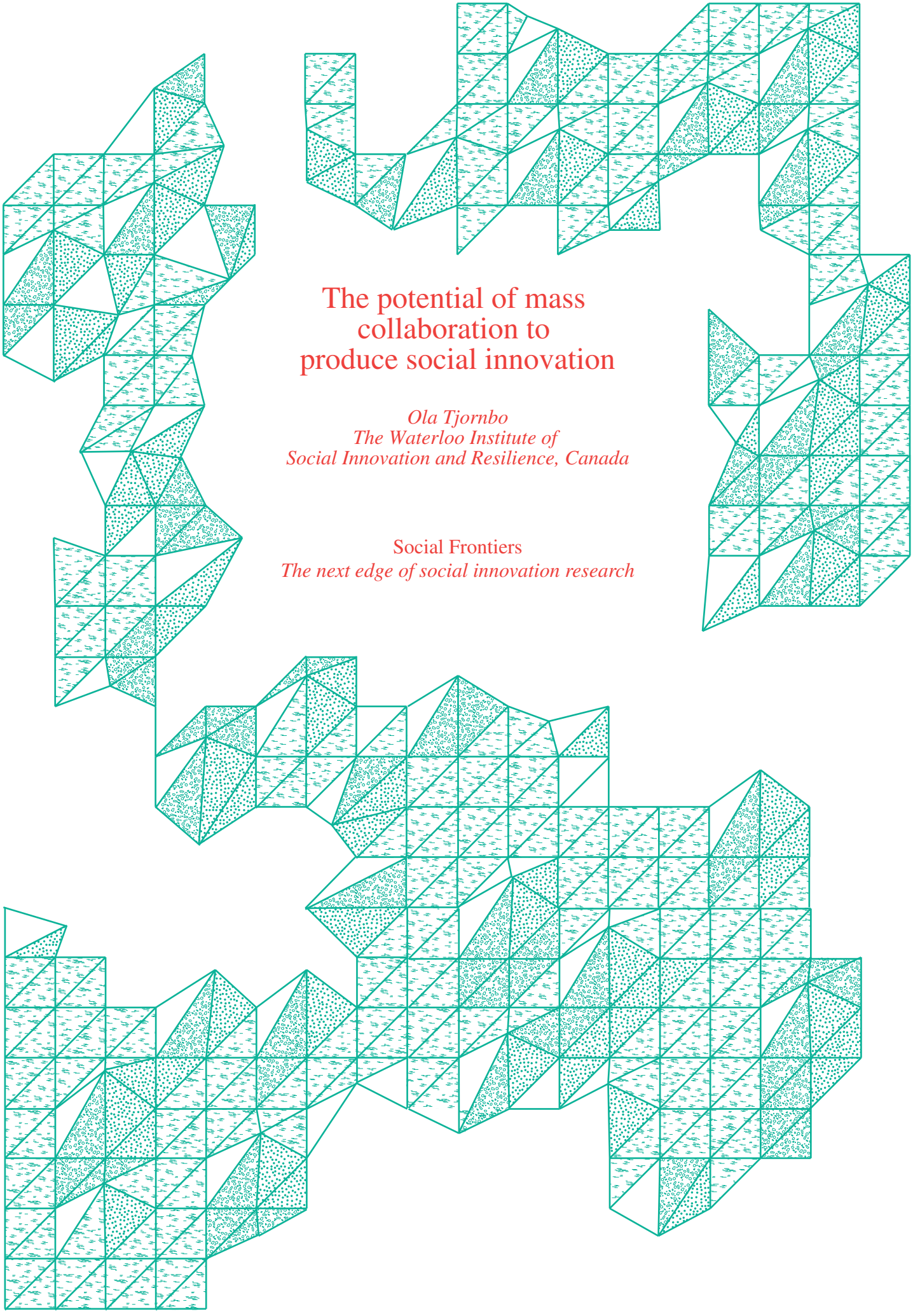

The potential of mass collaboration to produce social innovation

Ola Tjornbo
The Waterloo Institute of
Social Innovation and Resilience, Canada

Social Frontiers
The next edge of social innovation research

The potential of collective intelligence to produce social innovation

By Ola Tjornbo, Post-Doctoral Researcher, Waterloo Institute of Social Innovation and Resilience

Abstract

Can Collective Intelligence be used to produce social innovation? The advance of information and communication technologies in the 21st century seems to have unlocked the potential of collective intelligence, enabling us to mobilize large crowds to solve problems and produce novelty. However, despite early optimism, more recent scholarship suggests that collective intelligence has serious limits and in particular that it is not suitable for dealing with the types of complex problems that social innovators inevitably face. In order to evaluate more carefully the potential of collective intelligence to support social innovation I present a framework for looking at social innovation processes as a number of distinct phases and mechanisms. I then look at three examples of different types of online platforms used to mobilize collective intelligence. My analysis suggests that each of these has some capacity to support some elements of a social innovation process, but that as the theoretical literature would suggest none of them are useful throughout the process. However, since each of these different platforms has different strengths and weaknesses, by linking them together and utilizing the right platform at the right time, we may be able to harness collective intelligence to greatly enhance social innovation capacity.

Introduction

The development of modern information and communication technologies has led to a renewed interest in the phenomenon of collective intelligence. Collective intelligence refers to the capacity to mobilize and coordinate the knowledge, skills and creativity possessed by large groups of individuals, and combine them into a greater whole. In the light of this development, there have been many optimistic predictions about the potential of crowds to solve social problems (e.g. Rushkoff 2003; Howe 2006; Tapscott 2006; 2010). But are these tools valuable to the production of social innovation? It is becoming increasingly clear that collective intelligence has serious limitations when it comes to dealing with complex problems that are politically contested (Sunstein 2008) and require careful coordination (Nielsen 2012, Kittur, Lee, & Kraut, 2009). Its usefulness is limited when dealing with politicized or complex problems however, suggesting it may not be suitable for social innovation.

On the other hand, social innovation is deeply reliant on the capacity to combine the ideas, knowledge and resources possessed by disparate groups in order to create an impact; something collective intelligence can obviously do well. . Moreover, in practice, there are several sites online that are already using collective intelligence to promote innovation and perhaps also social innovation.

In this article, drawing on the work of Brian Arthur (2009) and a number of social innovation scholars (Mulgan et al. 2007; Westley et al. 2007; Mumford 2002), I provide a framework for examining how collective intelligence can support social innovation. I divide social innovation into phases and mechanisms. I then explore how three existing collective intelligence platforms have promoted social innovation. These three cases illustrate the different models that exist for tapping collective intelligence online, with each one having different strengths and weaknesses in terms of social innovation. Based on my analysis, I suggest that using collective intelligence to produce social innovation is possible, but no single collective intelligence platform is likely to be useful throughout a whole social innovation process.

Problem statement: the challenge of using collective intelligence to drive social innovation

Social Innovation is defined by the Waterloo Institute for Social Innovation and Resilience as "an initiative, product, process or program that profoundly changes the basic routines, resource and authority flows or beliefs of any social system."[1] Although this is just one definition it shares much in common with those used by other authors working in this field (Mumford 2002; Wheatley & Frieze 2006).What is particular about this perspective on social innovation is that it is systemic, meaning that it is concerned with the impact an innovation has on a whole social system, not just in the context of a particular organization or industry. This kind of systemic change inevitably involves conflicts of interests, different perspectives on the system and the nature of the social problem, and unanticipated consequences due to unpredictable relations of cause and effect. In short, and using the language of systems perspective, social innovation is a 'complex' (Westley et al. 2007; Duit & Galaz 2008; Pierre & Peters 2005).

So, complexity is inevitable when dealing with social innovation. This is a problem for collective intelligence (Nielsen 2011; Sunstein xxxxx; Sunstein). In order to mobilize collective intelligence the participants in the project must be able to share and communicate information to each other in such a way that the specialized knowledge that each individual possesses can be combined into a coherent whole or 'answer'. There are two characteristics that a problem can have that make this far easier.

Collective intelligence is easier to apply when the amount of coordination between participants required to solve a problem is minimal (Kittur 2008; Kittur et al. 2009). In some applications of collective intelligence each individual only needs to supply their best answer to a problem with the collective answer begin determined by the average of all the responses. This is called a low coordination problem. However, in many projects the new contributions only make sense in relation to what has gone before. A famous example of such a (very) high coordination project was the publishing house Penguin's attempt to write a book using an online collaboration platform, which largely failed (Kittur et al. 2009; Pulinger 2007).

1. Collective intelligence is easier to apply to a problem that has a definite answer; one that is clearly recognizable when it is found and where the method for finding it is known and agreed on by the group (Nielsen 2011, Tjornbo 2013). This is also called an 'intellective' as opposed to 'jugmentive' task (see Laughlin and Adamopolous 1982). Typically the former condition holds in fields like mathematics, but not when dealing with social problems. Collective intelligence becomes increasingly difficult to employ as you try to incorporate knowledge from different academic disciplines, or, traditional as well as scientific knowledge. It is almost impossible when the knowledge that one party professes to possess is dismissed or disputed by other parties such as is common in highly politicized or value laden debates.

Social innovation meets neither of these conditions. It is complex, coordination requirements are high and judgmentive evaluations are required. As such, it is tempting to say that social innovation is simply not a good arena to use collective intelligence. However, if you look more deeply at how social innovation happens the picture becomes less certain.

The process of social innovation

Social innovation is still an emerging field of study and thus there are still relatively few papers dealing with how social innovation happens from a systemic perspective (Mumford & Moertl 2003). However, there are other disciplines that look at innovation in complex systems and share very similar conceptual frameworks for understanding this phenomenon, especially research into socio-technical systems. Here I will be describing social innovation as it has been explained by social innovation scholars (Wheatley & Frieze 2006; Westley et al. 2007; Westley & Antadze 2010; Mumford 2002) as well as certain authors working within socio-technical systems (e.g Geels & Schot, 2007; Geels, 2005; Smith, Stirling, & Berkhout, 2005) and especially in the work of Brian Arthur (2009).

---

1 http://sig.uwaterloo.ca/about-the-waterloo-institute-for-social-innovation-and-resilience-wisir#About%20SI

The Stages of Social Innovation

Scholars of innovation in complex systems tend to break the process into phases, usually three (M. Mumford, 2002; Arthur 2009) but sometimes four (Westley et al. 2013). Table 1 below presents a typical three phase division. At each phase I identify crucial mechanisms for making the innovation successful. These mechanisms are described in greater detail in the paragraphs below.

Table 1: Phases and mechanisms of social innovation

Phase of social innovation	Associated mechanisms
Invention	Recombination; exchange of information and ideas between different domains
Development	Matching problems and solutions; clustering; niches; shadow networks
Implementation	Cross scale networks; boundary organizations; institutional entrepreneurship

Invention

The Invention stage is when a new innovation is first born. The reason innovation is unusual, is that it is difficult for human beings to either conceive of or accept radical reconfigurations of existing systems (see e.g. Arthur 2009; Giddens 1984; Kuhn 2012; Schumpeter 1976). In fact, it is so difficult that many have questioned how innovation is even possible. The most common answer seems to be that innovations are born out of the recombination of existing ideas, practices, technologies and other elements, to produce new and surprising outcomes. Mumford agrees and notes that social innovation seems to emerge most often when modes of reasoning that are common in one domain are applied to surprising effect in another domain (Mumford & Moertl 2003).

So the invention phase can be encouraged by fostering the exchange of ideas and information between individuals working in different domains. In fact, Arthur argues that the more technologies that exists, the more potential recombinations there are; and so the faster innovation happens.

Development

Innovative ideas, when they first emerge, do not typically have immediate and obvious applications. The first stage of developing an innovation is often one of finding an application for it. Thus, development can be facilitated by finding ways to match problems and solutions (this is similar to the idea a garbage can model of decision making in Cohen et al. 1972).

The next stage of development is to adapt an initial idea to its purpose. Often this stage of development involves linking the invention to many other ideas that help to refine it. As both Westley et al. (2007) and Arthur (2009) have noted, successful innovations often consist of clusters of products, programs and processes that come together to allow the invention to fulfill its purpose. I refer to this as ‘clustering’.

Developing an innovation nevertheless requires an investment of time and usually, both human and financial capital. Finding resources for fledgling ideas is difficult. Innovation scholars have noted the importance of ‘niches’ in protecting innovations during this growth period (Schot & Geels 2007; Smith 2006; Kemp et al. 1998). Such niches may be housed within larger organizations and institutions, as spaces reserved for radical innovation, or they can be small markets where the innovation has a limited application that does not reflect its systems changing potential.

Related to the concept of a niche is the concept of a 'shadow network' (Olsson et al. 2006). Shadow networks are groups of individuals who work together to develop an innovation, often without compensation, in order to create an alternative to the existing way of doing things. Sometimes shadow networks can exist for a long time, developing and utilizing an idea before it ever enters the mainstream.

Institutionalization and regime shift

As Westley notes (Westley et al. 2007 and Westley & Antadze, 2010),in order to establish themselves, innovation often need to access resources and opportunities that are located outside the system they are operating in. While resistance to change within a system may be high, there may be opportunities at other scales to build support for the innovation. The exploitation of cross scale effects is greatly facilitated by the creation of networks that span scalar boundaries (Moore & Westley 2011) and by the work of boundary organizations that actively look to bridge the divides between different actors (Crona & Parker 2012; Crona & Parker 2011).

An innovation may have to wait before it has an opportunity to establish itself but agents can also work actively to look for opportunities to open up at broader scales. Throughout the innovation process, but particularly at the institutionalization phase, the success of the innovation is heavily dependent on the support and skills of agents, often called institutional entrepreneurs (Dorado 2005; Levy & Scully 2007; Child et al. 2007), who are able to secure resources to grow the innovation and are adept at finding opportunities to establish its place in the system (Westley et al. 2013, Mumford 2002).

Promoting social innovation, a collective process

A social innovation needs to move through all of these three stages (although not necessarily consecutively since they can occur simultaneously or even out of order on occasion) and all of the mechanisms described above are important to its progress. However, no single individual, organization or institutions has to carry out all of these activities. In a recent article, Westley et al. (2013) argue that agency in social innovation processes is best understood as a distributed quality, where many different agents are involved in making a social innovation happen, contributing different skills at different times. The same may be true of collective innovation platforms. Each may provide some support to social innovation without being useful throughout a whole process, so that collective intelligence still has a role to play in promoting social innovation.

Case studies

While many different applications of collective intelligence exist, there are just a few models that promote innovation. In a recent study I identified three main types of collective intelligence platform (Tjornbo 2013) In the case studies that follow, I explore one of the leading examples of each of the types of collective intelligence platforms with a view to answering two questions

1. To what extent are these innovation platforms already producing social innovations?

2. How well are the three different types of online innovation platforms adapted to the task of stimulating social innovation and to what extent can we see the mechanisms of social innovation in action?

Following this exploration, I will offer some conclusions about the potential of each of these platforms to enhance our capacity for social innovation.

Challenge Grants

Challenge grants are perhaps the most established model for regularly accessing the innovative capacity of virtual social networks. A challenge grant allows those facing a problem to put out an open call for potential solutions. Anyone who thinks they have a solution to the challenge can submit a proposal and they typically compete with other 'solvers' to win the cash prize for the best solution, either determined by the 'challenger' or by an independent jury.

Challenge grants require some coordination since the 'solvers' have to meet the expectations of the 'challengers'. This clearly becomes more difficult depending on the nature of the challenge issued. As the following example illustrates though, while the challenge grant approach is most easily applicable to simpler, technical challenges, it does still have some application for complex social challenges.

Innocentive

Operational since 2001, Innocentive is undoubtedly a leader among open innovation platforms. It has had over 1500 challenges posted on the site worth a sum of over 40,000,000 dollars and can boast of some notable success stories. For example, it has produced breakthroughs in oil spill cleanup and in treating Amyotrophic Lateral Sclerosis (ALS).[2]Like most challenge grants, the principle aim of Innocentive is to connect people with a problem with those who think they might have an answer.

Innocentive as a social innovation platform

The majority of challenges posted on Innocentive are undoubtedly purely technical in nature, however, some of the challenges concern social problems and could potentially produce a social innovation. Following the definition of a social innovation above, I identified those Innocentive challenges that a) concerned a social problem, b) took a holistic/systemic view of problem and c) invited solutions with a potentially disruptive impact on the way that problem was tackled, that is to say did not constrain the problem solvers to work within an existing mode of practice. Clearly this involved a somewhat subjective judgment and so I asked a colleague to perform the same evaluation. Based on these criteria I identified four, of the 138 currently active Innocentive challenges, as supportive of social innovation.

Of course, the 138 currently active problems only present a snapshot of the activities of Innocentive, which has processed over 1650 challenges to date. However, looking at the most successful problem solvers involved in Innocentive over the course of the last five years also gives an indication of the primary activities of the site. Between 2007 and 2011 not one 'top solver' was involved in challenges that could be described as socially innovative.[3]

While Innocentive indulges in some social innovation, the data does not tell us how successful Innocentive is in this arena and unfortunately the answer to this question is not readily available. Innocentive's general measure of success is that 85% of challenges find winning solutions, but there is no such figure that focuses soley on social innovations. Yet, two of Innocentive's high profile success stories involve social innovation. The first, very clearly an instance of social Innovation, was a challenge to find innovative new ways of providing education to populations in poor and developing countries[4] and the second, where the problem is less obvious but still present, was a challenge to find a means of measuring 'human-potential'[5]. Thus, although social innovation is just a small part of Innocentive's activities, it is possible to use the Innocentive model to stimulate social innovation.

---

2 http://www.innocentive.com/about-innocentive/innovation-solutions-of-note and see also Nielsen 2011
3 http://www.innocentive.com/for-solvers/top-solvers-2011
4 http://www.innocentive.com/for-solvers/winning-solutions/21st-century-cyber-schools-challenge
5 http://www.innocentive.com/for-solvers/winning-solutions/human-potential-index-challenge

Innocentive and the mechanisms of social innovation

Innocentive's success seems to hinge on its ability to leverage two of the core mechanisms of social innovation, matching problems and solutions and exchanging information across domains. Clearly, matching problems to solutions is what Innocentive and other challenge grants do best of all. Their success depends on being able to make people who possess the answer aware of the problem's existence. An 85% success rate seems to suggest that Innocentive is very good at doing this.

The challenge grant structure is also particularly good at innovation because it opens problems up to a wide audience of potential solvers. A typical way for an organization or individual to attempt to find a solution to a problem might be to hire a consultant or other experts in the particular field they're operating in, but these people are often too committed to existing ways of operating or the established best practices, to generate truly innovative ideas. As the literature on social innovation suggests, innovation is usually the product of the novel combination of adjacent fields of knowledge (Arthur). This certainly holds true for Innocentive, where many winning solutions have come from experts in different fields than the challenger (Nielsen 2011).

However, as good as they may be at the invention and early development stage of social innovation, challenge grants may not be doing enough at the later stages of the process. This is in line with previous research that has indicated that while challenge grants are good at stimulating new invention, they are poor at supporting innovations through to implementation (Tjornbo & Westley 2012). Once a solution has been matched to a problem, there is not much more support available from Innocentive in terms of developing the idea. The section of the site entitled 'Solver Resources' mostly contains a few brief articles on the basics of how to answer challenges. The most important tools they offer for developing ideas further seem to be focused on community building. For example, there are built in supports for people hoping to partner with others in designing their solution and an online forum where members of Innocentive can chat about a broad range of topics. But these tools seem to have limited impact. The global forum, for example, sees a new topic opened at mostonce or twice a month and most of these receive two or fewer replies. Currently, the first three posts in this forum are all observations about how difficult it is to form a team[6]. Based on a sample of twenty randomly selected challenges the average number of public comments in the public project rooms is less than 3. If the impression created by the forums is correct then Innocentive is missing out on opportunities to build shadow networks.

In addition, Innocentive does not have built-in tools to help innovations establish themselves in broader systems. Once a solution is accepted by a challenger then the role of the site, and possibly of the innovator, may be over. There is no systematic attempt to encourage the involvement of institutional entrepreneurs, to develop such skills, or to look for cross scale opportunities. All of this is left up to the challenger or innovator.. Perhaps it is no coincidence that the two successful social innovations profiled on the site were achieved in partnership with The Economist magazine, which may have helped to raise the profile of the competitions.

Innovation Communities

Innovation communities do not promote innovation generally; rather they focus on just one problem and attempt to find solutions to it. The emphasis in these groups is not on generating ideas, but in fine-tuning them and actually seeing them successfully implemented in the real world. Unlike the other innovation platforms, therefore, they rely heavily on their ability to coordinate action. This can be accomplished in a number of different ways. For example, Wikipedia has developed an elaborate set of rules and guidelines for evaluating articles and has a dedicated group of volunteer moderators who do most of the work of editing and fine tuning articles (Butler et al. 2008). In order to succeed, they need to keep volunteers motivated and prevent fragmentation of the project (Hertel et al. 2003; Mustonen 2003).

---

6 https://www.innocentive.com/ar/board/solver

Open Source Ecology

Open Source Ecology (OSE) was spawned by the frustration of one man; farmer, technologist and physicist Marcin Jakubowski. When he was unable to repair his brand name tractor that broke down frequently, hedesigned a cheap, robust and easily repairable alternative that could be built entirely using locally available materials. He then made his blue print (?) available to the public. His work attracted outside attention and supporters and soon expanded into the vision of the Global Village Construction Set (GVCS), a set of blueprints for 50 machines, those essential for a moden, civilized society, that could be built and maintained locally on a small scale Jakubowski's farm became the site of a community dedicated to producing blueprints and prototypes of these machines, and their work attracted the interest of others, like TED, who gave Jakubowski a platform to share his idea. Jakubowski's TED talk describing the Open Source Ecology has over a million views and saw the community really launched on the global stage.

OSE as social innovation platform

There is no doubt that the OSE project is a social innovation. It is a radical reconceptualization of manufacturing that turns its back on the centralization and global supply chains of the the mainstream economy and a direct response to concerns about the social and environmental impacts of globalization and the consumer economy. In and of itself, therefore, OSE demonstrates that the innovation community approach is applicable to social innovation, and not just, as is typical, to the collaborative production of already existing products such as encyclopedias, operating systems or web server software.

OSE and the mechanisms of social innovation

Clearly, web platforms like OSE make use of collective intelligence after the initial conception of the idea. The spark for the OSE was generated by one man only, Marcin Jakubowski. Further, a prerequisite of becoming involved in the OSE projects is that participants are already attracted by the idea of the GVCS and share at least some of Jakubowski's values (why else would they invest time in the project after all). This reduces a lot of the complexity inherent in using collective intelligence for social innovation and perhaps is what allows OSE to work as a social innovation platform.

The real strength of OSE lies in developing the idea past initial invention. The farm became a niche that attracted resources, both financial and in the shape of talented volunteers, who came to work at the farm. These resources soon saw the production of a cluster of innovations (different prototypes of GVCS machines).

However, OSE is a new type of niche sustained entirely by its supporters (Thomson & Jakubowski 2012). OSE became the focus of one of the early crowdfunding campaigns (online platforms that allow members of the public to support projects with small donations), with 500 supporters of OSE creating a small monthly revenue for Jakubowski (Thomson & Jakubowski 2012). One of the volunteers at the farm won a Thiel "20 Under 20" Fellowship of 100,000 dollars to allow him to continue his work on the farm. Its success, therefore, depended entirely on its ability to build a committed shadow network of supporters.

The lesson from other open source projects is that these initiatives must attract both casual volunteers, and a core group of very committed enthusiasts (Howe 2006). In the case of Wikipedia, while casual volunteers create the bulk of new material, it is a small group of 'moderators' who ensure that articles abide by Wikipedia's standards and maintain a consistent style (Kittur et al. 2007).

In the case of OSE, the project received a big boost after Jakubowski was invited to make a presentation at a TED conference. This brought a significant amount of interest to the project, and an infusion of extra investment and resources (Thomson & Jakubowski 2012). The central premise of the OSE project caught on and lead to an expansion of the idea into new locations, a process social innovation scholars sometimes refer to as 'scaling out' (Westley & Antadze 2010). A shadow network has grown up around the OSE project, through the OSE forums and wiki. Most significantly, this now includes a German OSE node with its own OSE Wiki and active forums[7].

However, the core OSE community has not proved sustainable. The OSE forums have not been particularly active[8]. Even more significantly, the OSE farm is no longer active, with the last of the volunteers having departed in February 2013. The reasons for this collapse appear to be partly related to the leadership of Marcin Jakubowski [9]. The problems associated with a charismatic leader who is at first instrumental to the growth of a new initiative but later comes to limit it are well known and documented in the management literature (Westley et al. 2007) and may well be at play here. From other other open source projects we learn that a meritocratic and non-hierarchical leadership style is essential to maintaining such communities.

Despite this lack of recent activity, the OSE project is certainly not a failure. The central idea has been considerably developed since Jakubowski first invented it and a network has grown up around it so that work is now being continued in other locations. However, there may in fact be a tension between maintaining the kind of intense community needed to sustain a project like the OSE and the activities associated with institutionalizing an innovation like identifying opportunities for cross scale interactions.

Open Innovation Platforms

Open innovation platforms are platforms that publicize people's good ideas. At their simplest, they are open message boards where anyone is free to submit their proposals for public scrutiny. More typically however, they also encourage visitors to comment on ideas and to vote for those they like, thus giving the 'best' ideas greatest prominence.

Open innovation platforms do not draw much use from collective intelligence directly, since most ideas are the product of a single mind or a small team rather than a large group. However, in allowing for comments on ideas they create opportunities for collaboration. More importantly, by spreading ideas effectively, they may be opening people up to a greater diversity of notions, hopefully invigorating recombination processes.

TED

TED is without a doubt the most successful of open innovation platforms. It started in 1984 as an organization that put on conferences bringing together speakers from the worlds of technology, entertainment and design. Today, it is mostly famous for the videos of its talks available online through its website. It currently hosts over 150,000 talks and some of the most popular have over ten million views. TED differs from standard Open Innovation Platforms in that not anyone is allowed to give a TED talk. Also, it has an unsually sophisticated multimedia distribution platform.

TED as social innovation platform

TED is undoubtedly a social innovation platform. Several of the talks on the site promote ideas that are intended to tackle social problems, take a holistic, systemic approach, and have potentially radical implications. For example, there is Ken Robinson's[10] proposal to reform the education systems in the west to put more emphasis on creativity; or Geroge Papandreou's proposal for a Europe without political borders[11]. This is not to say that TED is exclusively or even mainly a social inno-

7 http://wiki.opensourceecology.de/index.php?title=Main_Page/en&setlang=en
8 http://forum.opensourceecology.org/discussion/1004/why-is-ose-so-quiet-lately
9 http://opensourceecology.org/wiki/Yoonseo_Blog
10 http://www.ted.com/talks/ken_robinson_says_schools_kill_creativity.html
11 http://www.ted.com/talks/george_papandreou_imagine_a_european_democracy_without_borders.html

vation platform though. The most common talk topics on TED are those related to its core areas – Technology (513 talks), Entertainment (263), and Design (308) with the only exception being Science (which garners 394). Topics like politics (130), health (103) and poverty (44) lag far behind.

TED and mechanisms of social innovation

The greatest strength of TED is its ability to communicate ideas. The most popular TED talks garner well over ten million views while talks with hundreds of thousands of viewers are fairly commonplace. At the most fundamental level, simply exposing people to a variety of ideas makes them more likely to come up with innovative recombinations (Arthur 2009). Moreover, exposure brings with it additional resources, as we have already seen in the OSE example.

Although originally TED's design was not directed at harnessing collective intelligence to spur social innovation, over time, TED has evolved and added tools to develop ideas beyond the talks that are presented. One such tool is the forum, which allows for commentary on the talks. Of the three case studies here, TED has easily the most active forum, with the number of comments on a talk often numbering in the tens and hundreds (as opposed to OSE and Innocentive, which often only had a few comments). rather which contrasts sharply with OSE and Innocentive. There is scope through these discussions to develop ideas further and to create clusters, however, so far this activity is not typically systematic, nor carried out with a particular end goal in mind.

Another new development is the TED prize. The prize is essentially a form of challenge grant where one individual is awarded 1 million dollars for a plan that proposes a solution to a problem that will 'change the world' for the better. To date there have been nineteen Ted prize winners, tackling topics such as nutrition in schools and marine protected areas[12]. Yet another innovation promoting development is the Ted Fellows program, which is focused on supporting the work of young innovators[13].

Largely, the impetus for these kinds of developments has come from the TED community (personal communication). This online network currently has 149,441 members and its own forum. Moreover, TED receives feedback from the participants at its physical conferences. Much of this feedback concerns a desire to see the ideas at TED put into action with the support of the talented people in the room and the resources they have access too. A striking example of this potential came in the form of the Mission Blue project. This began with a TED talk from Sylvia Earle, who argued for the creation of a series of marine protected areas to help build the resilience of ocean ecosystems around the globe. The speech garnered a huge amount of a support, including a 1 million pledge from philanthropist Addison Fischer. It also led to a voyage, with passengers made up of scientists, philanthropists and celebrities, which raised over 15 million dollars[14].

TED clearly has a potentially powerful ability to build cross scale networks able to advocate strongly for social innovation. Another example of this came in the form of the TED Challenge , (part of TED 2013), where small interdisciplinary groups worked together, with notable successes, to create action on a range of issues ranging from vaccination to sex trafficking (personal communication).

Thus far though, the kinds of deliberate activities described here are the exception rather than the rule. At its core, TED remains an idea promoter, not an advocacy organization. Most of the attendees at TED conferences are scientists and business people rather than politicians and TED remains committed to a politically neutral perspective (personal communication). In fact, perhaps there is a tension between TED's role as a promoter of ideas and as a place of community building and its potential role as an agency of institutional entrepreneurship and advocacy.

---

12 http://www.ted.com/pages/prize_about
13 http://www.ted.com/fellows
14 http://blog.ted.com/2010/04/13/ocean_hope_at_m/

Conclusions

This study provides a framework for better understanding the role that collective intelligence specifically, and other kinds of social media platforms more generally, can play in promoting social innovation. Despite the complex nature of social innovation processes and the pessimistic predictions of the theoretical literature, it is clear from the case studies presented here that collective intelligence can play a role in promoting social innovation, both directly and indirectly. All three of the web platforms I looked at do promote social innovation to some extent. Innocentive, the challenge grant, featured a small sample of social innovation challenges and at least two examples of successfully launched social innovations. OSE, the innovation community, took a radical alternative model of production and self-sustainability and not only considerably developed the idea with several prototypes, but also created a global shadow network dedicated to taking it further.. Finally, TED, the open innovation platform, has publicized several social innovations and helped them to gain greater prominence and resources, moreover it has spawned an online community dedicated to seeing some if these innovative ideas realized in practice, and has occasionally helped to build cross-scale networks to make this happen.

At the same time, no one platform seems to be able to support a social innovation from invention through to implementation. In fact, each of these different types of platforms seems particularly strong in one particular phase; invention in the case of TED, development in the case of OSE and Innocentive (though this latter also plays a role in invention and seems more to straddle these two phases). Moreover, none of these platforms utilized all of the mechanisms associated with any one phase. Table 2 below shows the mechanisms each of the platforms utilized most effectively. It is striking that none of these platforms was particularly active in the implementation phase, although TED seems to have the greatest potential in this area.

It seems likely, given the degree of specialization observed here, that it is very difficult for any one platform to utilize all of the mechanisms effectively. As one might expect, based on network theory, there are tradeoffs involved in choosing to support either the formation of a strongly bonded community or shadow network or the formation of more loosely coupled cross scale communities. Equally though, there were opportunities to draw on mechanisms that the platforms themselves were not doing enough to exploit, such as Innocentive's failure to promote greater use of its forums, or TED's hesitation around mobilizing its potential as a network organization.

Ultimately, this study suggests that those interested in promoting social innovation should make greater use of the full range of collective innovation platforms in order to best use the strengths of each. However, more work is needed to further investigate the patterns suggested by this study.

Bibliography

Arthur, B. 2009. The Nature of Technology: What it is and How it Evolves. Free Press.

Butler, B., Joyce, E. & Pike, J., 2008. Don't look now, but we've created a bureaucracy: the nature and roles of policies and rules in wikipedia. In Proceeding of the twenty-sixth annual SIGCHI conference on Human factors in computing systems. ACM, pp. 1101–1110. Available at: *http://dl.acm.org/citation.cfm?id=1357227* [Accessed March 1, 2012].

Child, J., Lu, Y. & Tsai, T., 2007. Institutional Entrepreneurship in Building an Environmental Protection System for the People's Republic of China. Organization Studies, 28(7), pp.1013–1034. Available at: *http://oss.sagepub.com/cgi/doi/10.1177/0170840607078112* [Accessed February 19, 2011].

Cohen, M., March, J. & Olsen, J., 1972. A Garbage Can Model of Organizational Choice. Administrative Science Quarterly, 17(1), pp.1–25.

Crona, B. & Parker, J., 2012. Learning in support of governance: Theories, methods, and a framework to assess how bridging organizations contribute to adaptive resource governance. Ecology and Society, 17(1). Available at: *http://dlc.dlib.indiana.edu/dlc/handle/10535/8172* [Accessed September 30, 2013].

Crona, B.I. & Parker, J.N., 2011. Network Determinants of Knowledge Utilization: Preliminary Lessons From a Boundary Organization. Science Communication, 33(4), pp.448–471. Available at: *http://scx.sagepub.com/cgi/doi/10.1177/1075547011408116* [Accessed September 30, 2013].

Dorado, S., 2005. Institutional Entrepreneurship, Partaking, and Convening. Organization Studies, 26(3), pp.385–414. Available at: *http://oss.sagepub.com/cgi/doi/10.1177/0170840605050873* [Accessed October 8, 2010].

Duit, A. & Galaz, V., 2008. Governance and ComplexityEmerging Issues for Governance Theory. Governance, 21(3), pp.311–335. Available at: *http://doi.wiley.com/10.1111/j.1468-0491.2008.00402.x.*

Geels, F., 2005. Processes and patterns in transitions and system innovations: Refining the co-evolutionary multi-level perspective. Technological Forecasting and Social Change, 72(6), pp.681–696. Available at: *http://linkinghub.elsevier.com/retrieve/pii/S0040162505000569* [Accessed September 29, 2010].

Geels, F. & Schot, J., 2007. Typology of sociotechnical transition pathways. Research Policy, 36(3), pp.399–417. Available at: *http://linkinghub.elsevier.com/retrieve/pii/S0048733307000248*.

Giddens, A., 1984. The constitution of society: outline of the theory of structuration, University of California Press. Available at: h*ttp://books.google.com/books?id=x2bf4g9Z6ZwC&pgis=1* [Accessed April 20, 2011].

Hertel, G., Niedner, S. & Herrmann, S., 2003. Motivation of software developers in Open Source projects: an Internet-based survey of contributors to the Linux kernel. Research Policy, 32(7), pp.1159–1177. Available at: *http://linkinghub.elsevier.com/retrieve/pii/S0048733303000477* [Accessed July 18, 2012].

Howe, J., 2006. The Rise of Crowdsourcing. Wired Magazine, June(14), pp.1–5. Available at: *http://www.wired.com/wired/archive/14.06/crowds_pr.html*.

Kemp, R., Schot, J. & Hoogma, R., 1998. Regime shifts to sustainability through processes of niche formation: the approach of strategic niche management. Technology Analysis & Strategic Management, 10(2), pp.175–198. Available at: *http://www.informaworld.com/index/779917259.pdf* [Accessed June 2, 2011].

Kittur, A., 2008. Harnessing the wisdom of crowds in wikipedia: quality through coordination. In Proceedings of the 2008 ACM conference on. pp. 37–46. Available at: *http://dl.acm.org/citation.cfm?id=1460572* [Accessed July 18, 2012].

Kittur, A. et al., 2007. Power of the few vs. wisdom of the crowd: Wikipedia and the rise of the bourgeoisie. , 1(2), p.19. Available at: *http://edouard-lopez.com/fac/ICPS - S7/Complexit?/2008-Wikipedia-As-A-Complex-System/Power of the Few vs. Wisdom of the Crowd: Wikipedia and the Rise of the Bourgeoisie.pdf* [Accessed November 25, 2011].

Kittur, A., Lee, B. & Kraut, R.E., 2009. Coordination in collective intelligence: the role of team structure and task interdependence. In Proceedings of the 27th international conference on human factors in computing systems. pp. 1495–1504. Available at: *http://dl.acm.org/citation.cfm?id=1518928* [Accessed July 18, 2012].

Kuhn, T.S., 2012. The Structure of Scientific Revolutions, University of Chicago Press.

Levy, D. & Scully, M., 2007. The Institutional Entrepreneur as Modern Prince: The Strategic Face of Power in Contested Fields. Organization Studies, 28(7), pp.971–991. Available at: *http://oss.sagepub.com/cgi/doi/10.1177/0170840607078109* [Accessed August 12, 2010].

Moore, M.L. & Westley, F., 2011. Surmountable chasms: networks and social innovation for resilient systems. Ecology and society, 16(1), p.5. Available at: *http://www.plexusinstitute.org/resource/collection/5FD4ACEF-7B50-4388-A93E-109B0988049F/Moore-Westley-SurmountableChasms-2011.pdf* [Accessed August 27, 2013].

Mulgan, G. et al., 2007. Social Innovation: What it is, why it matters and how it can br accelerated. Scientist.

Mumford, M., 2002. Social innovation: ten cases from Benjamin Franklin. Creativity research journal, (August 2013), pp.37–41. Available at: h*ttp://www.tandfonline.com/doi/abs/10.1207/S15326934CRJ1402_11* [Accessed August 27, 2013].

Mumford, M.D. & Moertl, P., 2003. Cases of Social Innovation: Lessons From Two Innovations in the 20th Century. Creativity Research Journal, 15(2-3), pp.261–266. Available at: *http://www.tandfonline.com/doi/abs/10.1080/10400419.2003.9651418* [Accessed August 8, 2013].

Mustonen, M., 2003. Copyleft—the economics of Linux and other open source software. Information Economics and Policy, 15(1), pp.99–121. Available at: *http://linkinghub.elsevier.com/retrieve/pii/S0167624502000902* [Accessed July 18, 2012].

Nielsen, M., 2011. Reinventing Discovery: The New Era of Networked Science, Princeton University Press. Available at: *http://www.amazon.com/Reinventing-Discovery-The-Networked-Science/dp/0691148902* [Accessed February 27, 2013].

Olsson, P. et al., 2006. Shooting the rapids: navigating transitions to adaptive governance of social-ecological systems. Ecology and Society, 11(1), p.18. Available at: *http://www.ecologyandsociety.org/vol11/iss1/art18/ES-2005-1595.pdf* [Accessed August 9, 2011].

Pierre, J. & Peters, B.G., 2005. Governing Complex Societies: Trajectories and Scenarios, Palgrave Macmillan. Available at: *http://www.amazon.com/Governing-Complex-Societies-Trajectories-Scenarios/dp/1403946604* [Accessed August 1, 2011].

Pulinger, K., 2007. Living with A Million Penguins: inside the wiki-novel | Books | theguardian.com. The Guardian. Available at: *http://www.theguardian.com/books/books-blog/2007/mar/12/livingwithamillionpenguins* [Accessed September 30, 2013].

Schot, J. & Geels, F.W., 2007. Niches in evolutionary theories of technical change. Journal of Evolutionary Economics, 17(5), pp.605–622. Available at: *http://www.springerlink.com/index/10.1007/s00191-007-0057-5* [Accessed January 24, 2011].

Schumpeter, J.A., 1976. Capitalism, socialism and democracy, Harper Colophon.

Smith, a, Stirling, a & Berkhout, F., 2005. The governance of sustainable socio-technical transitions. Research Policy, 34(10), pp.1491–1510. Available at: *http://linkinghub.elsevier.com/retrieve/pii/S0048733305001721*.

Smith, A., 2006. Green niches in sustainable development: the case of organic food in the United Kingdom. Environment and Planning C: Government and Policy, 24(3), pp.439–458. Available at: *http://www.envplan.com/abstract.cgi?id=c0514j* [Accessed April 13, 2011].

Thomson, C. & Jakubowski, M., 2012. Toward an Open Source Civilization. innovations, 7(3), pp.53–70. Available at: *http://www.mitpressjournals.org/doi/pdf/10.1162/INOV_a_00139* [Accessed September 13, 2013].

Tjornbo, O. & Westley, F.R., 2012. Game Changers : The Big Green Challenge and the Role of Challenge Grants in Social Innovation. Journal of Social Entrepreneurship, 3(2), pp.37–41.

Westley, F. & Antadze, N., 2010. Making a Difference Strategies for Scaling Social Innovation for Greater Impact. The Innovation Journal: The Public Sector Innovation Journal, 15(2), pp.1–19.

Westley, F., Patton, M.Q. & Zimmerman, B., 2007. Getting to Maybe: How the World Is Changed, Vintage Canada. Available at: *http://books.google.com/books?id=431sDyOiWCoC&pgis=1* [Accessed March 29, 2011].

Westley, F., Tjornbo, O.B.T.,

Wheatley, M. & Frieze, D., 2006. Using Emergence to Take Social Innovation to Scale. The Berkana Institute, pp.1–7. Available at: *http://w.margaretwheatley.com/articles/using-emergence.pdf* [Accessed May 6, 2011].

Personal Communication

Member of TED New York Office *http://www.ted.com/pages/staff*, 16 September 2013