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In many online communities, users reveal innovative and potentially valuable intellectual property (IP) under conditions that entail the risk of theft and imitation. When there is rivalry and formal IP law is not effective, this could lead to underinvestment or withholding of IP, unless user-organized norms compensate for these shortcomings. This study is the first to explore the characteristics and functioning of such a norms-based IP system in the setting of anonymous, large-scale, and loose-knit online communities. To do so, we use data on the Threadless crowdsourcing community obtained through netnography, a survey, and a field experiment. On this basis, we identify an integrated system of well-established norms that regulate the use of IP within this community. We analyze the system's characteristics and functioning, and we find that the "legal certainty" it provides is conducive to cooperation, cumulative effects, and innovation. We generalize our findings from the case by developing propositions aimed to spark further research. These propositions focus on similarities and differences between norms-based IP systems in online and off-line settings, and the conditions that determine the existence of norms-based IP systems as well as their form and effectiveness in online communities. In this way, we contribute to the literatures on norms-based IP systems and online communities and offer advice for the management of crowdsourcing communities.

Keywords: intellectual property systems; social norms; innovation; online communities; crowdsourcing
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1. Introduction

In online communities, loosely connected individual actors reveal and exchange knowledge with peers who share a common interest (Faraj et al. 2011, Wasko and Faraj 2005). Although some of this activity might inevitably be "hot air," it can also involve the exchange of valuable knowledge, making these communities a potentially important innovation resource. Their power is visible in the stupendous success of open source software such as Linux or Apache (Lakhani and von Hippel 2003, Lee and Cole 2003), collaborative content-generation undertakings such as Wikipedia (Giles 2005, Levine and Prietula 2013), crowd-science activities such as Foldit or Galaxy Zoo (Franzoni and Sauermann 2014), or in innovation tournaments and crowdsourcing initiatives like Dell's IdeaStorm or IBM's Innovation Jam (Bayus 2013, Bjelland and Wood 2008, Boudreau and Lakhani 2013), to name

but a few examples. Almost by definition, communities are collaborative. Members give each other feedback and help each other improve their ideas and developments. This is particularly useful when the resources required to solve the underlying problem are not all located within single individuals, but are broadly distributed across multiple individuals (Boudreau and Lakhani 2009, Dahlander and Frederiksen 2012, Franke and Shah 2003). Hayek (1945) already argued that this is the norm rather than the exception in most circumstances. In such settings, exchanging information and complementary resources constitutes an enormous advantage, as it facilitates collective intelligence (Bonabeau 2009). In this context, online media offer the opportunity of accessing such information independently of geographical constraints and with very low transaction costs.

Generally, when valuable information is easily accessible, the possibility of copying and imitation arises.

Such behavior can be extremely *fruitful*. Social learning theory suggests that copying from others is profitable for the individual as a means of avoiding the costs of trial-and-error learning (Kendal et al. 2005). At the population level, the widespread reuse of ideas and insights is evolutionary superior (Rendell et al. 2009). It economizes on the low marginal costs of knowledge transfer relative to the cost of reinvention or reproduction (Arrow 1962), enables cumulative innovation effects through refinement and improvement (Murray and O'Mahony 2007), and may even spark radical innovation through creative recombination (Raustiala and Sprigman 2012). The importance of this principle is aptly reflected in the metaphor of "standing on the shoulders of giants" and also becomes visible in the rapid advancement of scientific knowledge and innovation (Scotchmer 1991) as well as the remarkable success of humankind in general (Richerson and Boyd 2005). Research into communities has taken up this perspective and suggested that to be successful, they need to be designed as social learning systems in which newcomers can benefit from the knowledge of more experienced members (Wenger 2000).

However, copying and imitation can also be *negative*. Particularly in competitive settings, i.e., when the use of intellectual property (IP) is rivalrous and when individuals are extrinsically motivated, imitation may in fact constitute theft of IP (Landes and Posner 2003). If people experience or anticipate such opportunistic free-riding behavior, this may lead to underinvestment or withholding of information, thus impeding innovation activities (Gans and Stern 2003). Therefore, formal IP protection mechanisms such as patents and copyright have been introduced to facilitate the positive effects of imitation while mitigating disincentives for innovation (Arora et al. 2001, Gans and Stern 2003). The problem is that formal IP protection is not always fully effective.

Therefore, an alternative form of IP regulation has emerged: *norms-based IP systems* (Oliar and Sprigman 2008). Unlike formal law enacted by legislative authorities or contracts, these systems build on collective informal norms and are self-organized by the community (Fauchart and von Hippel 2008, Loshin 2010, Oliar and Sprigman 2008). Extant research has analyzed norms-based IP systems in small and close-knit "off-line" communities, such as elite circles, professional associations, and clubs (Dreyfuss 2010, Fauchart and von Hippel 2008, Loshin 2010, Oliar and Sprigman 2008). In homogenous and nonanonymous groups, IP norms can be easily established, and violations are observable and can be sanctioned effectively (Di Stefano et al. 2014).

In this article, we heed the call of researchers who have postulated that "research in other settings is needed to clarify when and why norms play a greater

or lesser role in regulating the use of transferred knowledge" (Di Stefano et al. 2014, p. 1666; see also Fauchart and von Hippel 2008).

Online communities appear to be a natural candidate for this endeavor as they are obviously systematically different from their off-line counterparts. Specifically, online communities are often extremely large, loose knit, and anonymous. Despite these conditions, valuable IP is widely exchanged, even in communities characterized by strong competitive elements (such as collaborative crowdsourcing tournaments) and the absence or relative weakness of formal IP protection. This suggests that norms-based IP systems might operate here as well;[1] however, we are not aware of any extant research on this. Online communities also constitute a particularly relevant research setting as they are relatively new and we still lack a deeper understanding of how they function (Johnson et al. 2015).

Our research questions are twofold: First, we are interested in the *characteristics* of norms-based IP systems in large online communities. What do they look like? Which elements do they comprise? To what extent are they similar or different from norms-based IP systems in off-line communities? Second, we wish to understand their *functioning* in online settings. How do the norms integrate into a system that facilitates "positive" copying and precludes "negative" copying? How effective are such systems in achieving this end? Which technological affordances enable them?

As this is the first study on norms-based IP systems in the online context, we conducted a multimethod in-depth case study that combines netnography, a survey, and a field experiment. The research object chosen for the study is the Threadless crowdsourcing community. Threadless is a T-shirt company whose business model is built on a permanent innovation tournament within an extremely large online community (Boudreau and Lakhani 2009). The community employs elements of both cooperation and competition, suggesting that IP regulation is a task of utmost importance. We generalize findings from this setting by developing propositions aimed to spark further research. These propositions focus on similarities and differences between norms-based IP systems in online and off-line settings, and on the conditions that determine the existence of norms-based IP systems as well as their form and effectiveness in online communities.

The findings from the case study allow us to contribute to two different strands of literature: research on *norms-based IP systems* (Di Stefano et al. 2014, Fauchart and von Hippel 2008, Loshin 2010, Oliar and Sprigman 2008) and research on *innovation in online*

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[1] Beyond the area of IP, recent studies "offer evidence of the existence of norms in online communities" (Faraj and Johnson 2011, p. 1469).

communities (Dahlander and Frederiksen 2012, Faraj et al. 2011, Jeppesen and Frederiksen 2006, O'Mahony and Ferraro 2007, von Krogh et al. 2012, Wasko and Faraj 2005). We do so by comparing and contrasting norms-based IP systems in online settings with those found in off-line settings and by proposing a contingency view of norms-based IP systems in online communities. Our findings are also of managerial interest. The promise of "crowdsourcing" new product ideation and design to online communities is great, and it is frequently heralded as a paradigm shift in the organization of innovation (Baldwin and von Hippel 2011, Cook 2008, O'Hern and Rindfleisch 2010, Prahalad and Ramaswamy 2004, Seybold 2009, Sheth et al. 2000, von Hippel 2005). Accordingly, an increasing number of firms have experimented with crowdsourcing, only to learn that success is by no means guaranteed (Euchner 2010, Franke et al. 2013, Gächter et al. 2010). A better understanding of the core aspect of IP and its effective protection might therefore help firms who plan to outsource their idea generation to online communities.

The remainder of this article is structured as follows: In Section 2, we review the literature our study is built on, i.e., research on norms-based IP systems. In Section 3, we briefly introduce our empirical setting and research methods, after which we present our findings regarding the characteristics (Section 4) and functioning (Section 5) of norms-based IP systems in online communities. In Section 6, we offer 10 propositions regarding norms-based IP systems in online communities and discuss managerial implications.

2. Norms-Based IP Systems

Norms are "powerful standards of behavior that are rooted in widely shared beliefs about how actors should behave" (Philippe and Durand 2011, p. 969). A norms-based IP system is a system of social norms that regulates IP rights within a collective of actors (Fauchart and von Hippel 2008). Such systems perform the basic functions of law-based IP systems, i.e., protecting intellectual ideas and safeguarding investments in innovation. However, the development of norms (legislative function), the assessment of individual cases (judiciary function), and the enforcement of consequences (executive function) are essentially self-organized instead of being handled by a central authority (Fauchart and von Hippel 2008, Loshin 2010, Oliar and Sprigman 2008, Raustiala and Sprigman 2012).

Norms-based IP systems exist as complements (Bernstein 1992, Ellickson 1991) or as solitary systems (Fauchart and von Hippel 2008, Loshin 2010, Oliar and Sprigman 2008) when formal IP systems such as patent or copyright law are not fully effective (Oliar and Sprigman 2008). This is the case when the scope of formal IP systems is too limited (e.g., creating derivatives from valuable IP, which often is legal, may cause

major damage; Di Stefano et al. 2014) or when legal rules are costly or cumbersome to apply (which is the reason why individuals or small firms often do not enforce their legal IP rights through litigation; Bessen and Meurer 2008).

Extant research has observed and described norms-based IP systems in a variety of settings, all of which happen to be off-line communities. For instance, Fauchart and von Hippel (2008) found that the French haute cuisine community uses social norms to effectively protect valuable recipes. Others have described systems of social norms among magicians (Loshin 2010) as well as comedians (Oliar and Sprigman 2008), whose performance of tricks and jokes is not effectively protected by IP law. These off-line communities share a number of properties that appear as preconditions for effective norms-based IP systems. First, their limited size allows *strict entry control* and makes it possible to select participants for their explicit commitment to the norms (Dreyfuss 2010). Loshin (2010) provides compelling evidence on how difficult it is to enter a community and how easily suspected violators may be excluded. A second characteristic is the *long-term orientation* of members, who typically seek enduring membership (Posner 2002); this facilitates a process of becoming socialized to the norms of the community and provides an incentive to adhere to them, as one's membership might otherwise be at risk (Ellickson 1991). The small size of the community and dense relationships support the visibility of behavior, which appears to be a precondition for being able to observe norm conformity among community members (Coleman 1990, Fauchart and von Hippel 2008, Raustiala and Sprigman 2012). This is crucial for the functioning of a norms-based IP system because individual members are only willing to rely on social norms if they can observe others actually complying with them (Di Stefano et al. 2014). All these characteristics support high *homogeneity* among community members in terms of backgrounds, objectives, and values, which supports the acceptance of and adherence to norms-based IP systems (Preece 2000). Finally, it is easy for small, stable, and close-knit communities to *punish* an offender of norms, e.g., by limiting access to valuable community resources, imposing social sanctions, or effecting reputational penalties (Fauchart and von Hippel 2008, Loshin 2010). For example, Fauchart and von Hippel (2008) found that by simply distributing a note to a number of colleagues, chefs can instantly damage the reputation of a suspected violator, and other accomplished chefs are likely to deny requests for recipes and future collaboration.

Online communities usually diverge widely from all of those conditions. First, most online communities have *very limited entry control* mechanisms (Brabham 2008, Fleming and Waguespack 2007, O'Mahony and

Ferraro 2012). A one-time registration with a username and password is typically sufficient. It is a unilateral decision that typically does not involve any examination of qualifications, intentions, or past achievements. In online communities, unconstrained self-selection is seen as one of the key success factors for innovation (Lakhani and Panetta 2007), as it is difficult to anticipate who will provide the best contribution to the task set (Boudreau and Lakhani 2013, Franke et al. 2014). A second difference is that participants often join online communities for a *limited time* only, which may weaken socialization processes and loyalty to the community (Bayus 2013, Dahlander and Frederiksen 2012, Fleming and Waguespack 2007). Third, online communities are typically quite *heterogeneous* (Boudreau and Lakhani 2009). Participants are often dispersed across the globe and might have very different backgrounds, objectives, roles, and values. This makes ex ante notions of IP norms unlikely to be similar (Husted 2000), hampering the establishment of a shared and joint understanding (Conklin 2005). Like unrestricted access, the heterogeneity of participants is also seen as a major success factor for innovation in online communities (Estellés-Arolas and González-Ladrón-de-Guevara 2012), suggesting that it cannot be reduced without jeopardizing the overall value of generating innovative and surprising solutions (Lakhani et al. 2007). Furthermore, individual misconduct is typically *hardly visible* in online communities, mainly because they can become extremely large. Again, their size is seen as a major success factor for innovation, as exemplified in Raymond's (1999, p. 30) famous "Linus's Law," which states that, "Given enough eyeballs, all bugs are shallow." However, the resulting volume of information clearly complicates the detection of norm violations (Tapscott and Williams 2008). Finally, individuals typically act *anonymously* and can easily change or delete their identities in online crowdsourcing communities (Dholakia et al. 2004), which makes it easy to escape censure or prosecution. Taken together, these characteristics can be seen as strong arguments that norms-based IP systems might work differently in online communities compared to those examined in extant studies. This is the starting point of our research.

3. Multimethod Case Study

To investigate exactly how norms-based IP systems operate in online communities, we focused on the case of an online community that is particularly well suited for our research. We studied the community in depth using multiple methods (Jick 1979). First, we analyzed posts using a "netnographic" approach (Kozinets 2002). Our reasoning is that it should be possible to *reconstruct* IP-related norms based on past discussions among community members. Second, to triangulate our findings, we conducted a survey in the

community and asked to what extent the system of norms *actually mirrors* extant norms. Finally, we carried out a field experiment to test the extent to which the norm system is merely "cheap talk" or works effectively. We did so by intentionally *violating* norms; we copied 64 existing designs, submitted them under false names, and observed what happened.

3.1. Research Setting: The Threadless.com Community

We selected the crowdsourcing firm Threadless and its community as the setting of our research. Threadless has a crowdsourcing platform on which designers submit innovative T-shirt designs and other community members vote and give feedback on the designs. The ideas that receive the best scores from the community (and the most positive evaluation by Threadless staff members) are actually printed on T-shirts.

The platform is well suited to the purpose of our research. First, it has strong *cooperative* elements, as community members reveal their IP on the platform by posting draft designs and asking for feedback before entering a design in the competition. Other members offer improvement suggestions or refer to other work as an inspiration or reference. Overall, the spirit of the Threadless community appears highly constructive and developmental. Community members appreciate that peer feedback helps them become better designers (Brabham 2010). At the same time, Threadless also has strong *competitive* elements. Many members submit designs, but only a few of them are eventually produced. The incentives are the rivalrous goods of money and reputation. IP issues are highly relevant for participants because they retain the rights to their IP until Threadless selects the T-shirt design for production, after which the rights are transferred to the company. This arrangement and the co-occurrence of cooperation and competition make IP regulation a central issue. The main advantage of this particular case, however, is that it is so *extreme*. The Threadless community is exceptionally large and heterogeneous. Piller (2011) reported 2.5 million unique visitors in August 2010, and Threadless indicates that it has 3.2 million anonymous and self-selected participants who average between 34,000 and 60,000 visits to the site on any given day (Jeff Guerrero, Artist and Community Liaison at Threadless, email May 2, 2014). Users are globally distributed (our 166 survey participants came from at least 24 different countries on 5 continents) and differ vastly in terms of their backgrounds, professions, and participation motives (Brabham 2010). Thus, it is virtually impossible for the organizing company to safeguard the participants' IP rights as a central authority. On the other hand, Threadless is one of the most successful examples of crowdsourcing platforms, suggesting that it might allow us to draw conclusions about how IP issues can be regulated effectively.

3.2. Netnographic Approach

Like traditional ethnography, netnography is a naturalistic method that provides researchers with a window into naturally occurring behaviors (Kozinets 2002). Its main advantage is that it is unobtrusive. User behavior is captured and stored automatically on the Web, meaning that data do not necessarily have to be collected in real time. Our data collection and analysis followed an iterative process. In many cases, social norms are not visible, especially if a system of norms functions well and actors conform to it (Arrow 1970). Yet tacit norms become evident when they are breached (Garfinkel 1991), and we assume that this also holds for IP norms. For this reason, we focused on analyzing cases in which community members accused others of violating community IP norms. Because of the vast amount of data (billions of posts on Threadless.com), it was critical to search for relevant cases systematically. In multiple steps, a panel of 15 trained research assistants, all of them familiar with the Threadless community, developed a search heuristic based on a list of 10 keywords ("already printed"; "copied design"; "copied my"; "copy/paste"; "existing design"; "imitation"; "intellectual property"; "rip off"; "same design"; "zero"). This initial search resulted in a database of 1,224,579 discussion posts that were subsequently screened for IP issues by the team. The comments included many false positives, i.e., search results that did not relate to IP violations. Eventually, we identified 196 threads with 6,424 posts for further analysis. Among them, 155 threads were triggered by an alleged design copy case, while the remaining 41 contained more general discussions about IP violations.

We analyzed the relevant comments using open coding (Strauss and Corbin 1990) to identify first-order concepts, i.e., themes regarding the handling of IP issues that recurred consistently throughout the 6,424 discussion posts. We then used axial coding (Miles and Huberman 1994, Strauss and Corbin 1990) to group the first-order concepts into second-order concepts, resulting in a set of seven distinct norms for the handling of IP in the Threadless community. After two iterations of analyzing all IP-related discussions, we did not find any additional norms, suggesting that the set we identified is exhaustive. Subsequently, we used selective coding and memoing (Charmaz 2006) to identify relationships between norms and to understand the functioning of the norms-based system as a whole. Throughout our analysis, we paid close attention to the context of each case, such as the specifics of the copied design or particularities in the way in which the violation was handled. Through this intense study of the data over several months, the research team obtained an in-depth understanding of how the community views and handles IP issues.

As participation in such online discussions is voluntary, there is a risk of self-selection bias. Theoretically, it is possible that only individuals with extreme opinions regarding IP norms took the time to post in response to IP violations, meaning that the norms reconstructed would not be representative of the community. Therefore, we triangulated our database with two more data sources.

3.3. Survey

The objective of the survey was to find out whether or not the norms-based IP system we reconstructed using netnography matches the perceptions of the Threadless community. In the questionnaire, we asked, "In the following, we have listed some rules about copying designs that might or might not apply to the Threadless community. Would you give us your opinion?" Then each of the norms was listed, and participants could indicate their opinions regarding their prevalence ("This is a well-established rule among members"; $1 =$ strongly agree, $5 =$ strongly disagree) and whether they would adhere to this norm ("Personally, I would follow this rule under all circumstances"; $1 =$ strongly agree, $5 =$ strongly disagree). We inserted an open section where participants could comment and add norms ("Are there important unwritten rules regarding the copying of designs we have missed? Please describe them in the blank box below."). To ensure comprehensibility, we conducted a pretest based on a convenience sample with $n = 52$ respondents.

The link to the online survey was posted on the community site by a Threadless community manager together with a call for participation. The announcement emphasized that the questionnaire was confidential and for research purposes only. The survey remained online for six weeks. In the first two days, 146 people completed the questionnaire, and the final total came to 166 respondents. As Threadless was not able to provide us with demographic information on its community members—its composition changes permanently and the number of incomplete profiles, "dead" accounts, and double entries is unknown—we could not compare the sample characteristics with the overall population (see Table A.1 in the appendix). On a qualitative basis, Threadless members assessed the sample as representative of the community. A comparison of early and late respondents showed that there is no significant difference between the groups except for the control variables *visits to website* ($p < 0.01$) and *interaction with other members* ($p < 0.01$), which means that highly active Threadless community members are overrepresented in our survey sample. To analyze the consequences of this bias, we segmented our data in various ways (members with versus without submitted designs, frequent versus occasional visits to the website, frequent versus occasional interaction with

other members) and compared active participants with less active participants. These intrasample comparisons showed no significant differences in opinions about the norms, which suggests that the findings might be generalized to the community as a whole (see also Section 6).

One potential threat in surveys on value-laden topics such as ethics or social norms is social desirability (Grimm 2010, Randall and Fernandes 1991). Theoretically, responses might reflect what participants sense *should* be the norm rather than their true feelings and actual behavior regarding the norm. To analyze the extent to which the respondents' answers were valid, we checked whether they conformed to those norms in their actual behavior. This was possible because respondents provided us with their Threadless usernames. We developed a Web crawler to search the Threadless platform for all interactions in which the survey respondents were involved (>85,000 posts). On the basis of 1,500 comments, we developed a coding scheme for identifying cases of norm violation. We then drew a random subsample of 20% of the original sample (33 survey participants), and two independent research assistants analyzed their 21,671 posts in detail (98.5% accordance). The overall result of our validation study is convincing: We found discrepancies in only 0.9% of all cases where a user indicated adherence to a norm (1 or 2 on a five-point Likert scale). In sum, the data from the survey appear sufficiently valid. To provide further corroboration, we conducted a field experiment.

3.4. Field Experiment

In this experiment, we intentionally violated the IP rights of Threadless community members by copying randomly chosen user designs and posting them as new submissions to Threadless. If our account of the norms-based IP system is correct, then we should observe the reactions as predicted. With the full consent of Threadless, each week we randomly selected three designs from all of the submissions Threadless had received that week, resulting in a total of 64 designs (see Table A.2 in the appendix). Our sample included frequently rated designs as well as submissions that were seen and scored by only a few people (*number of scores received*, mean = 272.88, SD = 130.53). We then copied and submitted them under various false names four weeks after their original submission. During this delay period, roughly 1,200 other designs were submitted, which means that the detection of the copy was by no means trivial. We randomly varied the exact days on which we submitted the three copies and stretched the experiment over a period of six months to avoid generating "artificial" alertness due to potentially recognizable patterns or an excessive number of violations. We monitored our submissions on the

Threadless platform and measured the time until the fraud was detected by the community. Upon detection, we took screenshots of the immediate user reactions for further analysis. Our agreement with Threadless stipulated that as soon as someone detected the copy, both the design and the profile used to submit the design would be removed.[2] To not endanger the test, we did not inform the original designers. Finally, we systematically analyzed the responses by coding the norms that became visible in each instance (two independent coders; 100% accordance).

4. Characteristics of the Norms-Based IP System in the Threadless Community

Our first finding is the "gestalt" of the norms-based IP system within the Threadless community. We were able to reconstruct a parsimonious set of seven well-established IP norms. Three are related to copying as such (Norms 1–3), three norms concern the process of handling an alleged case of copying (Norms 4–6), and one deals with sanctions in the case of an IP norm infringement (Norm 7). Most survey participants (86.6%) indicated that they "agree" or "strongly agree" that this set of norms is established in the Threadless community (mean = 1.76, SD = 0.844), and 92.7% indicated that they adhere to those norms (1 and 2 on a five-point Likert scale; mean = 1.44, SD = 0.711). The responses to the open survey question (asking for any additional informal rules regarding copying that we had missed) did not suggest any further norms, and those responses yielded strong illustrative support for the ones we had reconstructed. In the following, we describe them individually.

Norm 1: You must not copy designs. On December 29, 2007, the user "legendarypinkdots"[3] submitted the design "WD" (Figure 1) in the Threadless "Critiques" section, a place for designers to upload drafts to get community feedback on how to improve the design. Only 12 minutes later, another user detected that the design was a one-to-one copy of the design "Mac-Gyver" (Figure 1(a)) by the user "Glenn Smith" and posted the following:

DON'T SUBMIT! or else you'll be sorry. (HFHF)

A few minutes later, the next user complained and included a link to the original design:

OH NO YOU DI-NT! OH NO YOU DI-NT. (Bourdieu)

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[2] In a few cases, e.g., when the copy was detected on a weekend, it took somewhat longer to have our copy and profile removed by Threadless.

[3] All usernames have been changed by the authors.

Figure 1 (Color online) Examples of Different Types of Copy Cases

One-to-one copy in the "WD" copy case

Copy of design elements in the "Hammer 80" copy case

Concept copy in the "fly_butter" copy case

Original design

Original design element

Original concept

Copied design

Copied design element

Copied concept

(a)   (b)   (c)

Within less than one hour, community members had posted another 10 comments, all condemning legendarypinkdots' blatant violation, for example:

Wtf? please tell me this is a joke. (johannes)

SUBMIT! I would totally wear this!—Oh wait, I wore it yesterday. (Chingachgook)

I guess legendarypinkdots has a good sense of humor, nah? :) (Grubi_Lauri)

The case ended on February 10, 2008, with the deletion of legendarypinkdots' design.

We found 36 cases of completely identical copies, which means that they were relatively rare. In all of those cases, the community reacted furiously (see Table 1). This allows us to conclude that "You must not copy designs" is indeed a central norm within the Threadless community. Its members are designers and design enthusiasts, many of whom work hard to create unique designs to win a contest and to gain a reputation as creative designers among their peers. They do not want free riders to gain financial or reputational rewards, so they help each other protect their original work by commenting on designs that violate this norm:

No one deserves 1,000 dollars for ripping off another person's shirt. (Captainbeefh)

You're taking credit for something someone else did. (sunstar180)

Besides one-to-one copies of a complete design, which not only infringe on community norms but also violate Threadless' formal terms and conditions as well as U.S. and international copyright law, there are two other issues regulated by the norm. The first is emulating design *elements*, that is, copying only parts of a complete design (for an example, see Figure 1(b)). While copyright law can be ambivalent in such cases (Besen and Raskind 1991, Smith 1993), Norm 1 of the Threadless community clearly prohibits such behavior. On January 28, 2011, for example, the user "Muddleal" submitted their design "Hammer 80," with elements taken from another design. The next day, "CoolGiggs" discovered it and posted the following comment:

Why did you steal the hair from Lovely Face? [link to original design]

The alleged copier tried to argue with CoolGiggs, but more and more community members joined in and accused her of stealing the design element:

Stolen from a printed design...0. (PygmyTwylyte)

Muddleal tried to argue why she thought that the design was a reference and not a copy, but those words fell on deaf ears in the community. The case ended with the censure of Muddleal. Again, this is not an isolated case. In 33 (21.3%) of the copy cases we analyzed, users referred to partial copies of designs.

Table 1   Overview of IP Norms

Summary of norm and support in survey results	Central concepts found in netnography	Sample quotes
Norm 1: "You must not copy designs" 96.4% "strongly agree" or "agree" that this norm is an established rule (mean = 1.25, SD = 0.51). 98.8% "strongly agree" or "agree" that they always adhere to this norm (mean = 1.07, SD = 0.29).	One-to-one copy prohibited	"Obviously there are 7 people who do not know that this is ALREADY a shirt…and i mean, exactly this shirt has already been done." (bemoan) "This is a shirt already!!!! are u insane?!" (Android_affection) "This is a total rip-off of heartcore" (lightmyfire) "Using a similar concept is one thing, but outright plagiarism? Wow…" (Boots003)
	Copying of design elements prohibited	"Why did you steal the hair from Sweety? [link to original design]" (CoolGiggs) "I just examined both heads and They are exact. come on. The same little sprig of hair in the front? the SAME highlight in the head? The little fold in the shirt above the pants? The bulge in the tricep area of his right arm?" (Ilbollocks) "Dude, when the cow is exactly the same shape with all the spots in the same place, it is pretty for sure stolen. Sure the original artist didn't invent the cow, but she did invent this particular cow." (Miss Piggy)
	Concept copying prohibited	"Following a particular style isn't a problem, rather it's the submissions that steal other's exact design concepts. There is nothing original, creative, or innovative about this design. Sorry to sound like a *****, but it's true." (Ijido) "Same exact idea." (my name is Michael Caine) "Dont **** with the [tee concept]. come up with your own ideas you *******. i feel like making 5 new acounts and giving you a zero on them all." (twneverhouse)
Norm 2: "If you wish to copy, you must ask the original designer" 89.2% "strongly agree" or "agree" that this norm is an established rule (mean = 1.55, SD = 0.74). 95.8% "strongly agree" or "agree" that they always adhere to this norm (mean = 1.22, SD = 0.55).	Ask for permission	"Did you get the original guys permission? probably not…I think that's where the problem lies." (plumphone) "She should have asked the artist's permission—but then, how do we know that she didn't?" (Asterix) "I wrote to Jamee love and he told me that it was ok for him, and that if i wanted i should submit my design. So everything's ok with Jamee. [link]. Peace everyone" (caponos)
Norm 3: "If you copy, you must credit the original designer" 79.4% "strongly agree" or "agree" that this norm is an established rule (mean = 1.76, SD = 0.88). 91.5% "strongly agree" or "agree" that they always adhere to this norm (mean = 1.33, SD = 0.73).	Give detailed references when submitting a partly copied design	"Inspired by [name of original design], i decided to do my own version. i kinda like it =)" (beer) "The fact that people mess with and modify my work and redistribute it without my permission, and without fully crediting me, really makes me mad. Copying (which amounts to theft) is not a compliment." (jellybeans)
Norm 4: "If you are suspicious about the origin of a design, you must check whether it is a copy" 83.0% "strongly agree" or "agree" that this norm is an established rule (mean = 1.72, SD = 0.85). 94.5% "strongly agree" or "agree" that they always adhere to this norm (mean = 1.36, SD = 0.71).	In case of suspicion, look for original source	"Hmm, that vampire bat sure looks familiar…I wonder why I could TRACE it back to…google image search vampire bat anyone?" (smiley) "This one might be changed enough but it looks familiar [link to original and suspected copy]. This one looks familiar, but I'm not sure [link to original and suspected copy]" (steaky)
	"Threadless police" members who are especially suspicious	"!!!RIP OFF ARTIST STEALING WORK—PLEASE HELP!!! Caught this dude on Society6 ripping off well known Threadless artists including myself and thought I might take a stronger stance on this matter." (billanderson) "Threadless police force crackdown strikes again." (stan!) "Get over yourselves, plagiarism police." (faz-desert)

Table 1   (Continued)

Summary of norm and support in survey results	Central concepts found in netnography	Sample quotes
Norm 5: "If you find that a design was copied, you must make the case public" 80.0% "strongly agree" or "agree" that this norm is an established rule (mean = 1.75, SD = 0.87). 78.8% "strongly agree" or "agree" that they always adhere to this norm (mean = 1.73, SD = 0.97).	Alert the community	"Hi all! I stumbled across this design [link to copy] and instantly recognised it as being very similar to [link to original] by Betty Whiteman. Betty is extremely talented and very supportive to other artists so this was **** to see. Just thought I'd let you guys know here as not too sure where else to report it. Happy drawing!" (Dumb Marc) "The person who created this is named Monty. I know as I shared a brief artistic discourse with her many years ago when I still used DA. You need to take this down. Now." (Justcaught)
	Inform inexperienced members about norms	"People—especially younger kids—coming to Threadless from a fanart community could easily have totally different expectations of what is/isn't acceptable." (mismonaut) "The really only thing that helps it's being sometime here and learning the dos and don'ts, be willing to learn and suck it up if reprehended." (ivanrodero)
Norm 6: "The public trial must be fair" 88.5% "strongly agree" or "agree" that this norm is an established rule (mean = 1.50, SD = 0.71). 97.6% "strongly agree" or "agree" that they always adhere to this norm (mean = 1.46, SD = 0.46).	Never falsely accuse someone	[Reference to a case, where someone was falsely accused] "That was shameful **** on behalf of the community." (casco—blog entry) "It's impossible not to make mistakes from time to time, but the persons that participate in the rip blog I think we do it for doing the better for all and not the wrong, we could jump and say that's not yours! but we prepare our case, we research before we say something." (ghghg)
	Provide proof (in the form of a link or a reference)—do not accuse without proof	"I dunno, I see the similarities, but is there an iron clad picture to this story? I mean, it looks like they both draw creatures. So does Jon Freud…where is the theft? I am not saying that anyone is innocent or guilty, I just want to see exactly where the proof of a rip off is." (MRIllinois) "I require proof before I take any sort of action." (Rebel123) "Yeah, i don't think people should start yelling 'rip' until they know for certain. that's really lame." (yourBee)
	Give the copier the chance to defend themselves	"If someone has a design very close to someone else it doesn't mean that it's copied. Great minds think alike very often. Give the designer the right to explain himself." (Survey response) "If a designer is accused of copying a design, it's fair and appropriate to give them the opportunity to defend their actions and/or refute the claim." (Survey response)
Norm 7: "If someone has been caught copying a design, you must join in the collective sanctioning" 66.1% "strongly agree" or "agree" that this norm is an established rule (mean = 2.04, SD = 1.16). 64.2% "strongly agree" or "agree" that they always adhere to this norm (mean = 2.11, SD = 1.10).	Downvote design	"Big fat zero its not cool, funny, or interesting." (los mopsos) "I OWN THIS SHIRT FROM HARDCORE. ZERO FOR YOU." (webdeflandre) "Boooo complete zero for stealing an idea." (mrert2s)
	Warn other members about voting	"If it's proved that a design is a complete copy, the community members should be warned before voting on the copier's other designs." (Threadless user, open section in survey) "EVERYBODY VOTE THIS AS A 0!!!!!!" (JonnyStella)
	Censure	"ZERO ZERO ZERO ZERO ZERO ZERO ZERO Go slit your throat and stop stealing t-shirt designs." (VictoriaGreta) "Get your own ideas kids,..... really. Have you no Shame? You baffle me." (dgfrankini) "BAD BAD BAD BAD BAD BAD BAD PERSON YOU! FOR SHAME! BAD BAD BAD BAD BAD BAD BAD! BAD! STUPID BAD NO NO NO NO NO BAD PERSON YOU!" (iffland1489)
	Observe copier	"If I know that one design has been plagiarized, I will look much more critically at other designs, as there is reason to suspect that they are not the submitter's original work. That being said, I don't deliberately give lower scores to the other submissions if they appear to be original." (diebshnucker, blog entry) "Get caught once, and be placed under the microscope from then on." (Survey response)
	Involve Threadless	"[posted link] Like the others said, it's stolen. I've informed the artist that you used his picture. I'm not sure how to report a copyright violation on threadless but I'm definitely going to find out." (John_Jordan) "Threadless should definitely follow up on this one!!" (wemmi)

Note. The quotes have not been edited, except for removing profanities, which are replaced by ****.

Another form of imitation is to copy the *concept*, i.e., the central idea behind a design. Concept copies are more subtle and thus more difficult to identify. For example, the user "balcon" submitted the design "fly_butter" on January 23, 2006 (see Figure 1(c)), which imitates an already existing concept based on a pun with "butter" and "butterfly." The community reacted instantly:

> There have been like 3 subs about butterflies just like this. (IrvingWashington)
>
> Seriously, I'm beginning to think that there's some kind of secret Threadless society hell-bent on submitting the same damn mediocre ideas in (slightly) varying forms. Imitation may be a form of flattery, but we need to draw the line somewhere, right? (Wintergreen)
>
> So so overdone. 0 for originality 2 for execution. (CalebM)

The case ended on January 24, 2006, with severe censure of the copier. As copying the concept behind a design is technically not a copy of that design, formal copyright law is not applicable (Denicola 1979), nor are Threadless' terms and conditions. This means that community Norm 1 is particularly strict. Copying ideas is seen as an infringement against which the community needs to be protected. Naturally, this form of imitation is more ambiguous than the other two. Coincidences do happen, and it can be difficult to distinguish between inspiration and imitation:

> Sometimes there's a thin line between copying, and coincidentally having the same idea with a different execution. (Survey response)
>
> Similar concept does not equate to copied designs... know the difference! (Survey response)

As a consequence, many of the cases of copying we studied included debates on whether or not a design was an illegitimate copy of another user's concept. A total of 91 cases of copying (58.7%) dealt with this violation of Norm 1. We observed that users often discussed and negotiated these conflicts intensely. The key criteria for determining whether or not a copy was legitimate are its originality and creativity. This issue was brought up in 46.1% of all cases where a concept had been copied. Copies of concepts are not accepted by the Threadless community when the execution is weak, the copy is unoriginal, or there are several (unoriginal) submissions of a concept within a few weeks or months ("overused concepts"). Often there are design trends, "genres," or design elements (pandas, sunflowers, rainbows, etc.) that come up very often. These concepts are well known within the community, and designers are expected to be sensitive and avoid overusing such elements.

Overall, Norm 1 is the central IP norm and the starting point for the other norms. It is in line with research on norms in off-line communities that also prohibit copying (Fauchart and von Hippel 2008, Loshin 2010, Oliar and Sprigman 2008). Similarly, the way in which Norm 1 allows for distinctions between positive and negative copying closely resembles the functioning of norms against copying in off-line communities. For example, the magicians' community benefits when members borrow from others and tweak or refine the execution of tricks in a creative way (Loshin 2010). To enable social learning and cumulative effects, it is important that community members apply this norm with some discretion in both online and off-line communities, as an overly restrictive ban on imitation would inhibit the development of the community rather than spark innovation (Raustiala and Sprigman 2012). In the Threadless community, this mindful application of Norm 1 becomes visible in the online discussions around each submission.

Norm 2: *If you wish to copy, you must ask the original designer.* Copying parts of designs or reusing a concept is not invariably prohibited in the Threadless community. Exceptions are possible with the original designer's permission. By transparently indicating that a new submission was inspired by another design and that they obtained the original designer's approval, users are able to show other community members that they did not steal it. The original designer has the opportunity to evaluate whether or not the partial copy or concept design is sufficiently original to be submitted and is thus enabled to veto the submission of the derivative design. However, we did not find a single instance of such a veto in our netnography. This suggests that one can expect other community members to be generous in giving permission to reuse parts of their designs or a concept. The moral obligation to share largely corresponds to the "fair use" doctrine (e.g., Posner 1992) and to the public uproar against artists who do not consent to the reuse of their work, as in the case of Lady Gaga objecting to Weird Al Yankovic's parody of her song "Born This Way" (Alexiou 2011), to name but one example. In our netnographic analysis, we found 11 cases in which this norm was explicitly mentioned (Table 1). Its prevalence was further substantiated when we extended the netnographic focus to blog entries and to comments on cases where no accusations had been made. We came across many more references to this norm, for example,

> While working on this someone pointed out to me that something similar has been done by House aka "the wonderful" Electric Steak. I contacted House and he was okay with me submitting this! Thanks House! Hope you all like this design! (MichaelKenyon)

Norm 2 exists in a similar form in off-line communities. It is typically expected that community members will not make use of others' ideas without permission from the originator. Although it also seems to be common in off-line communities to pass on IP to others (e.g., accomplished chefs share valuable recipes with

apprentices, Fauchart and von Hippel 2008), it appears that sharing IP in the off-line world is rather selective (Di Stefano et al. 2014). French chefs and comedians have even developed an informal trade in recipes (mimicking the law of trade secrecy; Raustiala and Sprigman 2012) to control and limit the proliferation of their IP. Interestingly, our netnography did not provide any indication that community members in the online setting are similarly selective. Such open willingness to share is not uncommon in online communities; other studies have found that to enhance public recognition of their creativity, individuals may prefer to reveal their IP rather than to protect it from use by others (Lerner and Tirole 2002, Wasko and Faraj 2005). Nevertheless, Norm 2 seems to have an important function, as it signals that the copy is legitimate.

Norm 3: *If you copy, you must credit the original designer.* Closely related to Norm 2 is the norm requiring designers to cite the original design if they borrow concepts or design elements with permission from the original creator. When they do so, the important effects of inspiration, cross-fertilization, and accumulation are facilitated, while the achievement of the original designer is still acknowledged. In a way, this norm resembles citations in scholarly works (Merton 1965). We found references to this norm in 11 cases (Table 1).

If designers are inspired by someone else and make creative designs by reusing some elements, it is their responsibility to comply with both Norms 2 and 3. By obtaining the original designer's consent and acknowledging the original source, designers can take advantage of "legal certainty." Norm 3 is beneficial not only for designers who copy but also for the original designers by increasing their visibility and reputation. Compliance with Norm 3 shows other community members that building on others' work can be acceptable or even desirable within the community as long as the copy is executed with a sufficient level of originality in its own right. Such a signal, in turn, may spark cumulative innovation and creative recombination.

Norms-based IP systems in off-line communities also stipulate that community members should give credit by referring to the original creators and express gratitude to them for sharing their IP (see, e.g., Fauchart and von Hippel 2008 on the community norms of French chefs). As is the case with Norm 3, the norms of attribution in off-line communities make sure that some of the awards for the innovation go to the originator. Several studies of off-line communities provide compelling evidence that widespread imitation and acknowledgment of ideas results in fame and reputation for originators within and beyond their respective communities (Loshin 2010, Raustiala and Sprigman 2012).

Norm 4: *If you are suspicious about the origin of a design, you must check whether it is a copy.* The IP-related norms in the Threadless community do not apply to designers alone. As individual designers are unable to secure their IP by themselves, community members are expected to jointly take on a "policing" role, i.e., to check whether newly submitted designs are copied. Indeed, the vast majority of norm violations we studied were uncovered by the community. They were detected by the *originators* in only 5 out of 155 cases. Widespread adherence to this policing norm implies that the Threadless community can rely on multilateral monitoring and enforcement of social norms, a mechanism that can be highly effective (Bowles and Gintis 2002, Ostrom 1990). We found 42 references to this norm in the cases we analyzed using netnography (Table 1).

Accordingly, this important function is relatively broadly distributed. The 155 cases of copying were detected by a total of 111 different community members, 97 of whom spotted only one case each. However, a certain division of labor and specialization of roles can also be observed. Fourteen individuals detected multiple copies (up to 11 cases). Those individuals actively search for stolen designs, and upon detecting a suspected copy, they trace early draft designs in critique sections or blogs to evaluate who was the original creator and to acquire proof that it is an illegitimate copy. They are sometimes even called the "Threadless police" and appear to have developed some pride in their role:

> Threadless police force crackdown strikes again. (stan!)

The community approves of their work and the valuable function they perform. This is visible in many comments, such as the following:

> You deserve a badge for this stuff. (muli)
> Whoah…good catch Eric! (leppihnov)
> Damn…nice catch. (Tapirmouse)

Members who specialize in this policing role are highly productive designers for whom the functioning of the norms-based IP system is crucial. A closer analysis of three users (among our 166 survey participants) who fall into the category of "Threadless police" illustrates this point. All three were long-term members of the community (mean = 5.75 years) and had submitted a large number of designs themselves (between 45 and 121 each). They interacted with other community members on an almost daily basis, and each had rated around 80,000 designs.

In off-line communities, norms focusing on detection also appear to be of central importance. However, as with formal IP systems, detecting copies is essentially the job of the originator (Oliar and

Sprigman 2008).[4] This difference might be due to the fact that members of close-knit communities can typically see each other's work directly and easily recognize whether someone is copying another's work (Fauchart and von Hippel 2008). Given the enormous size of many online communities, policing norm violations is necessarily a community task.

Norm 5: *If you find that a design was copied, you must make the copy case public.* The public visibility of copy cases and of the ensuing trial is an important element of Threadless' norms-based IP system. There is a clear expectation that the police (either the "specialized" police or other members who engage in policing activities only occasionally) should inform the community about detected or suspected violations. As Table 1 indicates, the norm "You must make the copy case public" has two important functions: First, alerting the community attracts the attention of other community members and helps to prove a copy case; in some instances, it may even uncover additional potential violations by the same copyist. Moreover, it addresses alleged violators directly and prompts them to provide explanations. Naturally, it also provides the basis for enforcing the norms-based IP system, i.e., for collective sanctioning behavior. The second function of this norm is to inform new and inexperienced members about existing norms, thereby contributing to a coherent understanding of the norms-based IP system within a community subject to constant turnover and fluctuation. For social norms to function in such a loose-knit community, it is important to articulate them often and widely, and to demonstrate their performance. Otherwise, it will be difficult for members to become socialized to the norms of the community.

Although an awareness of norm violations is also important in off-line communities, it appears that norms requiring members to make alleged violations public are less common in such settings. This may be for two reasons: First, it may not be necessary to inform the originators. In off-line communities, violations are often detected by originators themselves (Oliar and Sprigman 2008) or immediately become obvious to them due to the smallness and close-knit character of the community (Fauchart and von Hippel 2008). Second, it may not be necessary to start a public trial. The injured parties may be able to reestablish justice discreetly with the offender (through negotiation or some form of "vendetta"), particularly when they are powerful themselves or have strong ties to influential members (Raustiala and Sprigman 2012). This alternative hardly exists in anonymous online settings, thus making public announcement indispensable.

Norm 6: *The public trial must be fair.* In our netnographic analysis, we found 122 cases in which the behavior of community members led us to conclude that fairness of the public trial is a core value within the Threadless community and a crucial requirement for sustaining the norms-based IP system. Fairness is a central concept for understanding social norms and cooperation (Bicchieri 2006, Lind and Tyler 1988). If social norms and their enforcement are not perceived as fair (e.g., sanctions revealing greedy or selfish intentions such as revenge), cooperation among otherwise altruistic community members is likely to collapse (Fehr and Rockenbach 2003).

Among the variety of examples in our cases, we specifically identified three aspects that are central to this norm (Table 1). First, community members must never falsely accuse anyone, either on purpose or because they were negligent in researching the case. As Threadless user "Espe_Omne_Seir" indicated:

> If you called out a design in the submission comments, then later apologized for false accusation, it's too late. The damage has already been done. (blog entry)

The importance of this aspect is reflected in the painstaking efforts made by community members to ensure that their allegations are based on firm grounds. Related to this is a second aspect of the norm: If community members are convinced that someone has stolen a design, they have to make the evidence available to other members of the community. Only then can other members decide on the case and whether or not any action is justified. To sustain the community-based enforcement of social norms, it appears mandatory that trials are transparent and clearly show whether or not potential sanctions are legitimate. Third, it is also important to give alleged copiers the opportunity to present their cases and explain how the copy "happened," why they do not think it is a copy, or the extent to which mitigating causes should be considered. The most important mitigating cause is that the (element or concept) copy was made with permission from the original designer (Norm 2). As in formal IP regimes, the burden of proof lies with the plaintiff, meaning that the alleged copier is innocent until proven guilty. The importance of this norm is reflected by the fact that we found references to the importance of a fair trial in 65.8% of all copy cases.

In off-line communities, "possible IP violations are assessed by informal community consensus" (Fauchart and von Hippel 2008, p. 187). Interestingly, none of the studies of norms-based IP systems in off-line communities mention norms regarding how such community consensus is achieved. It might be the case that a complaint ("member X has stolen my IP") might simply be brought to the attention of a particularly influential member, and if that central member finds the case

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[4] One notable exception can be found in the community of stand-up comedians, who typically watch the performances of several other colleagues each night and use this wide exposure to police each other (Oliar and Sprigman 2008).

convincing, she might apply sanctions without much further ado (Fauchart and von Hippel 2008). Sanctions may therefore be more a function of the direct or indirect power of the injured party, not necessarily of the merits of the case. In online communities like Threadless, however, it is necessary to involve a broader representation of the community in fair and transparent adjudication to secure the legitimacy required for collective sanctioning. It thus may be that the public norms-based IP system in the Threadless community results in fairer outcomes than in small, close-knit communities (see Section 6).

Norm 7: *If someone has been caught copying a design, you must join in the collective sanctioning.* When the "public trial" comes to an end after arguments and facts have been exchanged, some form of verdict typically results. The verdict is not delivered by a higher authority or a central member. Instead, community members judge for themselves whether or not the alleged copier has been found guilty in a fair trial and should therefore be sanctioned. If community members are convinced that a violation of the core norm "You must not copy" has been proven and that there are no mitigating causes, they are expected to take on the role of "executioners" and follow the norm in the collective sanctioning of the copier.

We observed that the Threadless community makes use of several sanctioning mechanisms (Table 1). The most frequently used form of sanction is downvoting (79% of cases with sanctions), in which community members give the copied design the lowest possible score. This sanction goes hand in hand with warning others that they should not give high scores for the design. In many cases, more than half of the comments on the design included such requests. Other sanctions include censuring members who violate community norms (42% of cases with sanctions) or putting them on a watch list (15% of cases with sanctions). Community members not only monitor future submissions from individuals who have been caught copying a design; some also engage in painstaking investigations by checking earlier designs by suspected copiers for possible infringements. Indeed, in seven cases we found that the community uncovered further instances of copyright violations as a consequence of this increased scrutiny. What these various forms of sanctioning used by the Threadless community have in common is that to be effective, they require *collective action* by a sufficiently large number of community members. The sanction of downvoting in particular would not have much of an effect if only a few individuals gave a low score. Only collective action ensures that the copier is punished effectively. Similarly, censure or putting the copier on a watch list are only powerful instruments if there is a larger collective that endorses and participates in the sanctions. For this reason, Norm 7 is central to enforcing the overall norms-based IP system at

Threadless. We found evidence of collective sanctioning in 49 out of 155 cases (31.6%).

Norms for sanctioning also exist in off-line communities, where both individual and collective retribution appear to play an important role (Di Stefano et al. 2015, Loshin 2010, Oliar and Sprigman 2008). The main difference between online and off-line communities is the type of sanctions that can be effectively used to enforce compliance with IP norms. Whereas the most effective form of sanctioning is often denial of access to the community and its resources in off-line communities (Fauchart and von Hippel 2008, Loshin 2010, Raustiala and Sprigman 2012), similar sanctioning mechanisms are typically ineffective in large online communities like Threadless. Because quasi-unrestricted access is a key feature of many online communities, they need to resort to the other forms of sanctioning reported above.

5. Functioning of the Norms-Based IP System in the Threadless Community

Our second analytical lens is focused on the functioning of the norms-based IP system within the Threadless community. In Sections 5.1–5.3 we investigate the interplay of the norms, analyze the effectiveness of the system, and identify its enablers.

5.1. The Norms as a System

So far, we have mainly portrayed the norms-based IP system within the Threadless community on the basis of its components, i.e., the seven core norms. However, the different components are interrelated and thereby constitute a system (Simon 1962). An intuitive way to illustrate how this system works is to map its components using a stylized case of copying from submission to sanctioning. The "legal procedure" we observed upon an infringement of the central norm that prohibits copying designs shows the different functions of the norms, their completeness, and their parsimony (Figure 2).

The process we observed in the 155 copy cases closely resembles a criminal procedure (House of Representatives Committee on the Judiciary 2013); however, it is decentralized and self-organized. Immediately after the submission of a design, the community checks whether or not there might be any IP-related issues. The basis for this is Norm 1 (*You must not copy designs*). Decentralization is achieved through Norm 4, which requires community members to be alert whenever they view a submission, i.e., when giving feedback or when giving the design a final score (*If you are suspicious about the origin of a design, you must check whether it is a copy*). When the individual community member finds that the core norm has been violated, "charges are filed" and a trial is set in motion.

Figure 2   Stylized "Legal Procedure" of a Copy Case from Submission to Sanction
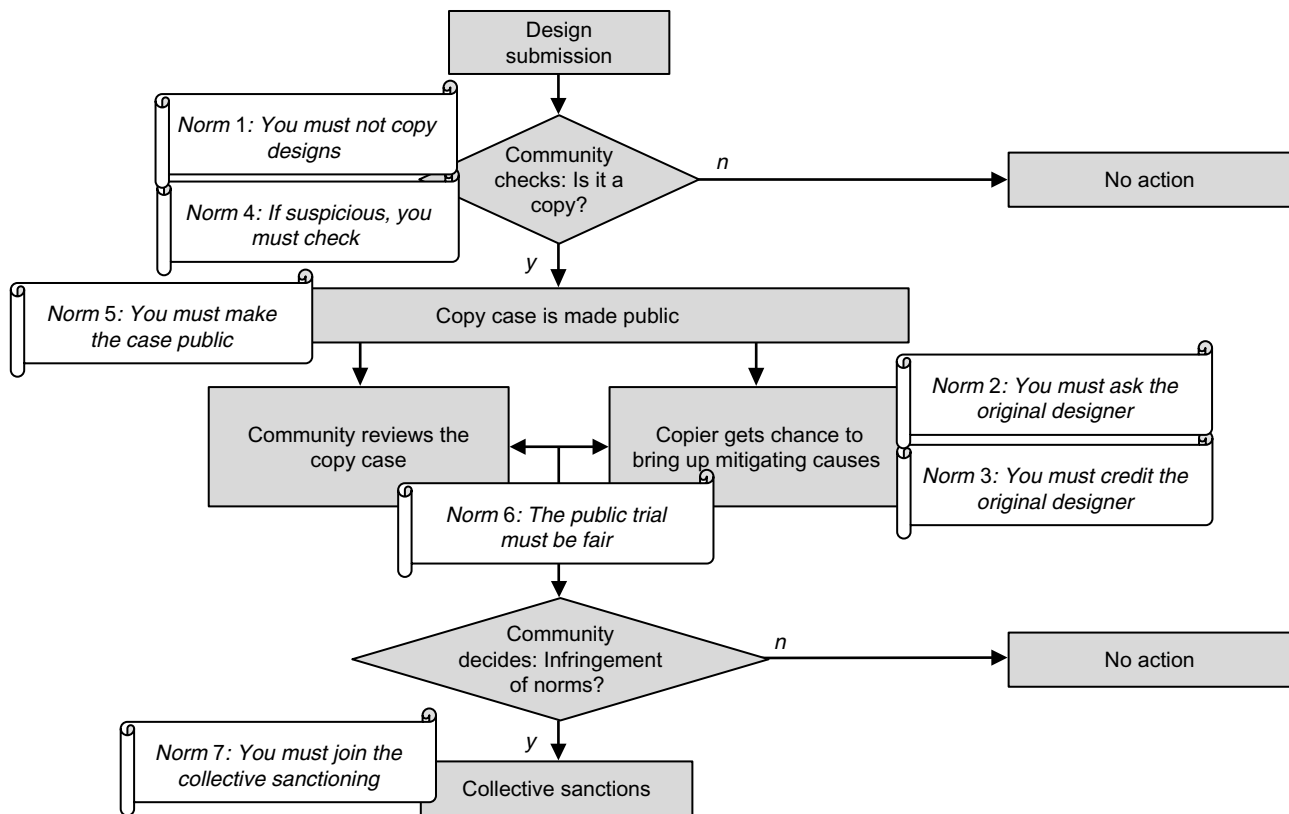
The first step of this procedure is to make the allegations public by posting a comment on the submission page, which is regulated by Norm 5 (*If you find that a design was copied, you must make the case public*). This publicity gives the original creator and other community members a chance to participate in the trial and to demonstrate publicly how the community deals with violations of its norms. Norm 6 (*The public trial must be fair*) ensures that this delicate step follows a due process commonly associated with developed legal systems, which requires civilized methods of law enforcement and procedural fairness (Tribe 1972). In particular, it is important to ensure that the alleged violator is heard in this process and has the opportunity to present mitigating causes. This is most effective if she is able to demonstrate adherence to Norms 2 (*If you wish to copy, you must ask the original designer*) and 3 (*If you copy, you must credit the original designer*). This process may include multiple iterations, but typically does not take much time. Eventually, once the community has come to a verdict and if the alleged copier is found guilty, Norm 7 (*If someone has been caught copying a design, you must join in the collective sanctioning*) ensures that the sentence is actually enforced. This process not only shows how the seven norms interrelate; it also becomes evident that each has a specific function in the process and is therefore indispensable.

We also see that the norms reconstructed here are sufficient to guide this "legal procedure."

5.2.   The Effectiveness of the Norms-Based IP System

As an initial indicator of effectiveness, we examine the effects of sanctions on the *individuals* involved: Do they discourage the offenders and restore the victims' trust in the community? Regarding the offenders, we find that only 7.1% of them committed another copyright violation (under the same username) after being caught. Many of the violators subsequently became less active members of the community (34.0%) or even stopped participating (22.7%). However, a large percentage of individuals became good citizens, maintaining (23.4%) or even increasing (19.9%) the level at which they contributed to the community. Regarding the victims, the norms-based IP system also appears to satisfy their need for protection, meaning that they continue to be active community members. Among the cases of copying in our sample, we could only find two original designers who left the community. The vast majority of original designers (72.3%) maintained or even increased the level of their contributions. It thus appears that the effects of the norms-based IP system are positive.

A second indicator of the norms-based IP system's effectiveness is the relatively *low total number of copy*

cases and their tendency to decrease over time. We found only 155 cases in which imitation problems were visible, which is not a particularly large number compared to the hundreds of thousands of submissions. The trend is clear: While the number of submissions at Threadless has increased at an average annual growth rate of over 30%, imitation problems have clearly diminished. Such problems were somewhat present in earlier years (2005–2006, 0.14% of submissions), but their frequency began to drop in 2007 (0.11%), and they had nearly disappeared by 2011 (0.03%). One obvious interpretation is that both trends are due to the norms-based IP system described above and its supportive effect.

However, there is an important caveat to both indicators. The number of copy cases we report relies on positive cases only (i.e., the copy cases we were able to identify in our netnography). It might be that we missed copying incidents and have underestimated the true number of cases. Even worse, it could be that the *community* missed them as well. In fact, there could be a substantial "dark figure" for violations that go unnoticed. Essentially, this would imply that the norms-based IP system described above fails to govern the behavior of community members. The low number could thus be interpreted as an indicator that community members simply do not care much about copying issues. To account for this, we conducted a field experiment. The hard test of the prevalence and effectiveness of a norms-based IP system is whether the community reacts to actual infringements of IP in the predicted manner.

The results of our field experiment, in which we submitted copies of 64 designs, clearly show that the norms-based IP system is actually "*lived*" by the Threadless community. In the example illustrated in Figure 3, our copied design first found praise, albeit intermingled with a first public hint by a policing member, making the original designer aware of the potential violation ("Jake3?"), then the public accusation of IP theft (Norms 1 and 5) with proof (i.e., the link, Norm 4), the interrogation of the copier (Norm 6; we did not respond, as this was part of our agreement with Threadless and there were no mitigating causes), and the start of the collective sanctioning (Norm 7).

All copies of designs with an original score that gave them a reasonable chance of actually being printed were detected by the community (within half a day). Of the 32 copies with a score exceeding the median, more than two-thirds (22 copies) were spotted (after 1.3 days on average). Naturally, the less popular designs received somewhat less attention, resulting in an overall detection rate of just under 50% within 1.4 days (30 of the 64 submitted copies; see Table 2 for overview).

Figure 3   (Color online) Example of Community Response to Norm Violation

SAY SOMETHIN' NICE

IlCapone87   Jan 3. 2014
:D

alec_fx   on Jan 3. 2014 at 18:59:47
Jake3?

sausage_mac   on Jan 3. 2014 at 20:51:22
Clever! nice use of colrs, too.

dilarto   on Jan 4. 2014 at 02:59:02
Great work! 5. :)

breakfastjuice   on Jan 4. 2014 at 03:34:37
5

Cool_graphs   on Jan 4. 2014 at 04:12:03
KOOL $!

gecco   on Jan 4. 2014 at 17:59:27
Stolen design?
http://www.threadless.com/threadless/[original_design]

FRICKINGOOD   on Jan 4. 2014 at 19:38:55
Yup, stolen design. I love this design so it hurts even more.

legbread   on Jan 4. 2014 at 19:50:40
Why do you steal exactly the same design?

JAKE3   on Jan 4. 2014 at 21:25:11
Totally stolen. But I'm flattered you like it enough to claim as your own.

Lycracell   on Jan 5. 2014 at 09:32:18
that's sick...dude why do you steal a design? Is there no way to „flag" this one?

hercules74   on Jan 5. 2014 at 21:40:04
I KNEW I SAW IT BOOOOOOOOOOOOOOOOOOOOOO STOLEN

dongeround   on Jan 6. 2014 at 02:24:16
lol

tommy99   on Jan 6. 2014 at 08:39:34
please delete your account. we would love that

The reactions from the community corresponded to the patterns predicted: The imitation was immediately made public, typically proven with links to the original, commented on negatively, etc. (Table 3). In all cases, the core norm "You must not copy designs" (Norm 1; 100%) was pervasive, as were the norms with regard to making the case public (Norm 5; 93%), the requirement of fairness (Norm 6; 83%), and the imperative of checking for copies (Norm 4; 67%). Only Norm 7 (27%) could not fully unfold, as in most cases we managed to delete the design and the account upon the first accusation, thus inhibiting collective sanctioning behavior. (Norms 2 and 3 are relevant only for derivative work based on other designs; since

Table 2   Number of Copies Detected in Experiment

	Number of cases	Copies detected	Percentage detected	Avg. time to detection (days)	Percentage detected on same day
Original with potential for printing (top score)	3	3	100	0.5	100
Popular originals (above median score)	32	22	69	1.3	68
All designs	64	30	47	1.4	60

Table 3   Visibility of Norms in Community Response to Experiment

	Number of cases	Percentage of cases
Norm 1: You must not copy designs.	30	100
Norm 2: If you wish to copy, you must ask the original designer.[a]	—	—
Norm 3: If you copy, you must credit the original designer.[a]	—	—
Norm 4: If you are suspicious about the origin of a design, you must check whether it is a copy.	20	67
Norm 5: If you find that a design was copied, you must make the case public.	28	93
Norm 6: The public trial must be fair.	25	83
Norm 7: If someone has been caught copying a design, you must join in the collective sanctioning.[b]	8	27

[a]Norms 2 and 3 are relevant only to derivative work based on other designs.

[b]Norm 7 could not fully unfold because we deleted the designs upon the first accusation.

the experiment involved exact copies only, these two norms could hardly show up.)

This pattern yields corroborating evidence for the characteristics and elements of the norms-based IP system as we described it. It also underscores the alertness of the community. Our findings suggest that the reason for the surprisingly low (and decreasing) number of copy cases we could identify is that there *are* only a few cases of copying beyond the 155 cases we identified. In turn, this means that the norms-based IP system within the Threadless community is remarkably effective.

5.3. Enablers of the Norms-Based IP System in the Threadless Community

The Threadless platform has technological affordances that can be grouped in the categories of providing transparency, activating community members, and empowering them to act.

First, the Threadless platform provides opportunities for online interaction among its community members that go beyond the standard forums and blogs used by many online communities and provide a high level of *transparency*. At Threadless, each submitted design or critique comes with its own discussion section, where community members exchange their thoughts about the design with their peers. All these

interactions leave digital traces that are stored in digital archives, making it possible for everyone in the online community to see what others have been doing, regardless of time and space. Open access to all current and past designs enables the community to screen submissions for potential IP violations. Extensive search functionality and digital traces of all members' activities and prior work (accessible in an organized structure from their public user profiles) are powerful tools that peers can use when investigating suspected violations. The design submission page provides a public forum to adjudicate cases of copying before the whole community and to make norm violations as well as their consequences (i.e., collective downvoting and shaming) transparent to the community as well as outsiders. Moreover, by following these digital traces of member interactions, less experienced Threadless members can observe what other community members find acceptable or not (and often why) and thereby infer the community norms with all their nuances.

Second, the Threadless platform *activates* community members and encourages them to contribute to the norms-based IP system. For example, upon entering the platform, members are prompted to score or leave a comment on new designs. The platform rewards members for these contributions by automatically highlighting these activities on their profile pages. As a consequence, designs are exposed to an extremely broad user base, which is a prerequisite for detecting copies. By flagging a submitted design as a suspected copy and linking to it from other pages on the platform (e.g., designs, user profiles, forums, or blogs), community members are able to attract the attention of peers and involve more community members in the deliberations on a potential violation, which is necessary for the legitimacy of the verdict (Di Stefano et al. 2015) and for collective sanctioning (Fauchart and von Hippel 2008, Ostrom 1990).

Third, the Threadless platform *empowers* community members with an interest in IP-related issues by giving them the freedom and the tools to organize themselves to maintain and further develop the norms-based IP system. The "Threadless police" and other community members have access to a blog as a dedicated forum to discuss and update one another on suspected copy cases. The links to suspected copies and a watch list of "convicted" violators provide starting points for

Threadless members interested in contributing to the community by scrutinizing questionable cases. Once a copyist is convicted, the submission page of the design has built-in features that can be used for sanctioning. The scoring mechanism, for example, can be used for downvoting, and the comments section can be used for various sanctioning mechanisms such as shaming, warning other members not to give high scores, or calling for further scrutiny of past and future submissions. Although all these features enable community members to contribute to the protection of the community's IP, it is left up to each individual to decide whether or not (and how) they use them. As a result, there are no automatisms involved in this norms-based IP system, but the community as a whole shapes the system.

6. Discussion

Our study sheds some light on how online communities excel in innovation despite weak protection from formal IP systems: The IP of individual participants is well protected by an informal and self-organized norms-based IP system. The system we identified within the Threadless community consists of seven widely accepted and interrelated norms that effectively regulate the community's behavior with regard to IP and provide the basis for the celebrated level of cooperation and innovation it achieves. Our findings contribute to the literature on norms-based IP systems (Di Stefano et al. 2014, Fauchart and von Hippel 2008, Loshin 2010, Oliar and Sprigman 2008) by suggesting that the relatively small size and close-knit relationships of off-line communities are not a prerequisite for a functioning norms-based IP system, as they can effectively be substituted. Our study also contributes to the literature on innovation in online communities in general (Dahlander and Frederiksen 2012, Faraj et al. 2011, Jeppesen and Frederiksen 2006, O'Mahony and Ferraro 2007, von Krogh et al. 2012, Wasko and Faraj 2005). The role of IP has attracted great interest in this field. In fact, the norm and practice of freely revealing IP can be seen as one of the fundamental tenets of online communities (Harhoff et al. 2003, Henkel 2006, von Hippel 2007, von Hippel and von Krogh 2006). Our research adds a new twist to IP in online settings: online communities not only *generate* and openly *share* IP; under specific circumstances, they also *foster* and *protect* IP.

In our research, we studied only a single case (the Threadless crowdsourcing community), and we generalize our findings by developing propositions. These propositions focus on the similarities and differences between norms-based IP systems in online and off-line settings and on contingency factors that may influence the existence, gestalt, and effectiveness of norms-based IP systems in online communities.

6.1. Similarities and Differences Between Norms-Based IP Systems in Online and Off-Line Settings

To date, the literature on norms-based IP systems has focused on small, close-knit, off-line communities (Dreyfuss 2010, Fauchart and von Hippel 2008, Loshin 2010, Oliar and Sprigman 2008). With this article, we heed the calls issued by Fauchart and von Hippel (2008) and Di Stefano et al. (2014) for more research into this fascinating phenomenon under systematically different conditions. Online communities are typically open, anonymous, large scale, and loose knit, and their members are highly heterogeneous and join the communities for a limited time only. Despite these different conditions, we find that—at least in our case—norms-based IP systems in online communities share core characteristics with social norms in off-line communities. Most importantly, there also appears to be a strong norm that prohibits (exact) copying in online communities. Combined with painful collective sanctions imposed on violators, this norm effectively protects community members from the misappropriation of IP (Fauchart and von Hippel 2008). At the same time, the norms allow the potential positive effects of learning and imitation because they do not forbid any and all forms of copying. In fact, by prescribing the steps to be taken to make a copy legitimate (asking for permission and, if granted, giving due credit to the originator), the norms-based IP system encourages positive copying because it creates legal certainty for community members who want to build on the prior work of others. If community members adhere to these norms, such positive copying advances the knowledge and craft of the overall community (Loshin 2010, Raustiala and Sprigman 2012), and, thanks to the norm of attribution, it can even benefit the originator and thus promote sharing (Fauchart and von Hippel 2008). It appears that what is critical is not so much the nature of the community (off-line versus online), but the possibility of making violations visible and the availability of low-cost, effective sanctions.

Proposition 1. *Norms-based IP systems in online communities entail similar core norms as off-line communities to foster positive copying and preclude negative copying.*

On the other hand, the different boundary conditions in online communities require *additional norms*. In close-knit off-line communities, it appears to be less of an issue how a suspected norm violation is detected, investigated, and adjudicated. Individual members can be quite powerful, and community verdicts are typically reached on the basis of an informal consensus that emerges immediately (Fauchart and von Hippel 2008) and is supported by the homogeneity and close-knit relationships resulting from the strong socialization of community members (Ostrom 2000). Fauchart and von Hippel (2008)

also allude to the critical role that influential community members play in reaching a verdict. In the often enormously large online communities, by contrast, it is virtually impossible for the injured party to restore justice individually. There are no "authorities" in the sense that specific members sketch out what behavior is generally accepted or not (legislative function), determine in individual cases whether or not a community member acted in compliance with those norms (judiciary function), or take on the role of central law enforcement (executive function). Rather, all three powers are highly distributed, publicly controlled, and in a way follow democratic principles. This is achieved by social norms that demand transparency and broad participation (Norms 4–7). These norms ensure that numerous members screen submissions for potential violations, even encouraging some to serve the community as dedicated "Threadless police." This collective policing is important in light of the low level of ex ante transparency due to the plethora of information being exchanged on the platform and the large number of potential IP violators. We find that the norms ensure that this disadvantage relative to off-line communities is offset by the much larger number of potential detectors of fraud. We can summarize this effect by rephrasing Raymond's (1999) dictum as "Given enough eyeballs, *all fraud is obvious*." This possibility of highly effective monitoring may be one of several reasons why many off-line communities go online. For example, off-line food communities increasingly use websites to facilitate more effective and decentralized detection of copying by using photographs and detailed critiques (Fauchart and von Hippel 2008, Raustiala and Sprigman 2012). Moreover, transparency and broad participation are also important in the public trial that ultimately results in a verdict as to whether an alleged copyist has violated IP-related norms and thus deserves punishment by the community as a whole.

PROPOSITION 2. *Norms-based IP systems in online communities entail additional norms that ensure that the legislative, judiciary, and executive functions are broadly distributed across the community.*

This broad participation of the community and the separation of powers that comes along with it is an important characteristic of norms-based IP systems in online communities. Unlike in off-line communities, where injured parties often drive the enforcement of IP norms (Di Stefano et al. 2015, Oliar and Sprigman 2008), victims in online communities act only as witnesses for the prosecution. The fact that they do not serve justice themselves provides the basis for a particularly civilized legal system. On one hand, such a system precludes the possibility that outraged victims might seek draconic retaliation themselves; on

the other hand, it also ensures the protection of weak victims who would not be capable of defending their rights on their own. Decentralization and transparency also prevent community members from becoming so powerful that they can use the system as a form of autocracy or ostracism, both of which are potential risks in off-line communities (Bicchieri 2006). For example, we found that the Threadless community reprimands the "Threadless police" if they transgress their role and make unsubstantiated allegations or engage in independent and premature "vigilantism." Pinker (2011) provides strong evidence that ceding the right to punish to a "Leviathan" that represents the will of its people is a central mechanism for the decline of violence in our society. We suspect that this mechanism operates successfully in online communities as well. In addition, the public trial and transparent deliberations on fairness educate less experienced community members as to what types of behavior the community finds acceptable or not (and why). This is of utmost importance in an online setting, as it compensates for the lack of socialization that comes along with large size and unrestricted access.

6.2. A Contingency View of Norms-Based IP Systems in Online Communities

Norms-based IP systems most likely differ from community to community. Therefore, we first propose conditions that make a well-established norms-based IP system more likely to emerge. Second, we propose determinants that shape the nature of the system (if it exists). Third, we propose factors that increase the effectiveness of such a system.

6.2.1. Facilitating Conditions. In the Threadless community, members exchange and contribute IP of considerable value—T-shirt designs have economic value that can be monetized on markets (Piller 2011), and their subjective artistic value for their originators and other community members may be even higher (Brabham 2010). The community shares the ideals of creativity and originality, meaning that authentic, original designs are highly valued by the community. Multilateral efforts for monitoring and protection appear to be rational if the IP is considered valuable by individual members and by the community collectively (Ostrom 1990). On the other hand, in communities of interest or relationships (Armstrong and Hagel 2000) in which members only exchange opinions, experiences, or trivia, this might be different (e.g., in communities like Momslikeme.com, slashfilm.com). Naturally, value partly lies in the eye of the beholder, and "many users expect to be credited for authoring," as Nelson (2011, p. 749) observes with regard to Twitter messages, suggesting that the minimum value required for the emergence of basic IP-related norms may not be very high. If potential losses are negligible, however,

the collective action necessary to develop and maintain a commons like a norms-based IP system is unlikely (Ostrom 2000). We hence argue that the value of IP shared and exchanged in the community is a first facilitating condition:

PROPOSITION 3. *Norms-based IP systems are more likely to emerge and become established in online communities in which the IP being exchanged is considered highly valuable.*

Another characteristic of the Threadless community is that IP protection by a central authority is not very effective. Formal IP regimes (i.e., copyright law) only apply to a limited extent, and the legal terms and conditions issued by Threadless, the company behind the community, are difficult to enforce. Generalizing this observation, we find that many online communities extend beyond national jurisdictions, making lawsuits complex, time consuming, expensive, and uncertain in their outcomes (Oliar and Sprigman 2008). The resulting ineffectiveness of IP regulation imposed by a central authority appears as a condition facilitating the emergence of norms-based IP systems. If, on the other hand, formal IP systems exist and effectively regulate IP in a community, individual members have no reason to make an effort and contribute to a norms-based IP system (Raustiala and Sprigman 2012).

PROPOSITION 4. *Norms-based IP systems are more likely to emerge and become established in online communities in which formal IP law or the rules set by a central authority are ineffective.*

As we outlined in our findings, the Threadless community operates on an online platform with specific qualities that enable an effective norms-based IP system. We suggest that the likelihood of norms-based IP systems is increased by the presence of similar technical features that offer the three core affordances. The first is that the system facilitates what Zuboff (1988) called "universal transparency." Digital traces (Agarwal et al. 2008) and open access to all current and past designs enable the community to screen contributions for potential IP violations. This transparency serves as a substitute for direct social relationships and facilitates socialization into the community (Colfer and Baldwin 2016). The second affordance is that the system activates community members and encourages them to contribute to the norms-based IP system. By prompting individuals to participate in activities such as screening or sanctioning, online platforms ensure broad participation throughout the community. Similar to open source software communities, where it is virtually impossible for any one individual to detect and resolve the multitude of problems, a collective effort makes this daunting task feasible even in enormously large online communities (Raymond 1999). The third is that the platform offers tools that empower community members to create, maintain, and further develop the norms-based IP system in a process of self-organization (Ostrom 2000).

PROPOSITION 5. *Norms-based IP systems are more likely to emerge and become established in online communities where the platform offers features that facilitate transparency, activate members, and empower them to self-organize.*

6.2.2. Determinants of the Nature of Norms-Based IP Systems. Norms-based IP systems might take different forms. In the Threadless community, the norms-based IP system is "complete"—it regulates all relevant aspects of IP in the community, ranging from the issue of what forms of copying are allowed or not to the rules of a public trial and collective sanctioning. This is typically the consequence of an external authority (the organizing company) that fully grants a community the right to self-regulate IP, i.e., to devise extensive rules and enforce social norms themselves (Ostrom 1990). In other cases, the company hosting a community may decide to regulate specific aspects of a system, while the community takes on a complementary supporting role. Steam, an online gaming and developer platform, is an example of such an online community. Content shared on this platform is subject to copyright protection, and Valve (the company behind Steam) requires community members to sign a legal agreement in which they commit to comply with formal IP regulations. However, the online community is so large that Valve is not able to safeguard IP by itself and thus delegates part of the policing task to the community (Chalk 2015). Specifically, Valve encourages community members to screen the platform for violations and has created a reporting system to flag suspected cases and provide evidence. However, Valve is the formal authority that performs key functions of the IP system, such as ruling on alleged IP infringements and sanctioning violations by blocking access to the platform. Social norms are a substitute for missing formal IP regulations and complement formal arrangements where they are not sufficiently effective (Lazzarini et al. 2004). We thus argue that the scope of the formal IP system determines the scope of the norms-based IP system.

PROPOSITION 6. *The smaller the scope of the formal IP system set and maintained by a central authority in online communities, the greater the scope of the norms-based IP system.*

The Threadless community is characterized by strong cooperative elements. As our data show, social norms effectively encourage Threadless members to learn from each other and take the designs submitted by others as sources of inspiration. As a result, the norms support the positive aspects of copying

(Aghion et al. 2009), ensuring that valuable knowledge and information remain freely accessible to all community members (and beyond) so that they can be reused as widely as possible. Social norms provide "legal certainty" by specifying how and under what conditions community members are allowed to reuse their peers' IP, but these norms also include provisions that ensure some return for originators of valuable IP. This is an important aspect, as this incentive is required to guarantee that community members continue to freely share and exchange their knowledge. Other communities in which norms encourage positive copying include open source software communities (e.g., Linux) or communities dedicated to music (e.g., SoundCloud), pictures (e.g., Flickr), or videos (e.g., Vimeo). They all have strong social norms to ensure that the knowledge shared and exchanged in the online community continues to be open and accessible as a common good. In combination with instruments backed by formal IP law such as the General Public License or the Creative Commons license (Elkin-Koren 2005, Stallman 1999), these social norms foster further positive copying by other community members. Interestingly, even in these cooperative settings, we frequently find the "attribution norm," which states that the originator must be given credit for any information that is reused (Posner 2007). This is clearly an IP-related norm. However, such communities hardly make any effort to limit the reuse of their knowledge, as it is considered to be an "inverse commons" (Raymond 1999), which becomes all the more valuable when more community members use it.

PROPOSITION 7. *The norms-based IP system in online communities characterized by a high level of cooperation will safeguard positive copying.*

Threadless is not only a cooperative community. There is also a rivalry between members, who compete for attention, reputation, and prize money (Brabham 2010). Accordingly, the norms-based IP system protects valuable knowledge from misappropriation, an important function normally associated with formal IP regimes (Jaffe 2000). The norms regulate which forms of copying constitute a violation and how potential violations should be policed, adjudicated, and sanctioned. In general, competitive crowdsourcing platforms are a form of online community in which rivalry is propelled by the incentives (typically money) defined by the organizer and by the reputational value attached to winning a tournament. While some crowdsourcing communities (such as Threadless) also have collaborative elements, others are predominantly competitive in nature. This is clearly the case in crowdsourcing contests (Boudreau and Lakhani 2013) such as Tongal or crowdSPRING. In such a setting, IP needs to be protected to ensure that community members

make an effort to develop and share innovative ideas. Such communities crack down on plagiarism heavily to avoid copyright problems when clients choose solutions from the platform later on (Samson 2012). The potential value of positive copying, on the other hand, receives very little attention, if any, in this type of competitive online community.

PROPOSITION 8. *The norms-based IP system in online communities characterized by a high level of rivalry will protect members from misappropriation.*

6.2.3. Key Factors for the Effectiveness of Norms-Based IP Systems in Online Communities. The technological affordances described above provide the sine qua non for the norms-based IP system. The features built into the platform make it possible to achieve high transparency and to make fraud visible, even in such an enormously large community. These features also activate and empower community members to shape and support the norms-based IP system. However, these enablers constitute mere preconditions. Motivational factors are needed to explain why the community members use these features and adhere to the system as a group. Based on our study of Threadless, we see two complementary factors explaining community members' motivation to adhere to a norms-based IP system in online communities.

The first is a *rational choice* explanation: We argue that Threadless members adhere to the norms system because it is worth it to them. Deterrence theory suggests that the certainty and severity of punishment determine the likelihood of violations of the norms (Elster 1989, Peace et al. 2003, Posner 1997). As we saw in our field experiment, the probability that an IP violation will be detected is quite high in the Threadless community. The punishment also appears to be relatively severe. The most direct effect is the threat of downvoting regardless of the design's potential creative value; this is usually accompanied by severe censure. Responses from alleged violators suggest that, despite their anonymity, such harsh community reactions have emotional effects. In general, studies show that dismay and consternation are typical reactions among users who face bullying (e.g., Lee 2005). At the same time, sanctions may extend beyond individual designs. Community members who violate IP norms risk having past and future designs painstakingly scrutinized by the community. More broadly, by violating IP norms, individuals risk any reputation and status they have developed in the community. All merits and achievements within the community (e.g., a track record of successful designs, a reputation as a helpful and constructive reviewer, scoring activities) are linked to their user profile. Thus, the social capital contained in this identity can be considerable, and damage can therefore represent a major loss (Steinkuehler

and Williams 2006). The public visibility of the copy cases and sanctions also speak to this aspect. We found that the public trials not only involve many community members but also that users often link to the case in other discussions, thus further enhancing its visibility to the community and increasing the severity of the punishment faced by the violator. It also shows the consequences of norm violations to deter other individuals from deviance in the future, a key aspect of deterrence theory (Polinsky and Shavell 1999). The rational choice argument also explains the efforts of individuals to enforce community norms. We observed that many active users are members of the "Threadless police" and contribute to sustaining the norms-based IP system in the Threadless community. For such users, the viability of the community is of particularly high importance, suggesting that the norms-based IP system is fueled by a rational calculus. We suggest that our observations from the study of Threadless can be generalized to online communities in other contexts. If the expected utility of violating the norm is greater than the expected utility of adhering to it, a rational actor will prefer to violate the norm (Savage 1954, von Neumann and Morgenstern 1944, Vriend 1996). The tenets of this theory underlie legal systems (Polinsky and Shavell 1999, Posner 1985) as well as close-knit off-line communities with regard to IP norms (Fauchart and von Hippel 2008)—and probably also norms-based IP systems in online communities:

PROPOSITION 9. *The norms-based IP system in online communities will be more effective if the expected utility of adhering to IP-related norms and contributing to their enforcement is high.*

We suggest that a second factor also explains why Threadless members largely adhere to the norms system: *ideology*. Communities are usually defined as social units with shared common values that bind them internally, distinguish them externally, and provide an entity they can identify with (Cohen 2001). The Threadless community appears to be no exception. Brabham (2010) finds that its members strongly identify with the brand and feel love for the community. Ideology and firmly held convictions regarding "how one should behave" regarding IP norms are also reflected in many comments in the discussion forums, for example:

> I just wanna say and I think this is kind of the spirit of threadless (or part of the spirit) we all respect the system so much, we watch out for it. We participate in it and are it and help people follow the rules not in order to seek out rule breakers but to maintain the magic as a whole…it's not easy to quantify magic." (Survey response)

In addition to preventing misappropriation, this identification with community values also effectively fosters positive copying. If community members

seeking inspiration from other designs identify with the core value of originality, it is unlikely that they will simply copy elements or concepts (i.e., "negative" copying). Instead, one can expect that they will put in the creativity and effort required to create a derivative design that has original value in its own right (i.e., "positive" copying). Moreover, as described above, original designers have a moral obligation to allow other community members to reuse parts of their designs or concepts creatively, which further encourages positive copying. We expect that this adherence to social norms due to identification with community values is not specific to Threadless. In general, there are many incidents in which people comply with norms without economic incentives to do so (Paternoster 1987, Paternoster and Simpson 1996, Tyler 1996). They comply because it simply appears to be "the right thing" to do (Jackson et al. 2012, Tyler 1990). A number of studies have reported on the prevalence of strong binding norms and ideology in online communities (Bagozzi and Dholakia 2006, Franke and Shah 2003, Stewart and Gosain 2006, von Krogh et al. 2003). We thus suggest the following:

PROPOSITION 10. *The norms-based IP system in online communities will be more effective if members strongly identify with the community.*

6.3. Managerial Implications

Our findings have implications for organizations wishing to set up a crowdsourcing community, as there is consensus among scholars in this field that we need to deepen our understanding of the principles that facilitate the viability and success of such communities (e.g., Hoyer et al. 2010, Nambisan and Baron 2010, Terwiesch and Xu 2008). Managing IP issues is generally crucial to the success of crowdsourcing (Lakhani and Panetta 2007, Nambisan 2002, Ogawa and Piller 2006). However, unlike functions such as the generation of new ideas and concepts (the "heart" of the crowdsourcing idea; e.g., Brabham 2008, Poetz and Schreier 2012), user-to-user assistance (e.g., Jeppesen and Frederiksen 2006, West and Lakhani 2008), and collaborative filtering and community voting as a means to identify the best submissions (Brabham 2010, Surowiecki 2005), protecting IP has been seen as the organizing company's responsibility up to now (e.g., Feller et al. 2012, Vukovic and Bartolini 2010).

However, our search suggests that *the function of protecting participants' IP can also be effectively "crowdsourced" to the community*. This is good news for companies, as it means that another important and difficult function of new product ideation can be delegated to the crowd—with high effectiveness and at low cost. To achieve this, organizers should first ensure that the platform entails the necessary technological affordances of transparency, activation, and empowerment

described in Section 5.3. For example, features such as digital archives and traces of a member's activities and prior work, search functions, a public user profile, the invitation to score contributions or leave comments, public forums and blogs, tagging functions, the option of providing links to other submissions, and, perhaps most important, a scoring feature that allows effective collective sanctioning are powerful tools that render an effective norms-based IP system possible. The second step is to "spark" active self-governance of IP by reinforcing the motivational drivers of community members' adherence to the norms-based IP system. While *deterrence* may be amplified by clearly signaling that the company will cooperate with the community closely and take its verdicts seriously (and potentially impose additional formal sanctions on violators), *ideology* can be supported by very active members who contribute heavily to the community and act as role models, demonstrating the desired behavior, and promoting positive community spirit. Platform operators may bind such individuals to the community by offering them a special "alumnus" status and other means of recognition that nurture their identification with the community and incentivize others to contribute actively to the community as well.

6.4. Limitations and Opportunities for Further Research

Our analysis is based entirely on a single case, the Threadless community. Naturally, any generalizations should be undertaken with due caution. Other online communities are based on different organizational forms, different underlying products, and different overall functions. Threadless is one of the largest and most successful crowdsourcing communities today, and it has been for several years. Studying such a case is both a disadvantage and an advantage at the same time. It is a disadvantage because Threadless is certainly not representative of other crowdsourcing communities, let alone online communities in general, and the conclusion that similar systems operate in all online communities would be more than premature. On the other hand, it is also an advantage, as the success of this specific online community may be at least partly due to the existence of this highly effective norms-based IP system, which suggests that much can be learned from this "best practice" case. The propositions we suggest are no more than a first attempt to scope out different norms-based IP systems that can be found in the fascinating variety of online communities. Future research may refine this framework by adding further contingency factors and systematically analyzing how examples of norms-based IP systems in other online communities differ from the Threadless case in their characteristics and functioning. A second limitation is that we take a "within-community" perspective in all of our research. This means that we limit our focus to copying and imitation *from* Threadless designs *to* other Threadless designs. IP can, of course, also be stolen from outside the community (e.g., from artwork, books, CD covers, etc.), and in particular it can also be stolen from the Threadless community and used elsewhere. The reason for this limitation is mostly technical: It is difficult to follow-up empirically on such violations and the measures community members take outside the community. At the same time, we note that this would be another opportunity for further research. A third limitation is the selection bias and the moderate sample size in our survey, which might have affected our findings to some degree. However, we did not find evidence of such effects, and our triangulation with other data sources yields further confidence that our main conclusions hold. Fourth, we are not able to answer the questions of when and how such norms-based IP systems emerge at all. Ostrom's (1990, 2000) work on the governance of commons might provide a theoretical basis for this undertaking. Her research suggests a set of factors that make the emergence of long-surviving, self-organized governance regimes likely (Ostrom 2000). Empirical research could be conducted using a longitudinal perspective based on archival data. It would be fascinating to examine how norms-based IP systems in communities come into being, how different norms evolve, develop, and change over time, and which events or participants trigger such processes. Finally, we studied norms-based IP systems only in conditions involving valuable IP, rivalry, and the limited effectiveness of formal IP systems. Future research might not only extend and refine the contingency view we have provided but also scrutinize the characteristics and functioning of norms-based IP systems in systematically different forms of online communities. Altogether, there appear to be ample opportunities for important and fruitful research in the area of norms-based IP systems in online communities.

Appendix

Table A.1   Description of Sample for Online Survey

Analyzed variables	n	Mean	Median	SD	Min.	Max.	Additional remarks
Number of designs in "Submissions"[a]	143	39.34	18	51.68	0	288	% of people who did not submit any designs: 21.70% (31)
Number of designs in "Critiques"[a]	145	2.72	0	7.71	0	70	% of people who did not submit any critiques: 63.40% (92)
Number of designs in "Products"[a]	143	2.43	0	5.01	0	42	% of people who did not submit any products: 51.70% (74)
Age[b]	158	28.12	27.5	6.82	17	57	
Length of membership in months[a]		40.15	39.0				
Visits to website[b]	160						1 = daily visits to website: 85.00% (136)
							2 = weekly visits to website: 13.75% (22)
							3 = monthly visits to website: 1.25% (2)
							4 = less frequently: 0% (0)
Interaction with other members[b]	160						1 = daily interaction: 71.88% (115)
							2 = weekly interaction: 21.25% (34)
							3 = monthly interaction: 2.50% (4)
							4 = less frequently: 4.38% (7)
Sex[b]	158						% female: 29.75% (47)
							% male: 70.25% (111)

[a]Data according to information on the website.
[b]Data according to the survey.

Table A.2   Description of Sample for Experiment

Original	Number of posts on original	Number of scores received by original	Mean score of original	Days between original and copy	Copy detected	Days until detection
1	2	146	2.73	24	no	
2	3	244	2.61	24	yes	0
3	11	270	2.5	28	no	
4	2	240	2.3	44	no	
5	2	214	2.71	44	no	
6	10	239	2.94	35	no	
7	11	182	2.48	30	yes	4
8	1	218	2.7	33	no	
9	19	336	2.9	31	no	
10	16	291	2.76	37	no	
11	23	264	3.33	35	yes	4
12	6	220	2.87	32	yes	5
13	0	162	2.8	36	no	
14	3	169	2.53	35	no	
15	59	456	3.43	25	yes	0
16	14	217	2.88	36	no	
17	12	168	2.96	37	yes	0
18	19	535	3.03	34	no	
19	17	288	3.27	36	yes	0
20	13	222	2.79	36	yes	0
21	4	203	2.53	30	no	
22	5	167	2.69	33	no	
23	2	119	2.35	32	no	
24	9	200	2.69	35	no	
25	1	120	2.48	35	no	
26	9	295	2.55	34	no	
27	2	179	2.67	23	no	
28	5	202	2.91	26	no	
29	14	225	3.25	28	yes	2
30	6	295	2.42	33	no	
31	4	206	2.39	32	no	
32	24	440	2.93	35	no	

Table A.2   (Continued)

Original	Number of posts on original	Number of scores received by original	Mean score of original	Days between original and copy	Copy detected	Days until detection
33	52	430	3.54	32	yes	0
34	1	321	2.3	32	no	
35	6	241	2.81	31	no	
36	19	329	2.52	33	no	
37	10	211	2.82	32	yes	3
38	1	221	2.27	35	no	
39	3	235	2.49	29	yes	1
40	21	301	3.15	33	yes	0
41	9	265	3.09	32	yes	0
42	3	226	2.39	30	yes	0
43	3	191	2.18	35	no	
44	31	353	3.24	28	yes	0
45	46	573	3.38	27	yes	1
46	3	154	2.21	34	no	
47	24	778	3.24	29	yes	0
48	5	244	2.55	30	no	
49	29	745	3.24	32	yes	0
50	5	259	2.81	32	yes	1
51	4	177	2.99	32	yes	0
52	3	177	2.94	31	yes	0
53	1	173	2.52	31	no	
54	29	429	3.34	34	yes	0
55	6	187	2.73	32	yes	1
56	16	373	3.19	34	yes	0
57	16	280	3.2	31	yes	1
58	5	198	2.79	35	no	
59	4	236	2.24	30	no	
60	19	319	2.86	29	no	
61	37	499	3.43	32	yes	0
62	6	260	2.54	27	yes	3
63	6	162	2.38	30	yes	1
64	7	185	2.44	32	yes	0

References

Agarwal R, Gupta AK, Kraut R (2008) Editorial overview—The interplay between digital and social networks. *Inform. Systems Res.* 19(3):243–252.

Aghion P, David PA, Foray D (2009) Science, technology and innovation for economic growth: Linking policy research and practice in "STIG systems." *Res. Policy* 38(4):681–693.

Alexiou J (2011) The Weird Al Yankovic/Lady Gaga parody dispute has now been resolved. *Business Insider* (April 21), http://www.businessinsider.com/lady-gaga-weird-al-yankovic-coolio-born-this-way-blocked-2011-4.

Armstrong A, Hagel J (2000) The real value of online communities. Lesser EL, Fontaine AM, Slusher JA, eds. *Knowledge and Communities* (Routledge, New York), 85–95.

Arora A, Fosfuri A, Gambardella A (2001) *Markets for Technology: Economics of Innovation and Corporate Strategy* (MIT Press, Cambridge, MA).

Arrow K (1962) Economic welfare and the allocation of resources to invention. Nelson RR, ed. *The Rate and Direction of Inventive Activity: Economic and Social Factors* (Princeton University Press, Princeton, NJ), 609–626.

Arrow K (1970) Political and economic evaluation of social effects and externalities. Margolis J, ed. *The Analysis of Public Output* (National Bureau of Economic Research, New York), 1–30.

Bagozzi RP, Dholakia UM (2006) Open source software user communities: A study of participation in Linux user groups. *Management Sci.* 52(7):1099–1115.

Baldwin C, von Hippel E (2011) Modeling a paradigm shift: From producer innovation to user and open collaborative innovation. *Organ. Sci.* 22(6):1399–1417.

Bayus BL (2013) Crowdsourcing new product ideas over time: An analysis of the Dell IdeaStorm community. *Management Sci.* 59(1):226–244.

Bernstein L (1992) Opting out of the legal system: Extralegal contractual relations in the diamond industry. *J. Legal Stud.* 21(1): 115–157.

Besen SM, Raskind LL (1991) An introduction to the law and economics of intellectual property. *J. Econom. Perspect.* 5(1):3–27.

Bessen J, Meurer MJ (2008) *Patent Failure: How Judges, Bureaucrats, and Lawyers Put Innovators at Risk* (Princeton University Press, Princeton, NJ).

Bicchieri C (2006) *The Grammar of Society: The Nature and Dynamics of Social Norms* (Cambridge University Press, New York).

Bjelland OM, Wood RC (2008) An inside view of IBM's "innovation jam." *MIT Sloan Management Rev.* 50(1):32–40.

Bonabeau E (2009) Decisions 2.0: The power of collective intelligence. *MIT Sloan Management Rev.* 50(2):45–52.

Boudreau KJ, Lakhani KR (2009) How to manage outside innovation. *MIT Sloan Management Rev.* 50(4):69–76.

Boudreau KJ, Lakhani KR (2013) Using the crowd as an innovation partner. *Harvard Bus. Rev.* 91(4):60–69.
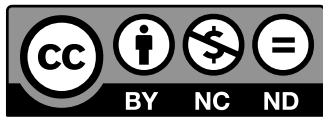
Bowles S, Gintis H (2002) Social capital and community governance. *Econom. J.* 112(483):F419–F436.

Brabham DC (2008) Crowdsourcing as a model for problem solving: An introduction and cases. *Convergence: Internat. J. Res. New Media Tech.* 14(1):75–90.

Brabham DC (2010) Moving the crowd at Threadless. *Inform., Comm. Soc.* 13(8):1122–1145.

Chalk A (2015) Valve expects Steam community to help police paid mods. *PC Gamer* (April 23), http://www.pcgamer.com/valve-expects-steam-community-to-help-police-paid-mods/.

Charmaz K (2006) *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis* (Sage Publications, London).

Cohen AP (2001) *Symbolic Construction of Community* (Routledge, London).

Coleman JS (1990) *Foundations of Social Theory* (Harvard University Press, Cambridge, MA).

Colfer L, Baldwin CY (2016) The mirroring hypothesis: Theory, evidence and exceptions. *Industrial Corporate Change* 25(5): 709–738.

Conklin J (2005) *Dialogue Mapping: Building Shared Understanding of Wicked Problems* (John Wiley & Sons, Chichester, UK).

Cook S (2008) The contribution revolution: Letting volunteers build your business. *Harvard Bus. Rev.* 86(10):60–69.

Dahlander L, Frederiksen L (2012) The core and cosmopolitans: A relational view of innovation in user communities. *Organ. Sci.* 23(4):988–1007.

Denicola RC (1979) Copyright and free speech: Constitutional limitations on the protection of expression. *California Law Rev.* 67(2):283–316.

Dholakia UM, Bagozzi RP, Pearo LK (2004) A social influence model of consumer participation in network- and small-group-based virtual communities. *Internat. J. Res. Marketing* 21(3):241–263.

Di Stefano G, King AA, Verona G (2014) Kitchen confidential? Norms for the use of transferred knowledge in gourmet cuisine. *Strategic Management J.* 35(11):1645–1670.

Di Stefano G, King AA, Verona G (2015) Sanctioning in the wild: Rational calculus and retributive instincts in gourmet cuisine. *Acad. Management J.* 58(3):905–931.

Dreyfuss RC (2010) Does IP need IP? Accommodating intellectual production outside the intellectual property paradigm. *Cardozo Law Rev.* 31(5):1437–1473.

Elkin-Koren N (2005) What contracts cannot do: The limits of private ordering in facilitating a creative commons. *Fordham Law Rev.* 74(2):375–422.

Ellickson RC (1991) *Order Without Law: How Neighbors Settle Disputes* (Harvard University Press, Cambridge, MA).

Elster J (1989) Social norms and economic theory. *J. Econom. Perspect.* 3(4):99–117.

Estellés-Arolas E, González-Ladrón-de-Guevara F (2012) Towards an integrated crowdsourcing definition. *J. Inform. Sci.* 38(2): 189–200.

Euchner JA (2010) The limits of crowds. *Res.-Tech. Management* 53(5):7–8.

Faraj S, Johnson SL (2011) Network exchange patterns in online communities. *Organ. Sci.* 22(6):1464–1480.

Faraj S, Jarvenpaa SL, Majchrzak A (2011) Knowledge collaboration in online communities. *Organ. Sci.* 22(5):1224–1239.

Fauchart E, von Hippel E (2008) Norms-based intellectual property systems: The case of French chefs. *Organ. Sci.* 19(2):187–201.

Fehr E, Rockenbach B (2003) Detrimental effects of sanctions on human altruism. *Nature* 422(6928):137–140.

Feller J, Finnegan P, Hayes J, O'Reilly P (2012) 'Orchestrating' sustainable crowdsourcing: A characterisation of solver brokerages. *J. Strategic Inform. Systems* 21(3):216–232.

Fleming L, Waguespack DM (2007) Brokerage, boundary spanning, and leadership in open innovation communities. *Organ. Sci.* 18(2):165–180.

Franke N, Shah S (2003) How communities support innovative activities: An exploration of assistance and sharing among end-users. *Res. Policy* 32(1):157–178.

Franke N, Keinz P, Klausberger K (2013) "Does this sound like a fair deal?": Antecedents and consequences of fairness expectations in the individual's decision to participate in firm innovation. *Organ. Sci.* 24(5):1495–1516.

Franke N, Lettl C, Roiser S, Tuertscher P (2014) Does God play dice?—Randomness vs. deterministic explanations of crowdsourcing success. Humphreys J, ed. *Acad. Management Proc.* http://dx.doi.org/10.5465/AMBPP.2014.235.

Franzoni C, Sauermann H (2014) Crowd science: The organization of scientific research in open collaborative projects. *Res. Policy* 43(1):1–20.

Gächter S, von Krogh G, Haefliger S (2010) Initiating private-collective innovation: The fragility of knowledge sharing. *Res. Policy* 39(7):893–906.

Gans J, Stern S (2003) The product market and the market for "ideas": Commercialization strategies for technology entrepreneurs. *Res. Policy* 32(2):333–350.

Garfinkel H (1991) *Studies in Ethnomethodology* (Polity Press, Cambridge, UK).

Giles J (2005) Internet encyclopaedias go head to head. *Nature* 438(7070):900–901.

Grimm P (2010) Social desirability bias. Sheth JN, Malhotra NK, eds. *Wiley International Encyclopedia of Marketing* (John Wiley & Sons, Hoboken, NJ).

Harhoff D, Henkel J, von Hippel E (2003) Profiting from voluntary information spillovers: How users benefit by freely revealing their innovations. *Res. Policy* 32(10):1753–1769.

Hayek FA (1945) The use of knowledge in society. *Amer. Econom. Rev.* 35(4):519–530.

Henkel J (2006) Selective revealing in open innovation processes: The case of embedded Linux. *Res. Policy* 35(7):953–969.

House of Representatives Committee on the Judiciary (2013) Federal rules of criminal procedure. Committee on the Judiciary, House of Representatives, 113th Congress, 1st Session, U.S. Government Printing Office, Washington, DC.

Hoyer WD, Chandy R, Dorotic M, Krafft M, Singh SS (2010) Consumer cocreation in new product development. *J. Service Res.* 13(3):283–296.

Husted BW (2000) The impact of national culture on software piracy. *J. Bus. Ethics* 26(3):197–211.

Jackson J, Bradford B, Hough M, Myhill A, Quinton P, Tyler TR (2012) Why do people comply with the law? Legitimacy and the influence of legal institutions. *British J. Criminology* 52(6): 1051–1071.

Jaffe AB (2000) The U.S. patent system in transition: Policy innovation and the innovation process. *Res. Policy* 29(4–5):531–557.

Jeppesen LB, Frederiksen L (2006) Why do users contribute to firm-hosted user communities? The case of computer-controlled music instruments. *Organ. Sci.* 17(1):45–63.

Jick TD (1979) Mixing qualitative and quantitative methods: Triangulation in action. *Admin. Sci. Quart.* 24(4):602–611.

Johnson SL, Safadi H, Faraj S (2015) The emergence of online community leadership. *Inform. Systems Res.* 26(1):165–187.

Kendal RL, Coolen I, van Bergen Y, Laland KN (2005) Trade-offs in the adaptive use of social and asocial learning. *Adv. Stud. Behav.* 35:333–379.

Kozinets RV (2002) The field behind the screen: Using netnography for marketing research in online communities. *J. Marketing Res.* 39(1):61–72.

Lakhani KR, Panetta JA (2007) The principles of distributed innovation. *Innovations: Tech., Governance, Globalization* 2(3):97–112.

Lakhani KR, von Hippel E (2003) How open source software works: "Free" user-to-user assistance. *Res. Policy* 32(6):923–943.

Lakhani KR, Jeppesen LB, Lohse PA, Panetta JA (2007) The value of openness in scientific problem solving. Working paper, Harvard Business School, Boston.

Landes WM, Posner RA (2003) *The Economic Structure of Intellectual Property Law* (Harvard University Press, Cambridge, MA).

Lazzarini SG, Miller GJ, Zenger TR (2004) Order with some law: Complementarity versus substitution of formal and informal arrangements. *J. Law, Econom., Organ.* 20(2):261–298.

Lee GK, Cole RE (2003) From a firm-based to a community-based model of knowledge creation: The case of the Linux kernel development. *Organ. Sci.* 14(6):633–649.

Lee H (2005) Behavioral strategies for dealing with flaming in an online forum. *Sociol. Quart.* 46(2):385–403.

Lerner J, Tirole J (2002) Some simple economics of open source. *J. Indust. Econom.* 50(2):197–234.

Levine SS, Prietula MJ (2013) Open collaboration for innovation: Principles and performance. *Organ. Sci.* 25(5):1414–1433.

Lind EA, Tyler TR (1988) *The Social Psychology of Procedural Justice* (Plenum Press, New York).

Loshin J (2010) Secrets revealed: How magicians protect intellectual property without law. Corcos CA, ed. *Law and Magic: A Collection of Essays* (Carolina Academic Press, Durham, NC), 123–142.

Merton RK (1965) *On the Shoulders of Giants* (University of Chicago Press, Chicago).

Miles MB, Huberman AM (1994) *Qualitative Data Analysis: An Expanded Sourcebook* (Sage, Thousand Oaks, CA).

Murray F, O'Mahony S (2007) Exploring the foundations of cumulative innovation: Implications for organization science. *Organ. Sci.* 18(6):1006–1021.

Nambisan S (2002) Designing virtual customer environments for new product development: Toward a theory. *Acad. Management Rev.* 27(3):392–413.

Nambisan S, Baron RA (2010) Different roles, different strokes: Organizing virtual customer environments to promote two types of customer contributions. *Organ. Sci.* 21(2):554–572.

Nelson AS (2011) Tweet me fairly: Finding attribution rights through fair use in the Twittersphere. *Fordham Intellectual Property, Media Entertainment Law J.* 22(4):697–752.

Ogawa S, Piller FT (2006) Reducing the risks of new product development. *MIT Sloan Management Rev.* 47(2):65–72.

O'Hern MS, Rindfleisch A (2010) Customer co-creation: A typology and research agenda. Malhotra NK, ed. *Review of Marketing Research*, Vol. 6 (Emerald Group Publishing Limited, Bingley, UK), 84–106.

Oliar D, Sprigman C (2008) There's no free laugh (anymore): The emergence of intellectual property norms and the transformation of the stand-up comedy. *Virginia Law Rev.* 94(8):1787–1867.

O'Mahony S, Ferraro F (2007) The emergence of governance in an open source community. *Acad. Management J.* 50(5):1079–1106.

O'Mahony S, Ferraro F (2012) Managing the boundaries of an open project. Padgett JF, Powell WW, eds. *The Emergence of Organizations and Markets* (Princeton University Press, Princeton, NJ), 545–565.

Ostrom E (1990) *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge University Press, New York).

Ostrom E (2000) Collective action and the evolution of social norms. *J. Econom. Perspect.* 14(3):137–158.

Paternoster R (1987) The deterrent effect of the perceived certainty and severity of punishment: A review of the evidence and issues. *Justice Quart.* 4(2):173–217.

Paternoster R, Simpson S (1996) Sanction threats and appeals to morality: Testing a rational choice model of corporate crime. *Law Soc. Rev.* 30(3):549–583.

Peace AG, Galletta DF, Thong JYL (2003) Software piracy in the workplace: A model and empirical test. *J. Management Inform. Systems* 20(1):153–177.

Philippe D, Durand R (2011) The impact of norm-conforming behaviors on firm reputation. *Strategic Management J.* 32(9):969–993.

Piller F (2011) Open innovation with customers: Crowdsourcing and co-creation at Threadless. Sloane P, ed. *A Guide to Open Innovation and Crowdsourcing: Advice From Leading Experts* (Kogan Page Limited, London), 106–111.

Pinker S (2011) *The Better Angels of Our Nature: Why Violence Has Declined* (Penguin Books, London).

Poetz MK, Schreier M (2012) The value of crowdsourcing: Can users really compete with professionals in generating new product ideas? *J. Product Innovation Management* 29(2):245–256.

Polinsky AM, Shavell S (1999) The economic theory of public enforcement of law. *J. Econom. Literature* 38(1):45–76.

Posner EA (2002) *Law and Social Norms* (Harvard University Press, Cambridge, MA).

Posner RA (1985) *The Federal Courts: Crisis and Reform* (Harvard University Press, Cambridge, MA).

Posner RA (1992) When is parody fair use? *J. Legal Stud.* 21(1):67–78.

Posner RA (1997) Social norms and the law: An economic approach. *Amer. Econom. Rev.* 87(2):365–369.

Posner RA (2007) *The Little Book of Plagiarism* (Pantheon, New York).

Prahalad CK, Ramaswamy V (2004) *The Future of Competition: Co-Creating Unique Value with Customers* (Harvard Business School Press, Boston).

Preece J (2000) *Online Communities: Designing Usability and Supporting Sociability* (John Wiley & Sons, New York).

Randall DM, Fernandes MF (1991) The social desirability response bias in ethics research. *J. Bus. Ethics* 10(11):805–817.

Raustiala K, Sprigman C (2012) *The Knockoff Economy: How Imitation Sparks Innovation* (Oxford University Press, Oxford, UK).

Raymond ES (1999) *The Cathedral and the Bazaar* (O'Reilly, Sebastopol, CA).

Rendell L, Boyd R, Cownden D, Enquist M, Eriksson K, Feldman MW, Fogarty L, Ghirlanda S, Lillicrap T, Laland KN (2009) Why copy others? Insights from the social learning strategies tournament. *Science* 328(5975):208–213.

Richerson PJ, Boyd R (2005) *Not by Genes Alone* (University of Chicago Press, Chicago).

Samson M (2012) Crowdsourced design is not a risky business. *Wired* (May 3), http://web.archive.org/web/20120507035846/http://www.wired.co.uk/news/archive/2012-05/03/crowdspring.

Savage LJ (1954) *The Foundations of Statistics* (Wiley, New York).

Scotchmer S (1991) Standing on the shoulders of giants: Cumulative research and the patent law. *J. Econom. Perspect.* 5(1):29–41.

Seybold PB (2009) *Outside Innovation: How Your Customers will Co-design Your Company's Future* (HarperCollins, New York).

Sheth JN, Sisodia RS, Sharma A (2000) The antecedents and consequences of customer-centric marketing. *J. Acad. Marketing Sci.* 28(1):55–66.

Simon HA (1962) The architecture of complexity. *Proc. Amer. Philos. Soc.* 106(6):467–482.

Smith MH (1993) The limits of copyright: Property, parody, and the public domain. *Duke Law Rev.* 42(6):1233–1272.

Stallman RM (1999) The GNU operating system and the free software movement. DiBona C, Ockman S, eds. *Open Sources* (O'Reilly, Sebastopol, CA), 53–70.

Steinkuehler CA, Williams D (2006) Where everybody knows your (screen) name: Online games as "third places." *J. Comput.-Mediated Comm.* 11(4):885–909.

Stewart KJ, Gosain S (2006) The impact of ideology on effectiveness in open source software development teams. *MIS Quart.* 30(2):291–314.

Strauss A, Corbin JM (1990) Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociol.* 13(1):3–21.

Surowiecki J (2005) *The Wisdom of Crowds* (Random House, New York).

Tapscott D, Williams AD (2008) *Wikinomics: How Mass Collaboration Changes Everything* (Penguin, New York).

Terwiesch C, Xu Y (2008) Innovation contests, open innovation, and multiagent problem solving. *Management Sci.* 54(9):1529–1543.

Tribe LH (1972) Foreword: Toward a model of roles in the due process of life and law. *Harvard Law Rev.* 87(1):1–53.

Tyler TR (1990) *Why People Obey the Law: Procedural Justice, Legitimacy, and Compliance* (Yale University Press, New Haven, CT).

Tyler TR (1996) Compliance with the intellectual property laws: A psychological perspective. *New York Univ. J. Internat. Law Politics* 29(1–2):219–236.

von Hippel E (2005) *Democratizing Innovation* (MIT Press, Cambridge, MA).

von Hippel E (2007) Horizontal innovation networks—By and for users. *Indust. Corporate Change* 16(2):293–315.

von Hippel E, von Krogh G (2006) Free revealing and the private-collective model for innovation incentives. *R&D Management* 36(3):295–306.

von Krogh G, Spaeth S, Lakhani KR (2003) Community, joining, and specialization in open source software innovation: A case study. *Res. Policy* 32(7):1217–1241.

von Krogh G, Haefliger S, Spaeth S, Wallin MW (2012) Carrots and rainbows: Motivation and social practice in open source software development. *MIS Quart.* 36(2):649–676.

von Neumann J, Morgenstern O (1944) *Theory of Games and Economic Behavior* (Princeton University Press, Princeton, NJ).

Vriend NJ (1996) Rational behavior and economic theory. *J. Econom. Behav. Organ.* 29(2):263–285.

Vukovic M, Bartolini C (2010) Towards a research agenda for enterprise crowdsourcing. Margaria T, Steffen B, eds. *Leveraging Applications of Formal Methods, Verification, and Validation* (Springer, Berlin), 425–434.

Wasko MM, Faraj S (2005) Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quart.* 29(1):35–58.

Wenger E (2000) Communities of practice and social learning systems. *Organization* 7(2):225–246.

West J, Lakhani KR (2008) Getting clear about communities in open innovation. *Indust. Innovation* 15(2):223–231.

Zuboff S (1988) *In the Age of the Smart Machine: The Future of Work and Power* (Basic Books, New York).