases, team members have been involved in model design, logistics, element selection, marketing, sales, legal, graphic design, and other tasks. Different UTB team members stepped up and took the lead on a number of these different areas; it didn't all fall on to one person. In total, the actual set design phase was probably less than 20 percent of the time I spent working on the UTB project.

In an interview, LEGO senior manager Tormod Askildsen, who together with LEGO senior manager Paal Smith-Meyer had initiated the project, would conclude by characterizing the group's work as "outstanding" (Meno 2007b, 42). The Hobby Train development project was unique in that users took charge of much of the development process. Most firm-initiated projects are characterized by having user and firm participation. Thus, LEGO sets such as LEGO Factory Micro-City, LEGO Mindstorms NXT, and LEGO Ninjargo, as well as the multiplayer platform LEGO Universe and the ReBrick social site for sharing user creations, were all developed in close collaboration between users and the LEGO Group.

The Benefits of User Innovation

Consumers develop both major and incremental innovations, but—as with innovation from any source—most user innovations are incremental in nature, designed to give "the user any improvement in any dimension such as cost

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reduction, increased speed, quality, consistency, and so on" (von Hippel 1988, 22). Consumers also develop major innovations. In a study of user innovations for the Audi brand, Füller, Jawecki, and Mühlbacher (2007) estimated that between 3 and 15 percent of ideas and suggestions made by users were completely new to the Audi R&D and marketing department. Users' ideas shaped the development and design of Audi's infotainment device. The final product gained very high user acceptance, created huge market demand, and won several external awards for best usability (Personal communication with J. Füller, February 12, 2013).

Consumer innovations can also provide great value to other consumers. There are numerous examples in the literature of user communities adding to products to fill needs (Table 1). Users of digital musical instruments benefited from having additional fresh content and novel features made available for their original product, free of charge, via a user community (Jeppesen and Frederiksen 2006). Some adult Harry Potter enthusiasts have produced text and film with erotic content involving the lead characters (Brown 2007). While this content is inappropriate for the books' intended younger audience, for adult fans it provides richer understandings of the characters involved. Even in cases where a brand has been discontinued, users have sustained and improved the use experience and maintained brand loyalty (Muñiz and Schau 2005). For instance, users of the long-discontinued handheld computer Apple Newton have kept Newtons operating despite the forces of technological obsolescence (Schau, Muñiz, and Arnould 2009, 47). In all of these cases, the add-ons and improvements users make serve needs that companies for one reason or another do not address. The innovations allow these users to experience the products in different, and for them often more relevant, ways.

For firms, user innovations identify previously unknown needs and offer some assurance that a market may exist for products that address them. In this context, it is no surprise that accessing user innovation has emerged as a strategic approach to innovation. Using user communities as test labs, companies can get an early indication of the potential market value of a new product. Since consumer knowledge and experiences often "stick" to the consumer (von Hippel 1994), meaning that it is not always easy for consumers to explain exactly what it is they know or how that knowledge shapes their perceptions of a product and the product improvements they have made, it can be difficult for companies to transfer consumer innovations to the firm without losing vital information. By adopting users' innovations, companies often pick up years of accumulated product knowledge and experience about the precise needs and problems that consumers experience.

In this context, it is no surprise that accessing user innovation has emerged as a strategic approach to innovation.

Challenges in Collaborating with User Innovators

How do companies gain access to user innovations? Our study of the LEGO Group and its interaction with independent user communities explored this question. (See "About the Study," p. 26.)

Our analysis identified four main issues likely to arise in collaborating with independent user communities: the role of users' deep knowledge and specialization in developing their ideas, the difficulty of identifying the best user innovators, the challenges of integrating user innovations with firm product standards and development processes, and the potential complexity of intellectual property issues. These issues are formidable, but they can be surmounted. The key is a methodical examination of users and usage contexts (Table 2).

Moderating the Effects of Users' Deep Knowledge and Specialization

LEGO fans' deep domain-specific knowledge combined with their interests in many other things often prompted them to develop very specialized, highly detailed LEGO models. For example, some fans associate strongly with the niche steampunk genre, which celebrates the use of steam power in unusual, fantasy universes. Others take a particular interest in *mecha*, a Japanese science fiction genre. Others specialize in more well known but nevertheless complex and advanced themes, such as trains and spaceships. The models these users create are typically quite complex. For these and other user innovators, specialization is a natural part of their engagement with the product.

Attempting to follow the LEGO Group's lead, companies may find that users' innovations are too complex or advanced for less-experienced consumers with less-specialized needs, or they may not fit with the firm's own product strategy. For example, one fan developed a LEGO set based on the 2004 British horror-comedy movie *Shaun of the Dead*. The movie is a cult classic; it would not be unreasonable to assume that a set based on this movie could be quite popular. However, despite attracting 10,000 supporters on LEGO's crowdsourcing platform (LEGO Cuusoo)—a landmark that earned the idea the right to be reviewed by LEGO—the set was not adopted for official production because the firm felt that the set did not fit with its core strategy. The LEGO Group found that the set "contain[ed] content that is not appropriate for our core target audience of children ages 6–11" (LEGO Cuusoo blog entry, April 26, 2012). The *Shaun of the Dead* case exemplifies how the sometimes advanced and specialized tastes that may be cultivated in user communities don't always fit with the aesthetics or strategic interests of the firm.

Clearly, not every user innovation will be relevant or useful to the firm. Companies need to develop methods and criteria for screening user innovations and identifying those that fit the firm's needs and vision. One screening criterion

TABLE 1. Examples of consumer innovation

Product	Consumer Innovations
Apple Newton *Computer* (Muñiz and Schau 2005)	Since the brand was officially discontinued in 1998, some Apple Newton consumers took responsibility for the entire brand-sustaining experience, modifying and repairing the computer.
Propellerhead Software *Computer-controlled musical instruments* (Jeppesen and Frederiksen 2006)	More than 100 "mods" have been developed by Propellerhead consumers; these combinations of sound samples and graphical layout produce devices for music creation.
Audi Infotainment *System that integrates communication and entertainment technologies* (Füller et al. 2006)	Using a toolkit provided by Audi, consumers configured radio-navigation concepts and proposed their own ideas for a new and improved infotainment device.
Harry Potter media products (Brown 2007)	Adult Harry Potter enthusiasts create texts (scripts, essays, stories, and entire magazines), songs, videos, and other artwork. These products represent completely new ways of consuming the Harry Potter story.
Nike basketball shoes (Füller, Jawecki, and Mühlbacher 2007)	A few highly ambitious and skilled Nike basketball shoe consumers (known among members of the Nike basketball community as "designers") develop new and advanced shoe designs and lacing and cushioning technologies. The designers' ideas remain on the concept level and are typically not turned into prototypes nor put into production.
Lomo and Holgar *Cheaply made cameras* (Schau, Muñiz, and Arnould 2009)	Users customize camera lenses and body to achieve a more artful expression. These customizations have enabled Holga owners to create photographs in a wider range of genres.
StriVection *Anti-wrinkle skincare product* (Schau, Muñiz, and Arnould 2009)	Users mix the product into their foundation so that it stays on the skin all day.

may be the firm's strategic vision, the central idea that stakes out top management's aspirations for the firm's future. Is the aim to continue evolving the brand as it is known, or does the firm want to change course? Does the firm want to further advance their products, perhaps with the aim of attracting new consumer segments, or do they want their products to follow the existing development trajectory? The answers to these questions will give an indication of the type of innovations the firm should be looking for and provide a foundation for screening user innovations. The LEGO Group's decision regarding the *Shaun of the Dead* set was driven by the firm's vision of itself as a producer of toys for children.

Finding the Best User Innovators

Finding the best innovators (from the firm's perspective) can also be a challenge. For one, defining the "best" innovators is a task fraught with complexity. Does best mean most prolific producer or a producer whose innovations find favor with the largest number of fellow users or user innovators? Does it refer to user innovators who are the friendliest or most cooperative with the firm, whatever the quantity

TABLE 2. Issues in collaborating with user communities

Challenge	Explanation	Solution
Moderating effect of users' deep knowledge and specialization	Users' improvements and innovations may be too specialized or advanced for the mass market, or they may not fit with the firm's product strategy.	*Develop and share clear criteria for screening user innovations.* Companies need to develop methods for screening to distinguish those innovations that fit the company's needs and strategy.
Finding the best user innovators	Firms may find it convenient to establish close relationships with cooperative, firm-friendly innovators, but these may not be the most creative or useful innovators.	*Develop criteria for screening lead users.* Companies should systematically monitor communities for lead users and develop criteria to identify lead users and other desirable collaborators.
Integrating user innovations with firm systems	As user innovators may not conform to firm standards, there may be frictional costs involved in integrating user innovations into the firm's value-creating processes.	*Develop platforms for user innovators.* Companies should share goals and develop platforms and standards that innovators can use to present their ideas in a way that meshes with company needs and standards.
Untangling intellectual property issues	The process of adopting user innovations may be complicated or even stymied by questions around whether and how user innovators will be recognized or compensated for their ideas.	*Ensure both sides are adequately rewarded.* Seek IP solutions that are realistic and attractive for both parties.

About the Study

Between 2003 and 2013, we engaged in a multisite research program to examine community development and user innovation among adult fans of LEGO and to learn about LEGO's experiences and practices in working with external communities of these users.

We observed adult fans of LEGO (AFOLs) at conventions and locally arranged events. We attended nine conventions in North America, Denmark, and Germany. Between 50 and 400 fans attended each event to display their most impressive innovations and participate in presentations, workshops, competitions, auctions, and roundtable discussions. We also visited LEGO and the LEGOLAND park in Billund, Denmark, and observed AFOLs at smaller, locally arranged events such as monthly LEGO user-group meetings and LEGO shopping trips. Finally, we closely followed several online forums for adult LEGO fans and collected member profiles uploaded by members of the LEGO User Group Network (Lugnet.com).

We conducted 25 in-depth interviews and several additional, informal interviews with members of the community. Interviews were conducted face to face, via e-mail, or by phone. Face-to-face and phone interviews typically lasted between one and two hours. Initially, we met informants at conventions, where LEGO community liaison Jake McKee helped introduce us to members of the community. We employed a snowballing technique, asking early interviewees to help us identify informants who would be willing to talk with us. We also posted notes in the Danish LEGO User Group where we searched for members willing to share their experiences with us. The interviews offered an opportunity for us to elaborate on the findings that had emerged from our observations and gave participants an opportunity to expand on the opinions and experiences they had previously brought up in the message board threads.

With regard to how the LEGO Group interacts with user innovators, and how they organize and govern these interactions, we observed the LEGO Cuusoo site and the LEGO Cuusoo blog (legocuusoo.posterous.com/). In addition, we collected text from community web pages where LEGO employees communicated with users. Finally, senior director Tormod Askildsen provided extensive insights into the processes and experiences of interacting with and collaborating with users. Combined, the data helped us describe and analyze the AFOL community, the ideas it is centered on, and the practices that ties members together; user innovations and the needs they serve; and how the LEGO Group collaborates with AFOLs on new product development projects.

and quality of their innovations? These are fundamentally different qualities, and their relative importance will depend on the firm's goals in engaging with user innovators.

Members vary wildly in their attitude and stance towards the firm. Some users are quite direct and positive in their approach; others may have a less favorable attitude or may seek only indirect interaction. Companies may choose to interact primarily with those users most open to the idea of collaborating and thus overlook members who are less direct or less open. By doing so, the firm risks focusing mainly on users who may very well be innovators but who are not necessarily lead users or the best innovators with which to collaborate. Also, by focusing only on the visible innovators, the firm risks overlooking lurkers who, despite remaining below the surface, can be competent innovators whose ideas deserve consideration.

To avoid these problems, we suggest that companies do two things. First, they need to define exactly what they mean by "best," perhaps going so far as to define multiple kinds of best (prolific, cooperative) and codify those definitions across the parts of the organization that will be interacting with users or their innovations. Second, firms need to systematically screen user communities for lead users and ensure that users who want to share their innovations are encouraged to do so; von Hippel (1988) has defined a set of criteria that can be used to identify lead users. The investigation of a user's status with regard to the lead user criteria can take place as part of a survey or via interviews. In order to identify user innovators who might, for one reason or another, sit on their innovations, firms can arrange competitions or similar events that motivate innovators to come forward with their innovations (Füller, Jawecki, and Mühlbacher 2007). Another suggestion is to develop platforms and sites that allow users to contribute their ideas whenever they want, such as LEGO's crowdsourcing platform, LEGO Cuusoo. The benefit of such a solution is that it is quite easy for users to share their ideas whenever they want to. Moreover, by asking people to vote for the products they like and identify the price they are willing to pay for a product, firms get an indication of the sales potential of a given idea.

Integrating User Innovations with Firm Systems

User innovators typically do not develop their innovations with the intention of commercializing them. Rather, they innovate for fun or because of the use-related benefits they get from improving existing products or inventing new solutions (Füller, Jawecki, and Mühlbacher 2007; Luthje 2004). Generally, they have no (or little) concern for the firm's technical standards, packaging practices, or marketing approaches, let alone profitability. User innovations are often complete and, in the case of the LEGO users, characterized by complex building techniques. As a result, there may be considerable frictional costs involved in translating and integrating members' innovations to create a marketable product. To reduce frictional costs, the firm should engage with users to clearly specify the solution space in which they are searching for user innovation contributions. A clear statement of the firm's goals will help users be more effective in suggesting appropriate solutions.

Because of the fundamental differences in why firms and user innovators innovate, and how they approach innovation, some frictional costs are unavoidable. For example, communications with innovating users will involve some

effort and can give rise to some frictions given the variety of approaches and media users are likely to favor. Careful, thorough engagement with the user community can help minimize these. The LEGO Group's use of social media, particularly in its Cuusoo crowdsourcing platform, enabled the firm to engage in an ongoing dialogue with users and address potential issues in a prompt and direct manner. Such an approach can contribute to locating and addressing frictional costs before they become too large. It also engages users in bringing these costs down, to the mutual benefit of the firm and user innovators who want to see their ideas commercialized.

To this end, collaboration platforms should include communications channels between the firm and its user-collaborators. The creation and management of such channels requires careful consideration. Users might not prefer the same modes of communication as members of the firm. Most users will be communicating after hours, since their collaboration typically will occur outside of their work hours. This, too, can pose logistical challenges. Care also needs to be taken to maintain community vitality. Over time, the firm risks milking the community dry of its most innovative and contributing members. Thus, firms should consider how to balance their needs with those of users. It is important to be completely transparent in community engagement and collaboration efforts. Firms need to remember that their size makes it quite easy for users to view them as a Goliath to users' David. What seems like an inconsequential decision can spawn countless rumors when collaborators are not adequately informed. Similarly, users' independence needs to be recognized and respected.

Untangling Intellectual Property Issues

Intellectual property represents perhaps the most critical challenge in accessing user innovation. A *Financial Times* report found that "the proportion of intangible assets [intellectual properties plus the value embedded in the brand] to shareholder value at Fortune 500 companies has steadily risen, from about 50 per cent in 1980 to 70 per cent today" (Gapper 2007). In other words, firms' value relies increasingly on their intangibles, of which intellectual property is a large proportion. As a result, firms have a strong interest in protecting the innovations they bring to market. Failing to provide a satisfactory answer to the question of who owns the right to exploit a given innovation will pose a serious challenge for firms.

At the same time, user innovators have an interest in protecting their rights. Things can get tricky here, too. In most cases, user innovators don't conceive their innovations because they expect to sell them. Nevertheless, in cases where the innovation is sold or handed over to a party other than the innovator, questions around intellectual property ownership are bound to emerge. On some LEGO user sites, members who sell their innovations as custom kits explicitly state that they are the inventors and have all rights to the model being sold. This means that the buyer cannot replicate or sell the innovation. However, as things stand today, statements such as these represent encouragements to respect the innovator, not legally protected rights to the innovation.

In order to build fruitful relationships with user innovators, it is crucial to find intellectual property solutions that are realistic and attractive for both parties.

In order to build fruitful relationships with user innovators, it is crucial to find intellectual property solutions that are realistic and attractive for both parties. In defining how intellectual property issues will be addressed, firms should look to user communities as well as to their own legal departments. Solutions must be found at the intersection of the firm's interests and those of its user innovators. This is not only fair; it is also wise. The most productive interactions between firm and user community are characterized by transparency (Schau, Muñiz, and Arnould 2009).

Conclusion

Accessing user innovation brings the LEGO Group several benefits. The firm can utilize the deep knowledge that users have accumulated and embedded in their innovations to create better-looking, better-functioning, and more-relevant products. For example, the deep knowledge of the UTB team members led them to reject the LEGO elements the firm had first selected for the project. Based on their knowledge of trains, the team members realized that the palette of parts was too limited and had too much color variation to create great-looking, functional train models. The LEGO Group listened to the complaints and agreed to let the group choose the elements to be included in the set. Knowledge of what makes a product work well is often tacit, that is, it "sticks" to the creator. This generally makes it difficult to transfer user innovations to the firm domain without losing vital information. By co-creating knowledge-intensive innovations with users, the LEGO Group avoids losing important skills and knowledge important to the innovation.

By collaborating with users, the LEGO Group also gains access to skills and competencies that may not be well represented within the firm. For example, by collaborating with Tucker, the LEGO Group was able to use his architectural expertise to develop a product line based on real architectural principles. Similarly, collaboration with users allows the LEGO Group to gain exposure to interests outside the usual range of interests associated with LEGO toys. This was, for example, the case with the three products that have emerged from LEGO Cuusoo.

No matter the approach a firm chooses, there are also issues of collaboration such has how to find the best user innovators and integrate user innovations with firm systems. These issues are fundamentally related to the fact that

by nature firm-independent communities and user innovators have their own interests in mind. Being a hobbyist or an enthusiast is an activity that has its roots far away from the marketplace. The logic of a user innovator originates in fundamentally different motivations than that of a for-profit firm. Taken together, these differences are bound to create friction.

We find that the integration of user innovations is indeed associated with many potential frictional costs. In its most direct form, it requires commitment in the form of employees who can evaluate when it is the right time to pick up user innovations and who can provide feedback and coordinate with members through the different stages of the integration process. It requires methods that can bring forward innovations and distinguish between the different types of innovations and their potential, particularly with respect to the firm's strategic vision. Also, adopting user innovations requires that the organization can handle and further refine the innovations, should this be necessary.

Overcoming these frictional costs requires transparency and consideration in the way firms interact with users, how innovators are compensated, and how their rights are recognized. The decision to integrate members' innovations should be seen as a strategic commitment that demands organization-wide support. Regardless of the integration method chosen, firms should recall that integration of user innovations requires more than engaging in an act based on the principle of "giving and receiving." Firms should think of *themselves* as interacting with cultures that are built around very well-defined ideas about "who we are," "where we come from," and "how things are done around here." In this regard, sensitivity to historical and cultural contexts is key and represents, we believe, one of the new competencies firms will have to develop to successfully interact with connected, informed, and active consumers.

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