Creating Value in Online Communities:
The Sociomaterial Configuring of Strategy, Platform, and Stakeholder Engagement

Abstract

How is value created in an online community (OC) over time? We
explored this question through a longitudinal field study of an OC in the
healthcare arena. We found that multiple kinds of value were produced
and changed over time as different participants engaged with the OC
and its evolving technology in various ways. To explain our findings,
we theorize OC value as performed through the ongoing sociomaterial
configuring of strategies, digital platform, and stakeholder engagement.
We develop a process perspective to explain these dynamics and
identify multiple different kinds of value being created by an OC over
time: financial, epistemic, ethical, service, reputational and platform.
Our research points to the importance of expanding the notion of OC
users to encompass a broader understanding of stakeholders. It further
suggests that creating OC value increasingly requires going beyond a
dyadic relationship between the OC and firm to encompassing a more
complex relationship involving a wider ecosystem of stakeholders.

Introduction

Online communities (OCs) enable members with common interests or goals to collaborate and interact with one another virtually (Sproull and Arriaga 2007; Faraj, Jarvenpaa and Majchrzak 2011). As technology platforms for supporting OCs have improved and become cheaper and easier to use, and as opportunities for using social software have proliferated (Haefliger, Monteiro, Foray, and von Krogh 2011), new enterprises are being set up to create and leverage value from OCs. While research on OCs has generated important insights about community dynamics (Cummings, Sproull and Kiesler 2002), knowledge collaboration (Faraj et al. 2011), social identification (Ma and Agarwal 2007), and the organizational benefits of internal/external communities to firms (Wenger and Snyder 2000; Haefliger et al. 2011; Jarvenpaa and Lang 2011), it has largely not examined how OC value is created and leveraged. Indeed, more generally, it has recently been recognized that research on the strategic implications of OCs is still quite limited (Bughin and Hagel III 2000; Haefliger et al. 2011; Baden-Fuller and Haefliger 2013).

Our research question was thus focused on understanding the dynamics through which OCs create value over time. We addressed this question by conducting a longitudinal study of a start-up enterprise (SocialHealth) that developed and cultivated an online community (OC) in healthcare over a number of years. We found that the SocialHealth OC generated different kinds of value in various ways for multiple stakeholders in the health ecosystem over time. The initial motivation behind SocialHealth's OC was grounded in its founders' interest to use web technology to "make health social." At first, the SocialHealth OC focused on soliciting member assessments of health services and providers and making these ratings visible to the community. This led to an initiative that connected with the broader ecosystem of patient organizations and engaged an extended social network of patients to use the OC platform to provide peer support by sharing experiences in multiple disease areas. Over time, the SocialHealth OC was expanded to link specific patients with their health providers, enabling the personalized monitoring of customized treatments and reporting of patient outcomes. Most recently, the SocialHealth OC has incorporated data analytics in its platform to facilitate pharmaceutical research and development through disease profiling.

To theorize the dynamics of the process through which the SocialHealth OC created value over time, we found it helpful to conceptualize OC value as performed through the ongoing sociomaterial configuring of OC strategies, digital platform, and forms of stakeholder engagement. We develop a process perspective to unpack these performative dynamics, highlighting how multiple OC value propositions emerge as OC strategies change along with developments in the OC technology and as different stakeholders shift and alter their participation in the OC. In articulating this model, we contribute to the call for OC research to go beyond focusing on user participation and collaboration to examine the strategic aspects of creating and leveraging OC value over time (Haefliger et al. 2011).

Relevant Literature

The OC literature has focused extensively on the social dynamics of participating in and contributing to OCs (Faraj et al. 2011; Kraut, Resnick and Kiesler 2011; Lakhani and von Hippel 2003; von Krogh, Haefliger, Spaeth and Wallin 2012; Wasko and Faraj 2005). These studies have tended to assume that OCs include participants who are largely similar. Such an assumption, however, may no longer be relevant as OCs become increasingly integrated into complex and shifting ecosystems involving multiple different stakeholders and enterprises (El Sawy et al. 2010). In addition, existing OC research has largely overlooked the strategic issues arising from novel interactions between firms and OCs (Haefliger et al. 2011). Our focus below is thus on the literature that was most relevant for our study of OC value creation — studies of OC knowledge collaboration and user engagement, research on technology platform designs and how they can sustain the social dynamics of OCs, examinations of IT value co-creation in platform-based ecosystems, and conceptualizations of forms of value and value propositions in use.

Collaboration in an OC is understood as individuals "offering knowledge to others as well as adding to, recombining, modifying, and integrating knowledge that others have contributed" (Faraj et al. 2011, p. 1224). Studies of OC collaboration have found that the kinds of collaboration that emerge in an OC are influenced by how the OC is conceived, what are its community goals, who has control over resources and processes, and what power dynamics arise among the users (Jarvenpaa and Lang 2011). While some communities emphasize user engagement and collaboration for collective welfare and social bonding

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(Sproull and Arriaga 2007), others are increasingly leveraging collaboration as a source of innovation within firms (von Krogh and von Hippel 2006). An example of the latter is when firms' leverage the knowledge shared in an OC to influence the design of their products or services (Kaplan and Haenlein 2010; O'Mahony and Ferraro 2007) or inform consumer choice through reviews of firms' products and services (Scott and Orlikowski 2012).

The technology platform in use has also been an important theme within the OC literature (Faraj et al. 2011; Haefliger et al. 2011), examining the diverse ways that distinct technology designs influence OC engagement and contributions. That is, how an OC platform is designed will shape the kinds of resources that are made available to community members and the kinds of interactions and processes that can emerge (Levina and Arriaga 2014; Tiwana et al. 2010; West and O'Mahony 2008). Faraj and colleagues (2011) suggest that the ways in which an OC platform affords reviewability, recombinability, and experimentation will shape OC patterns of participation. Reviewability refers to how the platform can enable the OC content to be viewed over time from multiple perspectives (West and O'Mahony 2008). Recombinability concerns how users can borrow, mix and build on each other's contributions (Lessig 2008; Jarvenpaa and Lang 2011). Experimentation refers to ways in which the evolving OC platform can encourage participants to try out novel ideas (e.g., OCs as virtual sandboxes) (Hienerth and Lettl 2011). Empirical studies have found OC technology platforms enabling self-expression (Schau and Gilly 2003), supporting community ratings (Haefliger et al. 2009), leveraging status and preferences (Levina and Arriaga 2014), facilitating interactions among individuals (Kallinikos and Tempini 2014), aiding in community building (Culnan et al. 2010), and leveraging user innovation (Franke and von Hippel 2003).

Recent work on OC platforms has highlighted how those rich in user generated-content (open source communities, Facebook) can support distributed innovation through collaborations that harness creativity outside of organizations (Boudreau and Lakhani 2013; Levina and Arriaga 2014; O'Mahony and Lakhani 2011; Piskorski et al. 2010). This research shows how the increased blurring of boundaries between firms and online communities can create opportunities for communities to play an increased role in creating value for organizations. A similar finding has also emerged from studies of firms developing online games (Kjaersgaard and Smith 2014; Antonoupoulou et al. 2014) where participants in online gaming

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communities actively contribute to product development. While offering opportunities for value creation, these collaborations may also be challenging. For example, Cornford et al. (2010) describe how the ongoing difficulties faced by Linux developers in working out a sustainable collaboration required addressing the interdependencies of open source values, organization design, and systems architecture.

Despite the relevant work on OC affordances and collaborative arrangements, there has been little research on the role of OCs in generating multiple kinds of value for different parties over time. We thus turned to recent IS literature that has focused on IT value co-creation (Ceccagnoli, Forman, Huang, Wu 2012; Grover and Kohli 2012; Sarker, Sarker, Sahaym, and Bjørn-Andersen 2012). Researchers here argue for the importance of understanding how value is generated through technology that connects multi-parties, as in customer-supplier relationships (Sarker et al. 2012), exchanges across digital platforms inside and outside the firm (Bharadwaj et al. 2013), and broader multi-stakeholder ecosystems (Lusch and Nambisan 2015; Barrett et al. 2015). This research shows that technologies can support critical sources of value creation across boundaries, particularly in response to environmental dynamics (Doz and Kosonen 2008; Schneider and Spieth 2013). Taking advantage of such possibilities requires a clear digital strategy — an "organizational strategy formulated and executed by leveraging digital resources to create differential value" (Bharadwaj et al. 2013, p. 472). How such strategies can generate value for the different parties involved is not yet well understood in the IS literature (Baden-Fuller and Haefliger 2013), nor in the case of OCs, where linkages between OC strategies and digital platforms remain under-examined (Haefliger et al. 2011).

A related insight of this research has been to demonstrate how various value propositions emerge as a technology is being developed, emphasizing that value is always embedded in specific social contexts, and defined differently by different stakeholders. Drawing on scholars such as Appadurai (1986), Boltanski and Thevenot (2006) and Stark (2009), Corvellec and Hultman (2014) argue that organizations typically offer several value propositions addressing different "regimes of value." A regime of value (Appadurai 1986) is a socially coherent and situated way of establishing what is valuable. By incorporating certain evaluative frameworks, assumptions, and orders of worth (Boltanski and Thevenot 2006), each regime of value produces distinct understandings of what matters and what does not. For example, the political regime of value includes legislative and regulatory policies that promote certain forms of government influence in

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society. The economic regime of value is oriented to a market logic that emphasizes growth, revenue, costs, and efficiency, while the social regime of value encompasses cultural and moral criteria of worth, in particular, collective and altruistic notions of reciprocity and gift exchange (Mauss 1976).

The notion of regimes of value calls attention to the different "institutionalized ways of assessing and communicating value" (Corvellec and Hultman 2014, p. 5) that inform specific value propositions in use. For example, within the context of online games, employees of the game vendor operate with commercial interest and work towards maximizing company interests, while players in the online gaming community share ideas through a form of gift exchange to increase their visibility and build their reputation (Kjaersgaard and Smith 2014). In their study of a municipal waste management company, Corvellec and Hultman (2014, p. 2) found that the firm delivered on a number of concurrent value propositions: "a practical value proposition to households to collect waste; a political value proposition to provide the region with a novel competitive advantage; an environmental value proposition to secure a viable environment for future generations; and an economic value proposition to its municipal owners to generate enough returns to finance its own development." Given the presence of multiple concurrent value propositions, tensions may arise that can be problematic when conflict or competition results. However, as Stark (2009) points out, tensions may also be generative when the creative dissonance is actively leveraged to produce innovative synergies.

Our empirical study encompasses a broad view of OC value to accommodate the possibility that the OC may generate different kinds of value for the multiple stakeholders engaging in the OC. The OC that we examine in our empirical context of healthcare is embedded within and draws on a number of regimes of value — the most salient of which appear to be economic, social and political. We adopt an open-ended and inclusive view of stakeholders, recognizing the importance of actors beyond the participant users of the OC. In considering the OC platform, we take seriously the generative materiality of digital infrastructure (Henfridsson and Bygstad 2013; Pinch and Swedberg 2008). This understanding departs from the typical treatment of technology as somewhat distinct from how people engage with the OC, and conceptualizes technology as part of the sociomaterial configuration (Mazmanian et al. 2014; Scott and Orlikowski 2014) that constitutes the OC. Rather than emphasizing distinct features of technologies and

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examining how these influence OC activities, a sociomaterial view recognizes that OCs are not fixed, stand-alone, or mediating platforms, but fluid enactments of strategic initiatives, technologies, and stakeholder interactions that entail different possibilities for action (Venters et al. 2014). Drawing these insights together, we conceptualize OC value as performed through different sociomaterial configurations of OC strategies, platform, and stakeholder engagement in specific times and places. This is the perspective that informed our study of the SocialHealth OC, and our analysis of the dynamics through which it created different kinds of value for multiple stakeholders over time.

Research Methods and Analysis

Research Approach

Our research involved an in-depth longitudinal study of SocialHealth over four years, commencing in November 2009 and ending in December 2013. Initial access was negotiated by one of the authors in 2009, after we became aware that the CEO of SocialHealth had just finalized plans to initiate an OC venture to support the empowerment of individuals with chronic disease. As we were interested in knowledge and online communities, we began to collect data in this emerging venture. Over time, as the venture developed we realized that SocialHealth offered a unique opportunity to study the emergence of an online community from within a start-up private sector organization and to trace its growth from inception through multiple phases of development. Thus, our research design evolved along with the OC.

With costs spiralling out of control in most healthcare systems, many governments have developed policies that seek to put patients at the heart of their own treatment plans so that they might develop a commitment to self-management (Klein 2006; Ongaro 2009). In the UK, the government's National Health Service (NHS) focused its policies on both patients and clinicians. With respect to patients, the government framed the NHS as a "seamless service for patients" that should "empower patients." In 2006, the government published a white paper "Our Health, Our Care, Our Say" (DOH 2006) to situate patients at the heart of their own treatment plans. The argument was "if people have a clear understanding of their condition and what they can do, they are more likely to take control themselves" (DOH 2006, p. 8). Online patient communities were seen as one means of accomplishing this goal. With respect to clinicians,

the government required that clinicians and medical providers (such as hospitals) emphasize patient outcomes as assessed and operationalized through such metrics as Patient Reported Outcomes Measures (PROMs) (Darzi 2008).

The timing of SocialHealth's OC launch in 2009 coincided with further policy initiatives by the UK government that provided grants and economic investment in digital health, particularly in support of private enterprises developing online patient communities. Our initial focus was on knowledge sharing in online communities (Wasko and Faraj 2000, 2005) and understanding how and why people share their experiential knowledge online and over time.

Our inductive analyses at the end of the first round of fieldwork, however, drew our attention to other more salient issues emerging from the data. While we observed knowledge sharing through the rating of health providers, we also noticed how social media and platform design were influencing the community dynamics and possibilities for OC value creation. We drew on insights from IS studies that examined technological visions and rhetorics (Barrett, Heracleous, and Walsham 2013; Davidson, Osterlund and Flaherty 2015) to understand how the SocialHealth OC was framed over time in relation to the wider dynamics of OCs emerging in the sector and the distinct interests of different stakeholders. This helped us identify a number of specific strategies informing the design of the OC platform over time. Our data also called attention to the various forms of stakeholder engagement evident in the nascent OC and how these differed from the primary form of knowledge sharing characterizing established OCs. Our longitudinal study thus offered an opportunity to understand the strategic development by a start-up enterprise of a specific OC for health support over time. Having recognized this opportunity, we adopted an interpretive approach (Golden-Biddle and Locke 1997; Walsham 1993) to trace and explain the performative dynamics that were configuring SocialHealth's OC in specific ways. This allowed us to develop a process understanding (Langley 1999) to explain how OC value is created over time.

Data Collection and Analysis

We conducted a total of 38 interviews, 31 interviews with SocialHealth employees at all levels, and 7 interviews with stakeholders across the wider healthcare arena, including professionals in the healthcare

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sector and members of other firms developing patient-focused OC solutions. Our interviews were semi-structured (involving both open-ended and more focused discussion) with an average duration of one hour, and with the exception of three interviews, were all recorded and transcribed. The majority of the interviews were conducted in person, but a few were carried out over the telephone according to the preference of the interviewee. Questions in the initial round of interviews focused on the organizing strategy for the SocialHealth OC, competitive industry dynamics of patient OCs (e.g., Microsoft Healthvault and Google Health), policy developments, types of collaboration within the OC, as well as the use of specific technologies in the evolving platform.

We examined strategy documents related to SocialHealth's imaginings for the OC, reviewed pitches made to venture capitalists for funding, and participated in walkthroughs of the evolving technology architecture at different points over time. We also studied government policies on patients — particularly those that promoted the concept of "No decision about me without me"— and clinicians — those that emphasized patient outcome metrics (PROMs). In examining these documents, we were particularly attuned to identifying how SocialHealth was drawing on different regimes of value in justifying and explaining its different proposals.

This data collection phase was complemented with some online observation of the SocialHealth OC discussions that were open to the public through a simple registration process. By opting to register with the SocialHealth OC, members agreed to share their depersonalized data and experiential knowledge with others in the community, informing our insight into the social regime of value guiding how experiential knowledge and illness stories were freely exchanged between users. Following a netnographic approach (Kozinets 2009), one author and a research assistant joined disease groups where they had loved ones suffering from particular chronic conditions (diabetes and rheumatoid arthritis). This allowed them to observe and participate in the kinds of interactions that took place within the OC about these diseases. The later phases of our interviews focused more intensively on understanding the evolving collaborations between SocialHealth and other stakeholders, while also seeking to understand how the digital infrastructure of the OC platform changed in relation to the emerging OC strategies.

To guide our analysis, we adopted a narrative and temporal bracketing approach (Langley 1999). Our narrative approach entailed writing theoretical memos to develop a detailed story from the data after each of the first two phases. We further mapped out the data into broad thematic categories to account for the different types of engagements that were emerging with and within the SocialHealth OC over time. We complemented this with temporal bracketing analysis that is commonly used in developing process research (Langley, 1999). In our study, this involved decomposing the chronological data of the case into successive phases, which become comparative units of analysis in our understanding of the OC's configurations over time (see Figure 1). The boundaries of the selected phases were defined by shifts in SocialHealth's strategy involving new collaborations with different stakeholders (e.g., charities, clinicians, pharmaceutical firms) that required changes to the OC platform. We also related our emerging themes to concepts in the OC literature and as well in IT value co-creation research. This led us to appreciate the importance of going beyond our initial focus on knowledge sharing to recognize the significance of strategies, users, and platform developments for enabling value creation across the health ecosystem, where multiple stakeholders have diverse interests and are motivated by different regimes of value. As we continued to iterate between our emerging themes and related literature, we developed our understanding in terms of a process perspective that explains the dynamics through which the OC strategy, digital platform, and stakeholder engagement are sociomaterially configured over time to perform multiple kinds of OC value to different stakeholders. Our analysis identified six kinds of value being created by the OC: financial, service, ethical, epistemic, reputational, and platform. *Financial value* refers to the monetary revenue derived from activities in the market (Ortiz 2013). *Service value* refers to the benefits gained from the application of another's resources or competences (Vargo and Lusch 2004). In keeping with the social norm of helping others as a virtue, *ethical value* arises when experiences or insights are freely shared with the intention of helping those affected by some condition (as in the case of illness narratives, Mazanderani et al. 2013). *Epistemic value* arises from gaining information or knowledge that supports one's choices or actions (Mazanderani et al. 2013). *Reputational value* refers to the increased legitimacy and standing that arise from associations with other well-regarded or high-status groups (Bitektine 2011). *Platform value* is generated as digital capabilities of the technological platform

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are developed that expand the scope and reach of the system (Ceccagnoli et al. 2012). These different kinds of value were created at different times and in different ways through the ongoing configuring of the OC, a process that generated tensions that proved to be both problematic and generative.

Creating Value in SocialHealth's Online Community

Our analysis identified four distinct value propositions being enacted in the SocialHealth OC over time: *rating*, *connecting, tracking, profiling.* Each value proposition connected to distinct broader regimes of value and was constituted by specific sociomaterial configurations of the OC strategy, digital platform, and engagement of certain stakeholders. As new OC value propositions emerged, existing ones continued to be enacted in parallel, becoming more established and routinized over time. Figure 2 highlights the process through which SocialHealth's four OC value propositions were enacted over time.

Creating Value through *Rating*

SocialHealth was initially motivated to develop an OC that would leverage social media to support patient advocacy. This development took place within wider political and economic regimes of value as the UK government mobilized patient engagement in their healthcare through policies emphasizing "patient choice," and aimed at stimulating the private sector to develop technology initiatives in the healthcare marketplace.

Influenced by these wider regimes of value and an increasing focus on ranking and benchmarking information about health services nationally, SocialHealth's initial OC value proposition of rating entailed patients going online to describe and evaluate their experiences with specific health providers. This patient rating mechanism was relatively novel at the time and served as an important early differentiator for SocialHealth, distinguishing its OC from others in the healthcare space (such as PatientsLikeMe). OC members evaluated different local health providers (e.g., hospitals) by providing scores on a series of survey questions, such as whether they would recommend the health provider to others or how knowledgeable they thought the health provider was about their specific medical condition. Over time, further granularity was made possible enabling patients to rate individual hospital wards.

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The SocialHealth OC platform was organized into disease groups of patients with the same chronic health condition (e.g., a disease group for diabetic patients or those with a thyroid dysfunction). Access to the OC was through a web browser and involved an easy sign-up process for registering. Once registered, new members were able to select the disease groups that they wanted to join (made available through a MyCommunities tab), and to contribute to a discussion thread. Members could use the Search tab to discover specific health information of interest in the various discussion threads, and these were linked to a Related Articles Tab that was generated in response to search queries. Members were also able to update their personal profile, scroll through newsfeeds, and send invitations to others to join the community through Facebook or Twitter. SocialHealth launched the first online disease group in the last quarter of 2009, and further disease groups were gradually developed and launched over the next few years. By October 2014, the SocialHealth OC was hosting over 500 disease groups on specific medical conditions, and included over 2 million postings by members.

The initial design of the OC platform was influenced by the SocialHealth founders' strong orientation to patient advocacy. As the CEO explained, "We don't have adverts and the sites are free for patients — it's about trust and transparency." Drawing on the social regime of value to shape the design of the OC platform, the founders were also influenced by the political regime of value as they strove to align the OC with government policy directives. They did so in two ways. First, the platform solicited health service evaluations from OC members and then published the aggregated information in the form of online scores. Second, it enabled members to make informed choices by supporting their search for evaluations of health providers.

SocialHealth's two founders (who became the CEO and the first Chairman) wanted to ensure that the OC platform would encourage participation and user control. They thus designed the digital infrastructure to provide flexible privacy settings that allowed members to customize their access for different levels of interaction with the OC. In the early years of SocialHealth's development, the Chairman at that time emphasized the iterative process of designing the platform:

> So we try a prototype, we throw it out there. It's not that kind of model where we have a kind of focus group session because it's just not quick enough. [So] we build our things, some of them work, some

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of them don't, and we build out of that. A lot of our innovation comes from feedback. ... [We want patients] involved ... and we'll give [patients] the tools to do that.

The OC also provided for access controls for different disease groups, so as to encourage patient groups to engage and invest their time and energy in the OC. As the CEO explained:

Groups can be private — up to the level of entirely private. ... We have a Depression group for instance that you can't even find through Google or anywhere because it's totally hidden and there's only fifty people sharing their experiences. Other groups like the Thyroid one are much more open. So we try to give them a few tools to fine-tune these things and we believe that they know what is the exact tuning for each [medical] condition. So if you arrive at a place where the right tune is set [then] the users [will trust it].

The CEO further emphasized that the OC would become a sustainable innovation if the stakeholders were kept actively engaged and trusted the community. They worked to achieve this by being as transparent as possible, for example, making it clear to members how information was being used, by whom, how members could control their profiles, etc.

I think the main thing is to be very clear on what you do and why you do it and to always give options to people and easy options... It sounds very simple but it's not simple, it's very complicated to make it clear. ... [Trust] has a huge impact on how you are perceived on the outside and how you recreate the trust or the "untrustness" that you build. ... The most difficult thing [about setting up the OC] are the many levels in which trust has to be worked.

Aiming to create high levels of patient engagement, SocialHealth focused on generating trust through attention to privacy, openness about the benefits of the OC, and a design of the digital platform with effective and flexible access controls at both individual and group levels.

The rating value proposition enacted by the SocialHealth OC created important epistemic value for the OC patient members as they shared and relied on each others' online ratings of specific health providers. SocialHealth's success at enabling the provision of this evaluative information to patients also created additional kinds of value: platform value for SocialHealth as the digital capabilities of the OC platform expanded, and financial value for the founders as they secured additional funding for the OC from angel investors in the heathcare and technology space.

While generating important kinds of value, the OC's rating value proposition also produced some friction. A key tension entailed the possibility of growing the community without undermining the OC's commitments to trust and privacy. These commitments, along with the founders' refusal to use advertising as a source of revenue (the typical monetization strategy for online platforms), were at odds

with the urgency to become a viable and sustainable undertaking. Important concerns were raised about the feasibility of funding SocialHealth's growth solely through early stage angel investment that supported the provision of evaluative information about health services. SocialHealth also sought funding from venture capitalists pitching to them regularly over time. These pitches focused on highlighting the viability and growth of the OC through the number of contributions made across the patient communities. In seeking to build a critical mass for the OC, SocialHealth remained open to other possible ways of increasing engagement and creating value. In particular, they began to notice that members had begun to voluntarily interact with each other in ways that went beyond exchanging evaluative information. Specifically, patients started sharing detailed stories about their physical and emotional experiences coping with certain diseases. This emergent sharing of patient narratives began to change the founders' understanding of the potential value of the OC, shifting momentum away from viewing the community as primarily creating value through health service evaluations. They came to see an opportunity for the SocialHealth OC to achieve significant scale by enrolling larger numbers of patients to share their knowledgeable insights about living with chronic medical conditions. Supporting this more extensive knowledge collaboration would require a reconfiguring of the OC strategy, platform, and mode of engagement towards delivering an additional value proposition that was oriented towards connecting patients with each other — at scale. As shown in Figure 2, this led to SocialHealth expanding its portfolio of OC value propositions to include the enactment of a *connecting* value proposition that engaged not just patient members but an additional stakeholder — patient organizations (known in the UK as healthcare charities).

Creating Value through *Connecting*

In leveraging the opportunity to create OC value through the connecting value proposition, SocialHealth explored ways of building scale and enabling peer support in managing long term chronic conditions. This value proposition tapped into the political regime of value emphasizsing patient engagement in better managing their own health, as well as the social regime of value in improving moral

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worth through helping others. Though less significant, this value proposition also drew on the economic regime of value through emphasizing fees as a source of funds from the wider healthcare marketplace.

SocialHealth sought to collaborate with healthcare charities by offering the OC as a way of supporting their mission to help patients deal with certain medical conditions. SocialHealth thus proposed the OC as a means to provide services to patient groups, while also enabling these patients to manage their conditions by giving them access to online peer support. As the founders saw it, the charities' members would become contributing users of the OC who would help to build scale and online content through contributing their experiential knowledge. The SocialHealth CEO explained that the interest in connecting with healthcare charities was intended to secure the growth and viability of the OC:

> When we started offering HealthUnlocked to healthcare charities it wasn't only because we wanted to resolve their problems, but also because we needed traffic and endorsement…"

A distinctive strategy emerged where service value was created for the healthcare charities to improve engagement of their members through a web-based interface that connected to the SocialHealth OC. In turn, the healthcare charities promoted SocialHealth among their patient members, mobilizing their participation in the OC. As the charities had little expertise or resources to develop web-based applications, the collaboration helped them improve the service they offered including access to online patient forums. In addition to building more interaction amongst members, the charities could more easily communicate with their wider membership. For example, instead of sending letters or emails to solicit responses from members, an online poll could be used which generated quicker and richer responses (see Figure 3). Not only could the charity get more answers from polls or questions posed online, it also benefited from knowledge related to ongoing discussions whilst saving time spent on support calls or emails. The connecting value proposition generated financial value for SocialHealth from a small fee paid by the charities for technology related projects where they had less expertise. More importantly, they obtained increased legitimacy within the health care ecosystem through partnering with the charities. This external endorsement helped to create reputational value for Socialhealth, as the number of OC members expanded and the amount of user-generated content being contributed online increased. This reputational

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value was important for SocialHealth to increasingly attract VC funding that amounted to a few million dollars in the first few years.

The strategy to build scale and enable peer support through the OC was materialized through a redesign of the OC platform that allowed patients to link to the OC from their specific healthcare charity websites. This building of new OC digital capabilities furthered platform value for SocialHealth. Less focus and resources were focused on the rating value proposition, though this continued to generate value over time. Instead, the SocialHealth founders became increasingly convinced of the significance of the connecting value proposition and began to more substantially adjust the platform design to accommodate the interests of the charities. The CEO noted:

> The main model is that we have these patient groups that are actually existing … charities that work for specific [medical] conditions. … So when you sign into our community you sign into a very dense area of information that is totally [specific] to you and you feel you are much keener to share information up to a very high level.

The emerging platform design began to more directly facilitate the use of blogs and discussion threads that emphasized engagement with the OC based on sharing experiential knowledge. This enabled patients to support each other within the OC through different kinds of interaction. First, members shared stories about coping with specific diseases. These accounts were personalized narratives that were less explicit about specific recommendations (as was the case with the rating-focused contributions). Indeed, the content of these accounts sometimes referred less to the medical condition (except as a backdrop), and were intended as much to distract, encourage or amuse as to inform. Statements such as "I thought you could all do with a laugh," were indicative of the sentiment of such blogs. Bloggers would actively seek sympathy through such post titles as "Feeling a bit sorry for myself." Sympathy was also commonly expressed in comments made on the blogs of others, where members both attempted to give support, "Sorry to hear you are feeling so low" and to acknowledge when they had received it, "It was so nice for me to read about you and to feel that I am not alone." As patient members contributed and read these accounts, ethical value was created through peer support in trying times.

Second, members shared specific knowledge about their experiences living with and managing various diseases, drugs, and treatments. For instance, they solicited and provided information about the

use of certain medications (e.g., "Anyone else feel constantly sick on prescription drug A?"), offered advice on interdependencies associated with medical conditions (e.g., "Can I take a multivitamin containing …?"), added details of challenging episodes arising from certain conditions (e.g., "spots on arms," "swollen eyes"), and shared information about lifestyle issues arising from their medical condition (e.g., what are more or less effective kinds of specialized equipment or utensils). Such knowledge sharing was motivated by both wanting to receive helpful information and wanting to give back to the community by being helpful. The epistemic value of experiential knowledge was often explicitly acknowledged when patients stated their intention to communicate what they had learned from the OC to their medical team. For example, one member posted a comment on the SocialHealth OC noting, "I'm seeing my specialist Friday and will ask her advice on drug cocktail now you have confirmed my worry!"

The sharing of substantive content to help others also created ethical value through enabling contributors to feel positive about providing (and receiving) knowledge to (from) others in a similar situation. Bloggers, similarly, informed and helped other members through a blog series "Open All Hours," which elicited discussion to both educate and help. As one user posted:

> Knees feel like lead weight. Hands sore and swollen. … [think we should make] our [blog] open to a wider group of people. How are we going to get across to other people how hard and painful this disease is if they can't see what we are going through.

Creating value through connecting with healthcare charities allowed SocialHealth to materialize their strong social software focus, and adapt the tools based on the requests of the healthcare charities whose legitimacy they sought. The increasing collaboration between SocialHealth and numerous healthcare charities, however, also led to unintended fragmentation of the platform's design and performance. A SocialHealth developer explained:

> At the time when it was growing we were sort of bolting on features as we were hearing about them … so whenever, say the Chairman or CEO, requested a feature, I would put it in and essentially [SocialHealth] became like a structure that has lots of bolts on.

Over time, as increasing numbers of healthcare charities joined the site and demanded new features, the OC platform became unwieldy and difficult to navigate. Tensions arose over customizing the platform to accommodate ongoing charity requests as this was a considerable drain on resources affecting the overall performance of the platform, staff, and company. For example, SocialHealth designed a separate

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disease group for one healthcare charity that allowed members to build individual networks with their friends and family. Yet, in doing so, SocialHealth had created a way for these members to completely bypass the connection with the SocialHealth community.

As SocialHealth became a valuable OC in its own right, and not just through its association with reputable healthcare charities, it became less dependent on any one charity in generating traffic to the site and building critical mass. The CEO drew on the "Trojan Horse" analogy to highlight SocialHealth's shift in dependence on healthcare charities to create value:

> They [the healthcare charities] probably get like 50 members out of their own user base and [now] the other thousands are coming out of SocialHealth … so they are our own little Trojan horses, and only now are we receiving [most of] the traffic directly to SocialHealth

As SocialHealth became less dependent on charities so its developers became increasingly resistant to invest resources building "bolt on" platform customizations. As one employee noted:

> We have been like an open book up to now, and we are closing that book and saying, "Ok this is what we do, and this and this, and if you want a bolt on to this or something bespoke, it has to be on top of what we're doing and has to make sense for the company." The major change is that we are [now] in control of the thing and if we want to do something we will say yes or no, and most of the time it's "no." Last year we developed lots of things at their request. We don't do anything new now, or if we do [then] we charge.

Niche platform designs for certain charities became undesirable. Instead, each requested platform feature was now subject to an assessment of the extent to which it would contribute to the community as a whole. Indeed, this shift in design focus led SocialHealth to hire a website designer specifically to streamline the platform. An employee described the redesign work undertaken to resolve the tension as follows:

> He looked at every single module, he said "OK, so this is very useful, this might be useful, or maybe not," and went for the minimalist approach and saying, "Let's do something to make this usable; if people request something, [and] if enough request something, then we'll put it back in." [So then we were] literally striking out all the sorts of funky stuff that we had — news feeds, … Facebooks, tweets, and I don't know, lots of different uploads … from bloggers, and it just wasn't really usable.

Resolving this tension in redesigning what was described by the CEO as a "Frankenstein system" was of strategic importance as the platform design was seen as drifting away from its original purpose. As part of this reconsideration of purpose, platform and value, SocialHealth began to explore expanding into a new strategy of supporting clinicians and medical providers. As shown in Figure 2, this led to SocialHealth expanding its portfolio of OC value propositions to enact a *tracking* value proposition. This initiative was seen to offer new revenue streams for SocialHealth and to make them less dependent on external sources of funding.

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Creating Value through *Tracking*

As the UK government refocused its policy on increasing patient engagement with the health system, new directives towards gaining service quality feedback from patients (such as Patient Reported Outcome measures — PROMs) were developed. This evolving policy context enabled SocialHealth to tap into the political regime of value regarding patient engagement in new ways. They could also tap into the economic regime of value by supporting medical providers' need to maintain their government revenue stream and reputation by meeting performance targets. They proposed creating value for clinicians and medical providers by tracking patient feedback and outcomes through the OC. Not only would this service help to reduce medical providers' operational costs but it would also create reputational value for them through making patient related performance outcomes transparent.

> We have a [new] revenue stream …the information coming from the tracking of those PROM's is validated …. So that is really invaluable as information and also the commissioners could see how different units or hospitals are performing. [Hospitals] can pay for that and in the future you could have further data that you can commission or sell or licence… we are going to launch next week this system that we call Orbit … in many hospitals for many different conditions.

To create this new value, the OC platform capabilities were redesigned to help manage the PROMs requirements. In turn, medical providers would pay SocialHealth for collating and integrating patient specific feedback on clinical interventions (e.g., managing with a new device implant). Creating value through tracking allowed clinicians to record data about their patients and their treatments on the OC in a confidential yet transparent and accountable fashion. As one employee noted:

> Something called Re-Validation is coming in next year, so [doctors are] going to need to publish some evidence of essentially taking accountability of their practice. So whether that's showing some evidence of their personal outcomes, or patient experiences around their practice, these are the sort of features that we're building in to solve a problem for them.

This value proposition was further reinforced by the UK government's continued and strong endorsement of tracking to facilitate patient outcomes. The then Health Secretary of State for the UK, speaking at the official launch of SocialHealth's tracking platform, described it as "just one part, but an important part, of helping patients maximise quality of life, and continually challenge the limits of what they can do and achieve." Such a public endorsement by a prominent member of the UK government added reputational value to SocialHealth's visibility as a key player in the health ecosystem. The

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company's Chief Medical Officer described this addition to the OC's portfolio of value propositions as follows:

> So you'll notice that if you go to our homepage we do PROMs and we do these support communities. Where's the connection? Well the connection is that we're getting PROMs into a much more easily used format as a sort of instrument for clinicians. We're going to join up the dots in bringing you know, peer-to-peer support and professional-to-peer support.

Over time, SocialHealth's tracking system began to generate considerable service value to hospitals and clinicians at a significantly lower cost than they could have achieved with their own in-house systems. As SocialHealth's CEO observed:

> Somebody's got to pay for it and it's probably going to be [the Hospital], and they'll be doing it on paper. If you think about what they do, they get someone to go into clinic, give a paper form, then they have to take it out, and then they have to transcribe it. Then it goes into a database, an Excel spreadsheet. Then it comes out of the Excel spreadsheet and into a statistics package … So it's in many ways where we see the kind of value [we can offer] by streamlining the process.

By mid-2013, over 60% of the OC members used a mobile device, making the development of easy and quick mobile access to the OC a key platform priority. This furthered the platform value for SocialHelath as the design team build additional digital capabilities to accommodate the online integration of patients' health interactions. One employee noted:

> Now you as a user will land into your profile, which is this tracker, and from there you can track, you can have your applications … and you can go to your GP, you can go to your community group, or you can go to share information

The tracking system was well received by clinicians, hospitals, and patients, and it highlighted the emphasis on performance that was permeating the wider health ecosystem. The OC platform could provide capacity for medical providers to support patients in new ways, improving the overall service and care that their patients received. As one service provider noted:

> Our health is unique to us and there is no easy way to finding our own path to health care as it is unique to us and it is usually hugely complex. With the platform we can bring it to patients. We take them on a journey for more empowered care…. a personal journey and manage it around everything else, like children and family.

This new form of personalised service was perceived by health managers not only as valuable in terms of supporting patients in a way that was unique to their particular health and lifestyle but also in terms of linking patient requirements with the services locally available in the public system. The ongoing platform redesign, using machine learning, could help clarify to patients what viable local service options

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might be valuable for their current concerns, and informing medical providers which patients could benefit from their services.

> When [patients] post information …when they make an inquiry, then … what they are concerned and interested about is captured. We use that to make recommendations to users… linking this up with what is available on the [medical provider] website [and] use that to make recommendations to user. The machine AI technology does all of that.

While SocialHealth's tracking system was well used, it did not produce the required growth of the OC in terms of scale and contributions demanded by venture capitalists, and tensions emerged as government funding became increasingly constrained. To resolve these tensions, SocialHealth began to consider creative ways of leveraging the significant user-generated content that had built up on the OC so as to generate novel kinds of value to different stakeholders. As shown in Figure 2, this set the stage for enacting the *profiling* value proposition that would enable new collaborations with organizations across the health ecosystem.

Creating Value through *Profiling*

As SocialHealth considered how to exploit the data on the OC platform to create new kinds of value, they became aware of the political regime of value around more personalized healthcare, specifically new business models powered by analytics and bioscience. They also drew on the social regime of value that views contributing to medical research as a virtue, and the economic regime of value that promotes pharmaceutical companies' efforts to improved efficiency in drug research and development (R&D). These considerations influenced the founders' examination of value propositions geared to pharmaceutical organizations by aggregating and analyzing the OC data. After some deliberation, SocialHealth chose to repurpose the data generated by the tracking system, the ratings information, and the experiential knowledge shared in the disease groups, and then bundle these into information products that would facilitate research and development by pharmaceutical companies. As SocialHealth's Chief Medical Officer noted, this was a potentially important source of future income and its reputational value as a global player in the health ecosystem:

> Definitely, I think where the money is, is obviously in pharmaceutical and medical device research and marketing. … we want to be able to have a diverse revenue stream but it may be that that is the most globally scalable revenue product.

Delivering on this emerging opportunity required configuring SocialHealth's strategy, platform design, and relationships with patient members. As the Healthcare Director described, their experimental forays into data analytics were accompanied by a campaign to explain this shift to their existing stakeholders:

> We were very, very cautious at the beginning and we decided just three months ago to do this, to have pharmaceuticals involved directly and to [communicate] this [shift to the patients and patient organizations]. And just to tell you, of all the forty presentations that we have done in the last three months to patient groups, only three don't want the model. Another piece of data, from four thousand [patient] members … [only] twenty have said that they don't want to share data or be contacted.

SocialHealth's OC required members to agree to have their data used and repurposed analytically when they registered with the platform. Rather than seeing this move as a form of profiteering, norms around the value of research knowledge and sense of obligation to help improve medical treatments influenced patients' motivation to allow access to their content. This enabled a new OC strategy to emerge around the notion of profiling that soon began to generate distinctive value for OC's existing stakeholders (patients) as well as additional ones (pharmaceutical companies).

For the profiling value proposition to be enacted, the OC platform had to be tuned to accommodate integration and visualization of the OC's extensive disease-related content in graphic format. These graphic trends and profiles could then be analysed to provide epistemic value for patients through the unique insights into lived experiences with diseases and medications as well as for pharma companies in informing their R&D efforts. SocialHealth's newly hired CTO focused his initial efforts on developing the concept of a graphic device — which became known as the HealthGraph — that took centre stage in SocialHealth's emerging strategy of facilitating pharmaceutical R&D. As the CTO noted:

> It became clear that what [SocialHealth] were trying to do was a graph. I introduced that concept to them and they've really run with it. Building relationships between entities in a traversal type of way in the healthcare space makes complete sense. There's no precedent as far as I'm aware of where you can actually tie a patient to a condition to symptoms, and those symptoms being treated with particular drugs made by a particular pharmaceutical company who wants to run some research and employ researchers from a particular academic institution … All these entities are all connected in some way or another… [and so] building a [graphic] database with those relationships would seem to be the very core concept.

The CTO explained that the amount and type of (structured and unstructured) data available from the OC member contributions would allow pharmaceutical companies to understand the impact of their

medications in new ways. The CEO also emphasized the potential value for pharmaceutical companies who are confronted with increasingly expensive drug pipelines that are challenging the pharma industry's current research productivity. If useful data from HealthGraph could be made available to pharmaceutical R&D, it could help to overcome these industry-wide challenges to drug development.

> The value that we're trying to create is to make data access for research much cheaper. So today's biggest problem for the pharmaceutical industry is that they are really inefficient. … They spend between £3 billion to £10 billion a year per new drug, and it is estimated that 70% of that is basically failure. We're not going to replace a clinical trial, not yet at least, but we could tell you, if you have these 10 ideas why don't you try them here and do the most likely ones first.

The OC could also create ethical value by allowing patients to contribute freely to research by volunteering to enrol in clinical trials. There were thoughtful concerns and reflection on the potential tension between the economic regime of value in supporting pharma's improved R&D efficiency and the social regime of value in contributing to medical research while ensuring confidentiality and privacy. Patient recruitment is a challenge for pharmaceutical companies as they are usually unable to identify prospective patients in a timely manner, as a senior pharmaceutical manager explained:

> The principle of pharma companies like [AA] and [BB] is to advocate patient involvement in every stage of development. The problem is recruiting. It is very hard to find patients and to get them to participate in research. …. 85% of clinical trials are delayed due to problems attracting patients.

In order to recruit participants, pharmaceutical companies or designated "trial organizations" rely on clinicians to support them in identifying the relevant candidates as well as recommending the trial, instead of continuing with their usual treatment regime. As emphasized by a pharmaceutical manager, pharmaceutical companies would gain service value if they could target and solicit patients directly:

> [The pharmaceutical company] has to be able to find patients who have been just diagnosed … before their doctor starts them on a programme of care which they have used before and are comfortable with… They may not be comfortable to take the risk to put them [patients] on trial. … In some cases competitors have encouraged them to use their own drug ... so doctors are biased. … What is needed is for patients to be the ones targeted [directly] … [to] make decisions to join a trial.

SocialHealth sought to create service value for pharmaceutical companies by commodifying the OC content from ratings, blogs, discussion forums, the tracker and clinical outcomes within disease-specific domains. All such data went beyond that typically available to pharmaceutical companies to identify quickly and accurately likely candidates for clinical trials. For SocialHealth, the challenge of implementing the profiling value proposition was figuring out how to redesign the current platform that

was oriented towards engaging patients, charities, and clinicians through rating, connecting, and tracking towards a platform that managed data about drugs and diseases. The challenge was to redesign the OC platform to aggregate the large amounts of data into the form of the HealthGraph. To do so required structuring and processing the large amounts of unstructured user generated content that had accumulated over time. As the CTO explained:

> Right now my main focus is getting this HealthGraph beaten into the right shape so it's right to take on more data and grow into a more useful shape. It's like a bonsai tree — you prune the roots to lie around the trunk to train it into particular shapes so it grows and grows into a masterpiece rather than a deformed twig.

The redesign of the OC platform created additional platform value of SocialHealth as it built what was referred to as an "ontology management system," which the CEO explained would help to structure the data by translating different vernacular terms into standard medical terminology, thus providing the capacity to generate the HealthGraph:

> The capacity to use established, essentially validated terminology and link them together in a meaningful way so that you have concepts like conditions, symptoms, in a granular way that can be matched, both word matched, but also matched in terms of the relationship with other concepts. … What we're trying to do with the graph is bridging what people are saying and make a connection with established medical terminologies.

Profiling also delivered value to patients by enabling them to participate in specific research trials. The capacity to invite individuals whose profiles matched the requirements to join clinical trials was not only embraced but actively sought after by OC patients who perceived ethical value from such participation. They felt they could both contribute to the generation of new research knowledge, as well as benefit personally from a potentially valuable new treatment. The efficacy of this value proposition was very evident in the success of the clinical trial recruiting. As a senior pharmaceutical manager noted,

> At [drug company] we did one side by side comparison … for a drug targeting lung disease [it] took 155 days to recruit 250 lung disease patients…[SocialHealth] were able to recruit 250 patients in 48 hrs…through their patient community connected to the British lung foundation.

While the pharmaceutical companies were seen to be the primary economic beneficiaries of the profiling data, SocialHealth also believed that the patient members in their community would derive value. In particular, they noted that through the visual format of the HealthGraph, patients could graph their own profile to gain an in-depth understanding of their medical condition, and they could then compare their profile to those of multiple other (anonymous) patients living with the same condition.

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Further, patients could connect with others who were on a relevant trial, and make a decision based on this wider set of information, being also free to discuss with their relevant clinicians. The CEO explained:

> Value in a way is an overflow of the value you create from the uses that users get ... We keep giving a value to the people that want the service. … They come to [the OC] every day… they get value every day and people engage every day in their screen, mobile … they are available.

By mid-2014, SocialHealth had extended their online community beyond the UK into multiple countries in Europe, Asia, South America, and more recently the US. The OC strategy increasingly emphasized service value for patients with chronic diseases as identified from their navigation and use of the OC. Going forward, SocialHealth aimed to target further value creation through multiple offerings across their healthcare journey as the Commercial Director explained:

> So, if we identify overweight individuals who smoked and drank a lot we may identify them as pre-diabetic and would recommend things to help them with the progression of their disease. … [By] the time you have progressed to an early diabetes stage … and (subsequently) if the disease progresses where you have to have injections postprandial and daily, … you may be interested in insulin pumps and other diagnostics as well as healthy living programmes. … So we will develop a number of partnerships with disease management stakeholders to engage with users on the platform such as payers and private organizations selling devices.

Enacting this emerging value proposition will create new OC value through the ongoing configuring of the OC strategy, digital platform and stakeholder engagement. And this process of further OC value creation is likely to continue.

<center>**Discussion**</center>

Our research focused on the question how is value created in OCs over time. As shown in Figure 2, we identified four OC value propositions being enacted at SocialHealth — *rating, connecting, tracking, and profiling* — and found that these created multiple kinds of value for different stakeholders over time. In particular, as detailed in Table 1, six different kinds of OC value were created: *financial value* for the SocialHeath enterprise (from ~~grant funding,~~ venture capital, fees from doing technology projects for charities, subscriptions from medical providers, and contracts with pharmaceutical companies); *epistemic value* for patients (from information about service ratings, knowledge about disease treatments and drugs, progress updates on their status with clinicians, and profiles about diseases), clinicians (from the online monitoring of patients), and pharmaceutical companies (from disease profiles and trend analysis); *ethical*

value for patients (from supporting each other in dealing with chronic medical conditions, and contributing to medical R&D); *service value* to charities (from improved outreach to patient members), medical providers (from the systematic reporting of patient outcomes), and pharmaceutical companies (from the targeted recruitment of participants for clinical trials); *reputational value* to SocialHealth (from its increased legitimacy within the health ecosystem); and *platform value* to SocialHealth (from its development of digital capabilities for the OC).

Drawing on these empirical findings, we developed a model (see Figure 4) to understand the process through which the different kinds of value for multiple stakeholders were created over time. Our model conceptualizes OC value as performed through specific sociomaterial configurations of OC strategies, digital platform designs, and forms of engagement by various stakeholders. Each of these specific sociomaterial configurations enacts a particular OC value proposition that is informed by different ways of valuing things in the world (Corvellec and Hultman 2014; Stark 2009). Such a view highlights our understanding of OC value as being created within and across co-existing regimes of value (Appadurai 1986; Boltanski and Thevenot 2007). In our case, three specific regimes of value were relevant to the ongoing value creation process in SocialHealth's OC. The political value regime that underpinned the UK's NHS regulatory policies advocated increased patient engagement in their health. Drawing on this explicit communication of what matters (patient choice) and what counts (patient reported metrics), SocialHealth, charities, and clinicians articulated their engagements with the OC as implementations of these policies. The economic regime of value that emphasized cost efficiencies, growth, and revenue streams focused SocialHealth on obtaining funding, building scale, and improving efficiency. The social value regime and its orientation to altruism, community, and trust was drawn on to develop transparency, privacy and legitimacy for the SocialHealth OC, while also influencing members to share personal accounts of their health experiences with peers and to participate in medical R&D through contributing their health data or volunteering for clinical trials.

The value creation process we articulate points to the cumulative process of generating value flows over time made possible by the enterprise (in our case SocialHealth) remaining open to leveraging emerging possibilities to enact new value propositions. These opportunities may emerge as the enactment

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of the distinct value propositions (influenced by disparate yet co-existing regimes of value) generates friction. In addressing and resolving this friction, opportunities for exploiting the ambiguity in preferences or conflicts over priorities may yield some creative tension (Stark 2009). We identified a number of such tensions that emerged across the expanding portfolio of value propositions being enacted by SocialHealth.

We found that multiple stakeholders, including the OC founders, developers, patients, charities, clinicians, and pharmaceutical companies engaged in diverse ways with the OC, motivated by what they valued. Each stakeholder was orientated, and therefore tapped into, the different regimes of value in different ways, emphasizing certain conceptions of worth above others. For example, as a start-up firm, SocialHealth was necessarily influenced by economic, political and social regimes of value given the strong commitment of the founders to building a sustainable enterprise that supported patient advocacy within the UK health ecosystem. While patient members were primarily oriented to the social regime of value, medical providers and clinicians were informed by both economic and political regimes of value. As patient organizations, the healthcare charities were oriented to social and political regimes of value, while pharmaceutical companies were largely oriented to the economic regime of value. Though all stakeholders do not share the same orientation to any specific regime of value (Appendurai 1986) reconciling tensions between them is an ongoing struggle, since the different kinds of value are not commensurable (Corvellec and Hultman 2014). Nonetheless, the tension and ambiguity associated with divergent expectations (e.g. whose interests were being served) when working across different regimes of value generated some frictions that also opened up opportunities for creative action (Stark 2009).

For example, the initial rating value proposition tapped heavily into a social regime of value as patients (and SocialHealth) shared an understanding of the worth of information related to personal evaluations of health services coupled with insightful commentary that might inform other patients while building on SocialHealth's commitment to trust and privacy. The patients' perceptions of the value generated when they share their experiences as tied to specific health services, not only arises from informational value, but also the manner in which it is given as a gift (Mauss 1976) and can create positive social relations between members involved in the exchange, including SocialHealth as a trusted

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enterprise. Yet there was limited opportunity for developing sources of revenue to maintain company growth, creating considerable tension for SocialHealth. In response, SocialHealth creatively leveraging the value placed on the gifting of knowledge by patient members to others by expanding the ecosystem of stakeholders involved in the OC to include charities. This allowed SocialHealth to grow its member numbers and online content, and secure new forms of revenue through further venture capital support and modest fees from technology projects conduced for charities.

The collaboration with charities successfully built scale and legitimacy for the SocialHealth OC, but it also produced friction as each charity requested additional "bolt on" functionality for their specific web interfaces to the OC. The provision of these customizations by SocialHealth expended developer resources, hampered overall platform efficiency and reliability, and incurred significant overheads in having to maintain a system that had become "Frankensteinian." This tension was resolved through SocialHealth becoming less dependent on the charities through enacting further value propositions of tracking and profiling and thus able to resist demands for niche platform customizations. As our field study ended during the enactment of the profiling value proposition, we saw evidence of an emerging tension entailing patients potentially compromising their OC privacy and disclosure controls as they were recruited by and involved in pharmaceutical clinical trials. As SocialHealth continues to engage various stakeholders in its OC, negotiations may be needed to ensure the interests of all involved are safeguarded through the OC platform.

Implications for Research and Practice

Our study suggests a number of implications for research on the process through which online communities create value, a question that is increasingly critical for organizations in today's innovation-oriented industry (Adler 2015).

First, it highlights the importance of shifting the current emphasis on OC users to encompass a broader range of stakeholders who make a difference to how the community evolves and what value is created. The existing literature tends to assume OC participants to be largely homogenous and additionally to delineate the boundaries of OCs primarily around users as the key participants. Our study

challenges both of these premises. As evident in our findings, the range of participants engaging with the SocialHealth OC varied considerably over time — including patients, charities, clinicians, pharmacueticals, etc. And as we saw, the engagement of all these different actors significantly shaped the OC (both directly and indirectly), so that without their specific and varied engagement, the OC and the value it created would be substantially different. Furthermore, not all of these actors were ongoing members of the community contributing postings or reading discussions, but they nevertheless played pivotal roles in influencing how the OC was sociomaterially configured (and thus the kinds of value that could be created). As we found, adopting an open-ended and inclusive view of OC participants to include the range of stakeholders that engage with an OC, we were better able to identify the multiple kinds of OC value that were being created for different stakeholders in various ways.

Second, reconceptualising OC users in terms of a wider ecosystem of stakeholders enables a more complex understanding of the relationship between the OC and firm, allowing a move beyond the more conventional dyadic view of the firm and OC. By recognizing the broad array of stakeholders that engaged with the OC in different ways, we came to understand how each made a difference to how the OC evolved in relationship to SocialHealth and the portfolio of value propositions that emerged. This perspective allows for a more granular understanding of how a firm may enact multiple OC value propositions in relation with multiple other players, and how these may lead to the development of new business models over time (Bughin and Hagel III 2000; Koerner 2006; Lakhani and Kanji 2009). While more work is needed, our articulation of the importance of recognizing the wider ecosystem of OC stakeholders begins to contribute to Haefliger et al.'s (2011) call that we understand OC value from both the inside and outside.

Third, and relatedly, our study offers insight into how the changing OC engagement influences the process of value creation, as multiple stakeholders adopt different roles and offer various contributions over time. Stakeholders' engagement with the OC shifted over time as the OC strategy and platform were reconfigured resulting in emergent ambiguities and frictions. For example, charities initially played a salient role in helping to build scale and establish critical mass for the OC. As a result, SocialHealth was highly dependent on them as partners and felt obligated to respond to their various requests for platform

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enhancements. Over time, as the reputation of the SocialHealth OC grew and it amassed a strong membership, the charities played a less substantive role though they were still important for creating value from the connecting value proposition. Similarly, as clinicians and medical providers were enrolled and engaged in the OC, the boundaries of the community and relations with SocialHealth widened further, leading to new ways of repurposing data for pharmaceutical companies. These shifting relations of dependency and collaboration between SocialHealth and its stakeholders led to dynamics of engagement that were not simply smooth and linear. Rather, the OC–firm boundary while expanding over time, was variable and contested involving ongoing negotiation with multiple stakeholders as the portfolio of value propositions grew. These findings reinforce and extend our understanding of the necessarily porous and shifting boundaries of communities in a knowledge economy (O'Mahony and Lakhani 2011; Adler 2015).

Fourth, our research contributes to the OC literature by identifying new ways of understanding how OC knowledge collaboration creates value for stakeholders, going beyond creating new ideas and informing action through sharing, recombining and reviewing data for OC members (Faraj et al. 2011; Jarvenpaa and Lang 2011). In particular, our study shows how OC data may be used to record and monitor confidential data about patient conditions, treatments and progress, while also reporting on these to regulatory authorities. This also allowed medical providers to increase the transparency of their services and build their reputational value, an important political outcome for a publically funded organization. We also found OC data being repurposed through complex analytics to identify potential candidates for clinical trials. These kinds of epistemic value are related to additional novel kinds of OC value that are not yet considered in the literature: service and platform value. Service value is created as stakeholders partner with the OC as a way to better serve their constituents. We found different stakeholders — charities, medical providers, and pharmaceutical companies — each engaging with the OC in a different way to leverage the OC knowledge they were gaining (epistemic value) into improved services (member outreach for charities, patient tracking and PROMs for medical providers, and recruiting for drug trials). We also identified how the increasing investment in digital capabilities for the OC platform was creating important platform value for SocialHealth, allowing the firm to leverage this

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enhanced capacity to expand the portfolio of OC value propositions over time while also increasing the OC's reputational value so as to attract funding, members, and partners.

Fifth, our study sheds light on the strategic opportunities through which firms can leverage OCs (Rosenkopf et al. 2001; O'Mahony and Lakhani 2011; Jacobides and Winter 2012) — whether as owners (as in the case of the SocialHealth enterprise) or partners (as in the case of the various organizations that were stakeholders in the OC). Unpacking the details of stakeholders' engagements with the OC helps us to understand more specifically how value is created in practice for different stakeholders over time. Early on in our case, the rating and connecting OC value propositions entailed patients both producing and consuming OC information — a dual role that has been termed "prosuming" (Lupton 2013). Over time, the tracking value proposition involved patient members engaging in practices of self-monitoring and sharing information with clinicians and medical providers who engaged with the OC to report PROMs data. The profiling value proposition then entailed finding new ways to use OC data for medical discovery, translating data determined by one set of stakeholders to serve the interests of other stakeholders. To do this well and effectively requires the OC developers to have an in-depth understanding of the (data) interests and issues of multiple potential stakeholders. Our study shows this happening through an emergent and contextual leveraging of data over time. This process connects with but differs from popular online approaches for value creation that focus on "big data" and analytics (Chen, Chiang, and Storey 2012; (McGrath 2010), and which privilege economic value (Fourcade 2011) by harnessing the analytic power of aggregate tracking data. As our study shows, different stakeholders will value data differently, thus highlighting the importance of adequately accounting for the different interests, contexts, and concerns of multiple stakeholders so as to effectively leverage OC data for new kinds of value over time.

Our study of OC value creation also offers some implications for practice. Our findings suggest that OCs that include valuable experiential knowledge may face both new opportunities for value creation and new tensions for managing accountability to existing stakeholders. The kinds of data comprising most OCs are largely unstructured data from across a wide variety of contexts and experiences. Today this is becoming a distinctive part of data analytics in a number of domains, including healthcare. Our study shows how the analysis and repurposing of data is an important part of how contemporary OC value is

created, as evident for example in such value propositions as tracking and profiling. A critical question raised by such value propositions concerns the data access and use issues relating to ownership of online personal data. In particular, what types of informed consent are agreed to by OC members for how their data will be used on online platforms at what different points in time? As OC strategies increasingly come to depend on novel uses of data for new forms of value creation, OCs will need to carefully balance their trust and privacy obligations to members, compliance with regulatory data policies, and the possibilities of generating additional kinds of value for multiple stakeholders in the ecosystem. A related challenge concerns how the quality and confidentiality of repurposed data should be managed. Advances in technological reidentification techniques have shown that the aggregation and depersonalization of online data is no longer particularly effective in safeguarding the confidentiality of data (Scott and Orlikowski 2014). As Ohm (2010) notes, in the contemporary world, online anonymity is a "broken promise."

Our study has additional implications for OC development in the area of health support. The growth in online health communities influenced by regulatory directives calls attention to how the structure and dynamics of managing health are changing. Shifts in government policies can enable new kinds of value creation through collaboration across the health ecosystem. For example, the recent focus on evidence-based medicine (Timmermans and Berg 2003) and initiatives supporting patient involvement in their own disease management (Klein 2006; Darzi 2008) have enabled the engagement of both providers and users of health services (Swan 2009). While knowledge to support and manage health has traditionally come from professionals, the rise of the Internet has encouraged patients to seek medical information directly. Online health communities provide an additional mechanism for patients to obtain relevant insights, including peer support, experiential knowledge, tracking data, and aggregated health profiling. These new forms of online health knowledge are challenging the traditional basis of medical knowledge creation (Kallinikos and Tempini 2014; Tempini 2015). Thus, patients themselves become the locus of action in a number of areas such as measuring, tracking, experimenting and engaging in interventions, treatments and research. These new forms of user-generated knowledge may provide value to patients, medical providers, patient organizations, and research-based organizations such as pharmaceutical companies.

They also however, raise questions about the quality and control of such knowledge as it becomes more actionable, visible, and accessible to a wider audience.

Finally, we note that our findings are limited to the extent that we only examined the adoption of one specific online community in the first few years of its development. In addition, our study was focused specifically on the health support domain. We have not examined the development of OCs by large, established firms nor have we considered the development of OCs in other domains. The dynamics at play in other contexts and domains may thus differ from the ones we observed in the context of a start-up organization within the health domain. We further acknowledge that the methods that we were able to draw on (interviews, technology walkthroughs, document review, and online presence) restricted our access to the kinds of engagements that were enacted on the digital platform as these entailed practices performed through dispersed virtual spaces, dynamic software code, multiple different kinds of hardware, and diverse kinds of infrastructure. Additional observation of practices within SocialHealth and some of the stakeholder organizations, along with scrutiny of some of the key algorithms and core data schemas would have strengthened our understanding. Nevertheless, we believe that the theoretical insights we have generated about how OC value is created over time are both valuable and suggestive. While the specific kinds of OC value being created will differ by context, history, and domain, we believe that the dynamics of performing OC value through the sociomaterial configuring of strategies, digital platforms, and stakeholder engagement are likely to be relevant and useful for understanding OCs more generally.

References

Adler, P. (2015). Community and innovation: From Tönnies to Marx. *Organization Studies*, 36, 4, 445–471.

Antonoupoulou, K., Nandhakumar J., Panourgias, N. (2014). Value Propositions for Digital Technology Innovations of Uncertain Market Potential. ECIS proceedings.

Appadurai A. (1986). The Social Life of Things. Cambridge: Cambridge University Press. pp. 3–30.

Baden-Fuller C. and Haefliger S. (2013). Business models and technological innovation. *Long Range Planning,* 46(6): 419 - 426.

Barrett, M., Davidson, E., Prabhu, J. and Vargo, S.L. (2015). Service innovation in the digital age: Key contributions and future directions. *MIS Quarterly*, 39(1): 135-154

Barrett, M., Heracleous, L. and Walsham, G. (2013). A rhetorical approach to IT diffusion: Reconceptualizing the ideology-framing relationship in computerization movements. *MIS Quarterly*, 37(1): 201-220.

Bitektine, A. (2011). Toward a Theory of Social Judgments of Organizations: The Case of Legitimacy, Reputation, and Status. *Academy of Management Review*, 36(1), pp. 151–179.

Bharadwaj, A., El Sawy, O.A., Pavlou, P.A. and Venkatraman, N. (2013). Digital business strategy: toward a next generation of insights. *MIS Quarterly*, 37(2): 471-482.

Boltanski, L., Thévenot, L. (2006). On justification: Economies of worth. Princeton University Press.

Boudreau, M., Lakhani, K. (2013). Using the Crowd as an Innovation Partner. *Harvard Business Review*, April, 3-11.

Bughin, J. and Hagel J. III (2000). The Operational Performance of Virtual Communities: Towards a Successful Business Model? *Electronic Markets*, 10(4): 237–243.

Ceccagnoli, M., Forman, C., Huang, P. and Wu, D.J. (2012). Co-Creation of Value in a Platform Ecosystem: The Case of Enterprise Software. *MIS Quarterly*, 36(1): 263-290.

Chen, H., Chiang, R., Storey, V. (2012). Business Intelligence and Analytics: From Big Data to Big Impact. MIS Quarterly, 36(4) 1165-1188.

Cornford, T., Shaikh, M., Ciborra, C. (2010). Hierarchy, laboratory and collective: Unveiling Linux as innovation, machination and constitution. *Journal of Association of Information Systems*, 11, 809-837.

Corvellec, H., and Hultman, J. (2014). Managing the politics of value propositions. *Marketing Theory* 1–21.

Culnan M., McHugh, P.J. and Zubillaga, J.I. (2010). How large US companies can use Twitter and other social media to gain business value. *MIS Quarterly Executive,* 9(4): 243–259.

Cummings, J., Sproull, L. and Keisler, S. (2002). Beyond Hearing: Where Real-World and Online Support Meet. *Group Dynamics: Theory, Research, and Practice* 6(1): 78–88.

Davidson, E., Osterlund, C. and Flaherty, M. (2015) Drift and shift in the organizing vision career for personal health records: An investigation of innovation discourse dynamics. *Information & Organization*, 25(4): 191-221.

Darzi, Ara. (2008) *High Quality Care for All: NHS Next Stage Review Final Report*. The Stationery Office, UK Government (7432).

DOH (2006). *Our Health, Our Care, Our Say.* www.dh.gov.uk/publications

Doz, Y.L., and Kosonen, M. (2010). Embedding strategic agility: A leadership agenda for accelerating business model renewal. *Long Range Planning* 43(2): 370-382.

El Sawy, O. A., Malhotra, A., Park, Y., and Pavlou, P.A. 2010. "Seeking the Configurations of Digital Ecodynamics: It Takes Three to Tango," *Information Systems Research,* 21(4): 835-848.

Faraj, S., Jarvenpaa, S. L., and Majchrzak, A. (2011). Knowledge collaboration in online communities. *Organization Science* 22(5): 1224-1239.

Fourcade, M. (2011). Cents and sensibility: Economic valuation and the nature of "nature" 1. *American Journal of Sociology,* 116(6), 1721-77.

Franke, N., von Hippel, E. (2003). Satisfying Heterogeneous User Needs via Innovation Toolkits: The Case of Apache Security Software. *Research Policy,* 32 (7): 1199-1215.

Golden-Biddle, K. and Locke, K. (1997). *Composing Qualitative Research.* Newbury Park, CA: Sage.

Grover, V., and Kohli, R. (2012). Co-creating IT Value: New Capabilities and Metrics for Multifirm Environments. *MIS Quarterly*, 36(1): 225-232.

Haefliger S., Monteiro E., Foray D. and von Krogh G. (2011). Social Software and Strategy. *Long Range Planning,* 44(5–6): 297–316.

Henfridsson, O, Bygstad B. (2013). The generative mechanisms of digital infrastructure evolution. *MIS Quarterly,* 37(3): 907-931.

Hienerth C. and Lettl C. (2011). Exploring How Peer Communities Enable Lead User Innovations to Become Standard Equipment in the Industry: Community Pull Effects. *Journal of Product Innovation Management* 28(1): 175–195.

Jacobides, M. and Winter, S. (2012). Capabilities: Structure, Agency, and Evolution, *Organization Science*, 23(5): 1365-1381.

Jarvenpaa, S. and Lang, K. (2011). Boundary management in online communities: Case studies of the nine inch nails and ccMixter music remix sites. *Long Range Planning,* 44(5): 440-457.

Kallinikos, J. and Tempini, N. (2014). Patient data as medical facts: Social media practices as a foundation for medical knowledge creation. *Information Systems Research* 25(4): 817–833.

Kaplan, A.M. and Haenlein, M. (2010) Users of the world, unite! The challenges and opportunities of Social Media. *Business Hhorizons* 53(1): 59-68.

Kjaersgaard, M. and Smith, R. (2014). Valuable Connections: Design Anthropology and Co-creation in Digital Innovation. *Ethnographic Praxis in Industry Conference Proceedings*: 267–281,

Klein R. (2006). *The politics of the NHS: From creation to reinvention.* Oxford UK: Radcliff Publishing.

Koerner, B.I. (2006), February, Geeks in Toyland, *Wired Magazine,* http://www.wired.com/wired/archive/14.02/ lego_pr.html

Kozinets, R.V. (2009). The field behind the screen: Using netnography for marketing research in online communities. *Journal of Marketing Research,* 39(1): 61-72.

Kraut R.E., Resnick, P. and Kiesler S. (2011). *Building Successful Online Communities: Evidence-Based Social Design.* MIT Press: Cambridge, MA.

Lakhani, K.R. and Z. Kanji (2009). Threadless: The business of community, Harvard Business School Teaching Note 608-169, Boston, MA: Harvard Business School Publishing

Lakhani, K.R. and Von Hippel, E. (2003). How open source software works: "Free" user-to-user assistance. *Research Policy* 32(6): 923-943.

Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review*, 24(4): 691-710.

Lessig, L. (2008). *Remix: Making art and commerce thrive in the hybrid economy*. Penguin: New York.

Levina, N. and Arriaga, M. (2014). Distinction and Status Production on User-Generated Content Platforms: Using Bourdieu's Theory of Cultural Production to Understand Social Dynamics in Online Fields. *Information Systems Research*, 25(3): 468–488.

Lusch, R.F. and Nambisan, S. (2015). Service innovation: A service-dominant logic perspective. *MIS Quarterly*, 39(1): 155-175.

Ma, M., Agarwal, R. (2007). Through a glass darkly: Information technology design, identity verification, and knowledge contribution in online communities, *Information Systems Research* 18(1): 42-67.

McGrath, R. G. (2010). Business models: a discovery driven approach. *Long Range Planning,* 43(2): 247-261.

Mauss, M. (1976). *The Gift,* New York: Norton.

Mazanderani, F., Locock, L. and Powell, J. (2013). Biographical value: towards a conceptualisation of the commodification of illness narratives in contemporary healthcare. *Sociology of Health & Illness,* 35(6): 891-905.

Mazmanian, M., Cohn, M. and Dourish, P. (2014). Dynamic Reconfiguration in Planetary Exploration: A Sociomaterial Ethnography, *MIS Quarterly,* 38(3): 831-848.

O'Mahony, S., and Ferraro, F. (2007). The emergence of governance in an open source community. *Academy of Management Journal* 50(5): 1079-1106.

O'Mahony, S. and Lakhani K. (2011). Organizations in the Shadow of Communities. *Research in the Sociology of Organizations.* 33: 3–36.

Ohm, O. (2010). Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization. *UCLA Law Review,* 57: 1701-1777.

Ongaro, E., (2009). *Public Management Reform and Modernization: Trajectories of administrative change in Italy, France, Greece, Portugal and Spain*. Edward Elgar: Cheltenham UK.

Ortiz, H. (2013). Financial value: Economic, moral, political, global. HAU: *Journal of Ethnographic Theory,* 3(1): 64-79.

Pinch, T. and Swedberg, R. (eds.) 2008. *Living in a Material World: Economic Sociology Meets Science and Technology Studies.* Cambridge MA: MIT Press.

Piskorski, M., Eisenmann, T., Chen, D., and Feinstein, B. (2010). "Facebook's Platforms." *Harvard Business School Case* 808-128.

Rosenkopf, L., Metiu, A., George, V. (2001). "From the Bottom Up? Technical Committee Activity and Alliance Formation." *Administrative Science Quarterly*, 46: 748-772.

Sarker, S., Sarker, S., Sahaym, A. and Bjørn-Andersen, N. (2012). Exploring value co-creation in relationships between an ERP vendor and its partners: A revelatory case study. *MIS Quarterly*, 36(1): 317-338.

Schau, H.J., and Gilly, M.C. (2003). We are what we post? Self-presentation in personal web space. *Journal of Consumer Research*, 30(3): 385-404.

Schneider, S. and Spieth, P. (2013). Business model innovation: Towards an integrated future research agenda. *International Journal of Innovation Management,* 17(1): 1-34.

Scott, S.V. and Orlikowski, W.J. (2012). Reconfiguring Relations of Accountability: Materialization of Social Media in the Travel Sector. *Accounting, Organizations, and Society,* 37(1): 26-40.

Scott, S.V. and Orlikowski, W.J. (2014). Entanglements in Practice: Performing Anonymity Through Social Media. *MIS Quarterly,* 38(3): 873-895.

Sproull, L., and Arriaga, M. (2007). Online Communities, in *The Handbook of Computer Networks,* H. Bigdoli (ed.), Hoboken, NJ: John Wiley & Sons: 248–279.

Stark, D (2009). The Sense of Dissonance: Accounts of Worth in Economic Life. Princeton NJ: Princeton University Press.

Swan, M. (2009). Emerging patient-driven health care models: an examination of health social networks, consumer personalized medicine and quantified self-tracking. *International Journal Environment Research in Public Health* 6: 492-525.

Tempini, N. (2015). Governing PatientsLikeMe: information production and research through an open, distributed, and data-based social media network. *The Information Society*, 31(2): 193-211.

Timmermans, S. and Berg, M. (2003). *The Gold Standard: The challenge of evidence based medicine and standardization in healthcare*. Temple University Press: Philadelphia, PA.

Tiwana, A., Konsynski, B. and Bush, A. (2010). Platform evolution: Coevolution of platform architecture, governance, and environmental dynamics. *Information Systems Research* 21(4): 675-687.

Vargo, S., Lusch, R. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68: 1–17.

Venters, W., Oborn, E. and Barrett, M. (2014). A trichordal temporal approach to digital coordination: The sociomaterial mangling of the CERN Grid. *MIS Quarterly* 38(3): 927-949.

von Krogh, G. and von Hippel, E. (2006). The promise of research on open source software. *Management Science* 52(7): 975-983.

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

Walsham, G. (1993). *Interpreting information systems in organizations*. John Wiley & Sons, Inc.

Wasko, M. and Faraj, S. (2000). It is what one does: Why people participate and help others in electronic communities of practice. *The Journal of Strategic Information Systems* 9(2): 155-173.

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

Wenger, E.C., and Snyder, W.M. (2000). Communities of practice: The organizational frontier. *Harvard Business Review*, 78(1): 139-146.

West, J. and O'Mahony, S. (2008). The role of participation architecture in growing sponsored open source communities. *Industry and Innovation*, 15(2): 145-168.

Table 1: Kinds of Value Created through the SocialHealth OC

Kind of Value	Description	Stakeholder Benefitted
Financial	Angel Investment	SocialHealth (founders, employees, investors)
	Venture capital	
	Fees (patient organizations)	
	Subscriptions (medical providers)	
	Contracts (pharmaceutical companies)	
Epistemic	Evaluations of health services	Patients
	Knowledge about diseases, drugs, treatments	
	Communication with clinicians	
	Knowledge about disease profiles	
	Communication with patients	Clinicians
	Knowledge about disease profiles/trend analysis	Pharmaceutical Companies
Ethical	Sharing experiences	Patients
	Contributing to medical R&D	
Service	Improved member services	Charities
	Reducing costs and reporting on patient outcomes	Medical Providers
	Recruiting for clinical trials	Pharmaceutical Companies
Reputational	Increased legitimacy from relations with charities, medical providers, and pharmaceutical companies	SocialHealth (founders, employees, investors)
	Increased legitimacy from making patient related performance outcomes transparent	Medical Providers
Platform	Digital capabilities for rating, discussing, blogging, tracking, communicating, graphing, and analysis	SocialHealth (founders, employees, investors)