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BIRDS OF THE INTERNET:

Towards a field guide to the organization and governance of participation

Adam Fish, Luis F.R. Murillo, Lilly Nguyen, Aaron Panofsky and Christopher M. Kelty

Scholarly attention to new forms of participation on the Internet has proliferated classifications and theories without providing any criteria for distinctions and diversity. Labels such as 'peer production', 'prosumption', 'user-led innovation' and 'organized networks' are intended to explain new forms of cultural and economic interaction mediated by the Internet, but lack any systematic way of distinguishing different cases. This article provides elements for the composition of a 'birder's handbook' to forms of participation on the Internet that have been observed and analyzed over the last 10 years. It is intended to help scholars across the disciplines distinguish fleeting forms of participation: first, the authors highlight the fact that participation on the Internet nearly always employs both a 'formal social enterprise' and an 'organized public' that stand in some structural and temporal relationship to one another; second, the authors map the different forms of action and exchange that take place amongst these two entities, showing how forms of participation are divided up into tasks and goals, and how they relate to the resource that is created through participation; and third, we describe forms of governance, or variation in how tasks and goals are made available to, and modifiable by, different participants of either a formal enterprise or an organized public.

KEYWORDS: participation; Internet; governance; comparative analysis; organization; social media; open source

It is hoped that besides helping the beginner who can scarcely tell a gull from a duck this guide will be useful to the advanced student in recognizing the unusual. (Peterson 1963, p. xvii)

The Problem of Participation

Observing participation on the Internet is akin to bird watching. Like birds, participation seems to be everywhere. Like birds, participation tends to be common, fleeting and hard to distinguish. Like birds, some forms of participation are more annoying than others. But unlike birds, there is no field guide to understanding what makes one form of Internet-based participation different from another, or what its presence or absence means about any particular ecology. In fact, it's not even clear what to call participation today: consuming, collaborating, voting, protesting, belonging, friending, exploiting, liking, lobbying, volunteering, working, laboring, relaxing, or becoming addicted? Do we 'consume' Google searches or Facebook ads or do we 'collaboratively create' them

through our wisdom as a crowd? Are we protesting when we join an anti-FARC (Revolutionary Armed Forces of Colombia) group on Facebook, or joining a political party? When we sign up for MoveOn.org or CauseCast, in what sense do we 'belong' to the organization, what kind of members, workers or volunteers are we? Do I work for Amazon, or consume its services, when I complete a Mechanical Turk task? And perhaps most vividly, when are these things public, and when are they private forms of participation?

Take five examples of contemporary participation: the Apache Software Foundation, Wikipedia, Linden Labs/Second Life, Current TV and PatientsLikeMe.¹ At first glance, despite their various ecologies (from software production to healthcare) these are all 'birds': they are all relatively new projects, they all depend on the Internet for their existence, they all seem to promote some form of participation, democratization, 'crowdsourcing' or 'peer production'. But are they all one kind of bird?

The range of theories proposed to understand participation today is large: 'peer production', 'prosumption', 'networked publics', 'user-led innovation' to name a few.² But though there are many theories, few of them seem to engage each other. In fact, they tend to share something of the famed case of the cassowary (Bulmer 1967). What counts as a bird in different cultures – different disciplines – says more about the social and cultural structure of the classifiers than it does about the bird. Economists favor birds that compete for food, political theorists love birds that form groups and chatter a lot, organizational and innovation theorists love birds that work together on nests, social network theorists like birds that swarm and flock, and so on.³

This article, written by scholars in anthropology, sociology, information studies and science and technology studies, is thus an unconventional review of existing theories that don't address each other. This 'review' attempts to bring them into conversation with one another through a process of abstraction and distinction.⁴ In particular, we offer three abstract diagrams with which to distinguish fleeting forms of participation: first, we highlight the fact that participation on the Internet nearly always employs both a 'formal social enterprise' and an 'organized public' that stand in some structural and temporal relationship to one another; second we map the different forms of action and exchange that take place amongst these two entities, showing how forms of participation are divided up into tasks and goals, and how they relate to the resource that is created through participation; and third, we describe forms of governance, or variation in how tasks and goals are made available to, and modifiable by, different participants of either a formal enterprise or an organized public. Throughout the article, we will return to the five examples listed above in order to help readers see and identify these differences. In the last section, we reflect on some changes in the ecology of participation that we were able to observe with the help of these distinctions.

Claims about Internet-mediated participation are frequently made on the basis of one or two examples, very often only the most familiar cases, such as the GNU/Linux operating system or Wikipedia. A 'bird guide' that allowed observers to distinguish the variety of forms of participation would allow scholars to test such claims and potentially see the variation (and transformation) of forms of participation. This article takes the first steps towards such a bird guide – it is an introduction to a guide yet to come. The notion that participation might be observed naturalistically is both serious and playful: it implies that we need something like a phylogeny or classification of forms of participation, along with a key to identify them, and a guide to help in observing them. But it remains a playful

framework intended to stimulate thought, and not restrict it by an adherence to the ornithological or evolutionary sciences.

Field guides provide a record of differences that are not always immediately visible to an observer, a tool for distinguishing markings, sounds, behaviors, etc. As Law and Lynch (1988) pointed out in a famous article on bird watching, field guides are an unusual but common tool in both amateur and professional contexts. Field guides employ naturalistic assumptions (forms of participation exist in particular habitats and can be distinguished from one another), they are authoritative (a slightly different appearance in nature does not render the guide incorrect or useless, but rather makes the user question what they are seeing), they employ a picture theory of representation (an illustration that is realist, but highly conventional), and they strategically employ textual descriptions, indexes, maps and other tools of organization (Law & Lynch 1988, pp. 277–278). To these basic criteria, we might add that field guides tend to organize birds by geography or ecology (e.g. common mountain birds, or Peterson's *Field Guide to the Birds of Texas*), and presume a rural, wilderness setting as opposed to an urban or densely humanly populated one (reducing or avoiding the problem of reflexivity when particular birds are observed in cities as part of a human-made ecology).

The analogy with the birder's guide illustrates one goal of this article: the point of bird-watching is not simply to see birds, nor even to see a bird no one has seen before, but to see changes in an *ecology*. Birds are also signs, and so are instances of participation. Participation is neither simply good nor bad (despite the frequent positive valence it is given), and not all forms of participation imply 'democratization', 'the wisdom of crowds' or 'exploitation'. Without a guide to identifying differences in participation, however, all forms look the same, and every instance confirms a theory rather than testing it. A field guide would allow one to observe, compare and contrast forms of participation; to ask when and where different forms occur; to ask how healthy the 'ecology' of participation is; to ask what forms of participation are emerging, what forms are going extinct, and with what consequences?

The first step towards such a field guide is not simply to classify. Rather, it is to theorize the mode of classification and distinction itself. If the Internet and its enterprises were really to be approached naturalistically, then the status of current scholarship is pre-Linnean, at best: we have no solid criteria for distinguishing species or even kingdoms of participation. As such our approach here could be understood as an attempt to theorize the mode of classification appropriate to Internet-based forms of participation.

The analogy with a birder's guide is also limited in that observing participation is not about *seeing*, it is about conceptual analysis. Whereas birds are an exemplary object for the 'descriptive organization of seeing' (Law & Lynch 1988), participation on the Internet is not visual *per se*. Rather, what at first seems obvious – 'participation' – is precisely what is obscure. Thus, the abstractions we offer here are intended to reorganize the 'field of vision' itself, in order to facilitate the kind of comparison and contrast we associate with birding, and to demonstrate how instances of participation can be understood to respond to the same *problematization* of action and organization introduced by the Internet.⁵

There are two organizing features of this conceptual analysis. One is the variation in forms of participation across many different domains: economy, politics, social life, aesthetics, religion, etc. The other is the empirical fact of the Internet as a platform for participation. The contemporary ecology of participation is clearly related to the Internet, but the Internet is not the cause of participation. As a platform, the Internet is specific: it is not information and communication technology generally, but a historically specific

configuration of hardware, software and protocols. As such, it is also subject to change, consolidation or fragmentation related to economic, technical and financial forces – and such changes will have specifiable effects on forms of participation. Technologies and practices such as email, chat, blogs and blogging, tweeting, or social media apps depend on the Internet, but cannot be reduced to it.⁶

The suggestion that there is a diverse ecology of participation, therefore, is what motivates the focus on the Internet as a platform, seeing that diversity can and should be related to the technical and social state of the Internet (its commercial structure, questions of 'net neutrality', access, filtering, as well as its global variation). Observing participation without any guide to its diversity is like watching birds with no sense of what distinguishes them other than that they fly and squawk (when of course, many do neither). Rather than lumping every instance of Internet-mediated participation into boxes labeled 'digital culture', 'virtual reality', 'online community' or 'network society', a field guide could aid in observing differences and testing, rather than proliferating classifications.

Distinguishing Forms of Participation on the Internet

Range: Publics and Organizations

Most of the contemporary approaches to Internet-mediated participation begin, either implicitly or explicitly, with one of two over-determined analytical categories: publics or organizations. Clay Shirky's widely read pop-theory of social media (2008) bore the subtitle 'organizing without organizations'. Kelty (2008) introduced the term 'recursive publics' to account for the effect of the Internet on software production as a public good. The terms 'produsage', 'prosumption' and 'peer production' all gesture towards new forms of fuzzy organizational boundaries where the roles of consumers and producers are blurred. 'Participatory culture', 'democratization of production', and 'the end of the gate-keeper' all suggest an unlikely efflorescence of public power or a sudden world–historical surplus of good feeling, intrinsically motivated creativity, or 'cognitive surplus' (Shirky 2010) on the part of both individuals and organizations.⁷

While the literature on publics and organizations is clearly immense, and in constant dialogue with the empirical record, a particular puzzling problem related to these categories emerges in many empirical cases of Internet-mediated participation today: it is often simply not clear whether one is in an organization or in a public (or in neither). A few broad classical distinctions will help illustrate this point. Organizations have an outside or environment made up of either individuals or other organizations which are cast in the role of client, consumer, customer, patron, citizen, competitor, stakeholder, user; and organizational studies, amongst other fields, has produced many variations on this definition (Scott 2004). Opposite, public sphere theory presumes that it is (powerful) organizations (governments, churches, corporations) *against which* publics are oriented as critical entities, as components of a civil society, a public sphere, the general public, or the multitude.

Figure 1 lists some criteria that distinguish publics from organizations. Weber classically defined organizations as a 'closed social relationship' or one that limits the admission of outsiders (Weber 1968, p. 48). Organizations manage action and generally rely on hierarchies of command and control (or staff with legitimate authority), while publics are theoretically open to anyone and encourage critical debate. In Habermas' formulation, the public sphere is the paradigmatic space of communicative action, and



FIGURE 1

Examples of classical distinctions between organizations and publics.

specifically of rational-critical argument (Habermas 1991). Organizations have also been defined according to whom they serve (owners, managers, shareholders, stakeholders and the public); by contrast, the public is often defined as an independent sphere that serves only itself, or an idealized will expressed by all citizens (Anderson 1991; Taylor 2004).⁸

In the twentieth century organizational theory, organizations were defined as entities that reduce uncertainty (Coase 1937), define doable problems, and introduce efficiency by reducing transaction costs or taking advantage of economies of scale. Publics, by contrast are not defined in terms of economic efficiency or size, but in terms of their deliberative capacities, their ability to intervene through speculative, qualitative and discursive engagement with organizations.

Finally, as Warner (2002) has pointed out, perhaps a key aspect of publics is that they exist only when they are addressed as such, and when they pay attention as such – they are temporally and discursively constituted by constant attention and circulation of discourse about specific issues. Organizations are by definition legally and metaphysically independent individuals that persist through time, even when not being addressed and/or when they do not pay attention to that address.

In the context of the Internet, distinguishing publics and organizations is becoming harder. As organizations take on some of the qualities of publics, such as submitting themselves to more direct and uncontrolled critique by non-members, so do publics appear more and more *organized*, and less ephemeral. In some instances, the constitution of publics by mere attention is replaced, by virtue of the features of the Internet and its associated technologies, by some of the capacities once reserved for organizations, especially in the domain of activism and political organizing (Juris 2008; Lovink & Rossiter 2005; Coleman, Lovink, Rossiter & Zehle 2009). And similarly some organizations can seem less coherently organized than they once did – more open to critique, reformulation and response.

Figure 2 represents some of the terms and problems that appear in between these classically opposed concepts. Membership is no longer an easily defined category in a society of freelance work, serious amateurs, casualized labor forces, and the ubiquitous need for user accounts and passwords to gain access to any kind of discussion or action with other (geographically distributed) people. Any of the recent examples illustrate the ‘organization-ification’ of publics: Facebook-organized protests against FARC in Colombia in 2009, the ‘Twitter’ revolution in Iran in 2009, or the effects of the blogosphere on politics across the globe (Esfandiari 2010; Sreberny & Khiabany 2010).

Not unrelated, open debate in a public sphere has seen severe restriction through various legal means, most prominently the use and abuse of copyright law, contract law, libel/slander law and terms of service agreements that seek to use legal means to restrict

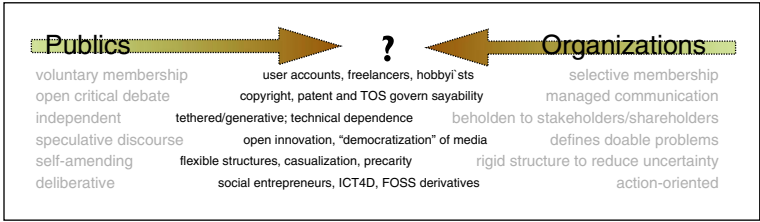


FIGURE 2
Examples of new concepts and objects that blur the line between publics and organizations.

debate, curtail sharing, fight ‘piracy’ of ideas and content, and/or regulate speech for a range of different reasons (Vaidhyathan 2003; Boyle 2008; Coleman 2009). Corporations and other organizations cannot directly control the speech of non-members, and so copyright law amongst others has become a key tool of indirect control.

The vaunted independence of public spheres is also much confused in the contemporary moment, given the level of technical dependence and the complexity of the technical and legal infrastructure that facilitates communication amongst publics. Finally, and perhaps most salient from a cultural perspective, many contemporary endeavors no longer draw a distinction between the deliberative and critical function of a public sphere and the action orientation of organizations, but instead seek ways to express political discontent or solve social problems through direct action. Social entrepreneurialism and Free Software/Free Culture movements starkly represent aspects of this change. Though the terms public and organization (like ‘community’ and ‘network’) seem more appropriate to some projects or groups than others, they remain too vague to help understand variation and similarity across them all, and fail to indicate what might be occurring, or at stake, in the promotion (or critique) of participation.

Habitat: Where to Look for Participation on the Internet

In identifying instances of participation, it is necessary to understand both features of the ecology and features of participation. The ecology of interest is defined by particular capacities of the Internet: coordination across boundaries (formal organizational, geographic, cultural), tools for generating social networks (i.e. rapidly proliferating and strengthening ties amongst people), rapid and real-time communication tools that operate across diverse devices (PC, phone, game console, etc.), infrastructures that facilitate scalability and growth (protocols, standardized commodity hardware), and tools which integrate managerial and technical tasks (e.g. version control, bug tracking, user accounts). Participation may be understood broadly to occur wherever group entities (organizations, firms, networks) actively interact with large numbers of individuals who are not *a priori* identified. These individuals can range from unidentified professional experts to amateur journalists and ‘citizen scientists’ to activists, concerned citizens or other members of the public. Forms of participation can also be identified by their rhetorical ‘coloration’, wherever new forms of ‘democratic’ and ‘open’ participation are enthusiastically and often unquestioningly promoted, pursued, or critiqued. As in bird watching, coloration can be deceptive in identifying forms of participation, given the large number of species that use

TABLE 1

Types and specific instances of entities that rely on or facilitate new forms of internet-mediated participation. Entities in bold are analyzed in the text.

FOSS Projects	New Media/Game/SE Projects	Science/Medicine/Education Projects
Dyne.org	Blip.tv	SETI@home/NASA
Blender/Blender Institute	Indymedia Network	23andMe
Apache/Apache Software Foundation	CurrentTV	Personal Genome Project/Church Lab, Harvard
Python/ Python Foundation	Revver	SNPedia
KDE/KDE e.V.	Digg	Innocentive
Wikipedia/Wikimedia Foundation	Second Life/Linden Labs	Registry of Standard Biological Parts/BioBricks Foundation
Wikia/ Wikia Inc.	Causecast	PatientsLikeMe.com
OLPC/MIT Media Lab	Samasource	Cnx.org/Rice University
Linux/Linux Foundation	Mechanical Turk/Amazon	Lybba
FreeBSD/FreeBSD Foundation	YouTube/Google	Public Library of Science (PLOS)
Mozilla Project/Mozilla Foundation	Facebook Inc.	
Debian/Software in Public Interest	Razorfish, Inc.	
Ubuntu/Shuttleworth Foundation;	Flickr/Yahoo	
Canonical Software	MySpace/News Corps	
MySQL/MySQL AB/Oracle	PRX.org	
OpenOffice.org/Oracle	Kickstarter	
Symbian/Symbian Foundation/Nokia		
Fedora/Red Hat		
GNOME/Ximian/Novell		
Eclipse/Eclipse Foundation/IBM		

mimicry to attract attention. Table 1 includes a list of endeavors that meet some or all of these criteria. Specific examples addressed in this article are in bold.

Nest: Weak and Strong Organization

The ability to effectively identify instances of participation in the wild requires one to see past the conventional opposition between organizations and publics because features of both are almost always present. Nonetheless, any given instance of participation will evidence both a Formal Social Enterprise (FSE) and an Organized Public (OP) (Figure 3). The point of this distinction is to capture a simple tension between formal and informal organization. On the one hand, a Formal Social Enterprise is defined as any organization with a formal, especially a State-sanctioned legal and/or regulated existence, such as a for-profit or non-profit organization, a foundation, or a university research center. Members of the organization are contractually obligated to it, and those obligations mediated by legal, technical and social tools such as salaries and employment contracts, ID cards, offices, letterhead and email addresses, a sense of identity as an insider, a role as a manager, an employee, a consultant, a board member, an advisor, etc. Such enterprises can be organized horizontally, vertically, loosely networked or densely and hierarchically controlled. FSEs limit social access and define decision-making power. In this sense they are clearly on the 'organization' side of the organization/public divide.

Opposite the formal organizations with their contracts and historically recognized modes of belonging are OPs. OPs differ because belonging and membership in the OP is informal, temporary, and constituted primarily through attention. Depending on one's

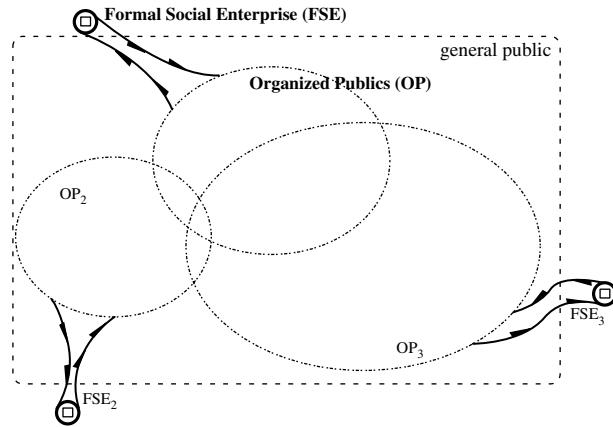


FIGURE 3
The structural relationship of Formal Social Enterprises and Organized Publics.

commitments and capacities, one could belong to several different OPs at the same time (and, hence, there may be more or less overlap across any given set of projects, as depicted in Figure 3). Warner (2002) defines publics as *ad hoc* entities that come into existence only when addressed, and exist only while they pay attention to that address. In his definition the form of address is classically discursive: constituted through speech and writing addressed to an imagined public that can read and respond, directly or indirectly. OPs are conceived here upon that model, but with a further stipulation: the OP involves all those individuals who are connected, via some technical affordance (social network, mailing list, mobile device, user accounts, consulting relationship) to each other and to the FSE, but who are not members of the FSE. This minimum level of technical interdependence of OP members suggests that Warner’s model of publics as constituted through mere attention either does not apply cleanly to OPs, because it does not capture the material nature of attention constituted technically (i.e. through software-mediated infrastructures of circulation) and not only discursively (i.e. communication media, including speech and writing) especially when technology and media render attention highly variable among ostensible members of the public (i.e. users who are unevenly aware that their participation is part of the value generation model of the enterprise).

OPs themselves may have varying degrees of hierarchy and structure, despite a tendency in the media and some scholarly literature to refer to them as amorphous, anarchic or self-organizing. Free and Open Source Software (FOSS) communities evidence clear, but highly variable, organizational structures (Weber 2004; Feller, Fitzgerald, Hissam & Lakhani 2005). Wikipedians have over time evolved a ‘hidden order’ (Viégas, Wattenberg & McKeon 2007) that is enforced through apprenticeship, communication of norms and censure. FOSS projects are frequently governed by norms and moral imaginaries that are communicated horizontally amongst participants. Some projects have formalized the apprenticeship process, as in the case of the Debian New Maintainer Process studied by Coleman (2005).

OPs and FSEs are in turn distinguished from a ‘general public’ (or in Warner’s terms as ‘a public’ rather than ‘the public’). A general public or ‘the public’ cannot be said to exist as an actual entity, but only as a virtual entity in the imaginations, plans, designs and

expectations of people and associations of people. What is important is that the boundary between a general public and an organized public is porous, and the boundary between a general public and an FSE is not (represented in the Figure 3 by the path of the dashed line). To put it more precisely, OPs become real instances of a virtual 'general public' instantaneously: as soon as a group of individuals begin to pay attention to something, and continues so long as they interact with others who are also paying attention. This could mean watching a video online, signing up for an account or beginning volunteer work such as reporting a bug in software, etc. Almost by definition, OPs are defined such that 'anyone can join' – anyone can sign up for a Facebook account; anyone can edit a Wikipedia page; anyone can shoot and upload a YouTube video; anyone can download the SETI@home software and install it.⁹

By contrast, FSEs are not formed as instances of a general public; they are not formed by mere attention but by formal two-way recognition. Signed employment contracts, salaries or other forms of official recognition are the relevant signs of participation in an FSE, whereas attention and address are those of participation in an OP. Needless to say, a select few can be members of both, which we address below in terms of governance.

Season: The Formation and Memory of FSE and OP

A second distinction concerns the temporal relationship between FSEs and OPs. Given the capacities and affordances of the Internet today, it is possible for at least two kinds of formation to occur (Figures 4 and 5). By formation we mean the original constitution of a recognizable entity – which does not necessarily imply *de novo* creation, but which members and participants nonetheless experience as a new beginning.

On the one hand, an association of people engaged in action of some kind (e.g. solving a problem, building something, writing, raising money) can associate for a given purpose and over time and the addition of members, develop *ad hoc* relations of governance that coalesce into a FSE.

Examples of this kind include the creation of the Linux Kernel and the eventual formation of the Linux Foundation, or the group of people who created the Apache web server in the early 1990s and the eventual formation of the Apache Software Foundation (ASF). Apache was born out of an academic research project (Rob McCool's httpd at the National Center for Supercomputing Applications of the University of Illinois, Urbana-Champaign), but gained an identity and a new name when the software was re-written and re-circulated to a group of interested software hackers (Kelty 2008; Mockus, Fielding & Herbsleb 2000). Over time active programmers on the project developed its famed

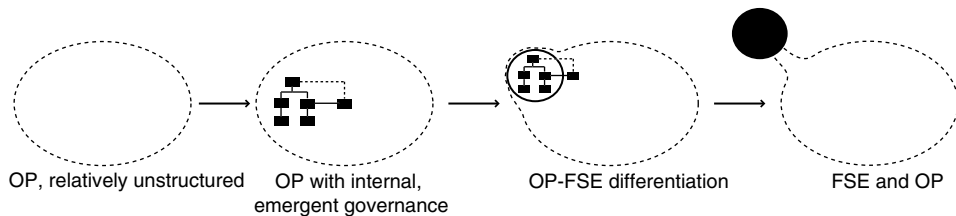
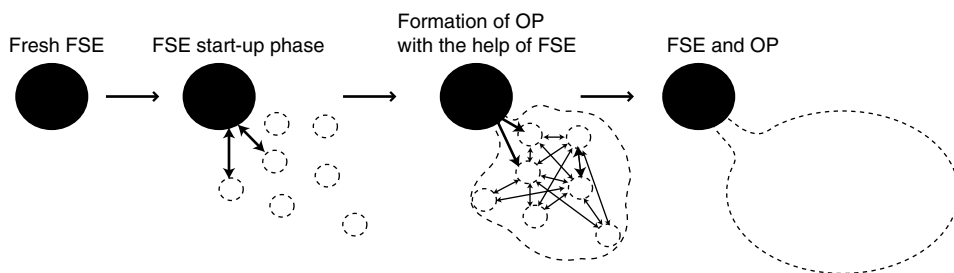


FIGURE 4

Temporal formation of a Formal Social Enterprise out of an Organized Public.

**FIGURE 5**

Temporal formation of an Organized Public out of a Formal Social Enterprise.

'meritocratic' system of governance, introducing a hierarchy with long-term respected members of the OP serving as board-members of the Apache Software Foundation – a legal foundation that would manage copyright, patent and trademark issues and serve other functions such as organizing conferences and voting on the inclusion of new members and projects under the ASF umbrella. The WinterCamp 09 report on 'organized networks' also reveals a number of cases that have formed in this fashion, including some social and political activist networks that have faced the challenge of institutionalization (Coleman et al. 2009).

A different formation takes place when an FSE is formed first (e.g. by legally incorporating, raising capital, creating a website/software service) and subsequently seeks to constitute or seed an OP through hiring, through the manipulation of social networks, through advertising, or by many other incentives to join.

Both Current TV and Linden Labs/Second Life are examples of this kind. Linden Labs was founded by entrepreneur Philip Rosedale with the specific goal of creating a persistent virtual world that would be open-ended and depend on the creativity and interaction of participants with each other. As Malaby (2009) details, as Second Life developed into an organized public, Linden Labs faced a variety of challenges of governance not only over its own staff of programmers, marketers, etc., but over the OP as well. One of the better-known cases includes the debate over allowing users to retain copyright over objects created in-world, instead of expropriating it to Linden Labs. Employees of Linden Labs are regularly in-world as part of their jobs, while players of Second Life very rarely visit the offices of Linden Labs.

The above diagrams both represent the same final relationship between the FSE and the OP, even though the process of formation is different. FSEs and OPs both possess internal structure – Figure 4 represents one extreme with the classical organization chart, while Figure 5 represents the other with the supposedly flat network. In reality both FSEs and OPs can be expected to possess a mix of hierarchies and networks, changing over time.

We highlight this temporal dimension of the life cycle because, although it may not matter to the eventual organizational outcome of a particular project whether it starts one way or another, it can affect the subjective meaning and definition of goals, as well as the expectations about governance. 'Organizational culture' is seeded with the stories and expectations of the founders and early adopters. The perception of either an *ad hoc*, organic and bottom-up formation of an enterprise or a top-down, autocratic formation of an enterprise can have direct effects on the perceived authenticity of an endeavor, as well

as affect decisions about the relationship between the FSE and OP, which we outline in the next section.

Malaby (2009), for instance, details the deep role that Rosedale played in the culture and expectations of the company between 2000 and 2008 when he stepped aside. The so-called ‘Tao of Linden’ encapsulates, or blurs, in one document the goals of Second Life with those of the corporate culture of Linden Labs. As a result, employees are encouraged to perceive the ‘culture’ of Linden Labs as non-hierarchical, an FSE-as-flat-network, rather than a vertically organized corporate setting. Wikipedia, which is often treated as emblematic of Web 2.0 projects, is an even more distinctive case. Wikipedia geeks unfailingly retell the origin story of Nupedia, intended to be a free commercial peer-reviewed encyclopedia. In the first 18 months it only had 20 articles, so in 2001, Wikipedia was then launched as a side project ‘to allow collaboration on articles prior to entering the lengthy peer-review process’ (Voss 2005) and in only six months, it had over 6000 articles. On the surface, this appears to be the success of an FSE constituting an OP that it then manages or oversees. However, Nupedia disappeared more or less immediately, and Wikipedia proceeded on a more or less *ad hoc* basis until the growth of the project necessitated the creation of a different FSE, the Wikimedia foundation. Wikimedia now does fundraising, oversees financial costs of hosting the encyclopedia, manages copyright decisions and hosts the annual Wikimania conference, among other things. Seen from this perspective, Wikipedia follows the trajectory of an OP giving rise to an FSE and in terms of myth and memory, it is this *ad hoc*, unbridled growth and community governance of the project that dominates memory, whereas Nupedia has become an emblem of the perceived failures of top-down organization and control.

Behavior and Physiology: Resources, Tasks and Goals

Resources. The FSE/OP distinction and its temporal formations serve as a starting point for exploring in more detail the *relationship* between the two, and ultimately the way that relationship distributes rights, power and resources under the label of ‘participation’ or ‘democratization’. For every FSE/OP there is at least one *resource* at stake. By resource we mean whatever is produced that is most valued by both the FSE and the OP. The term is deliberately vague in order to resist identifying the object of value with a technology, consumer product or service – it could just as well be knowledge, volunteer hours, or editorial decisions. Central to the identity of the resource is that it be created or distributed through collaboration, ‘peer production’, re-mix and/or aggregation. A resource can be a product (software in the case of Apache) or a process (the ‘editorial’ function of Wikipedia, which is arguably more valuable than the content itself), the algorithmic result of a set of simple tasks (‘turkers’ clicking on Amazon’s Mechanical Turk), or aggregate data that is valuable only in large numbers (genotype-phenotype correlations from 23andMe customers, or symptom-treatment relationships in Patients LikeMe).¹⁰

Despite the fact that a great many resources are ‘free’ in one or more senses (*gratis* and free from restrictions), they must nonetheless be actively governed to be of value – anything else is simply an abandoned project. A basic abstract schematic of the structure of organized action can be represented as a process whereby an FSE and OP set goals and engage in tasks in order to produce a resource (Figure 6).

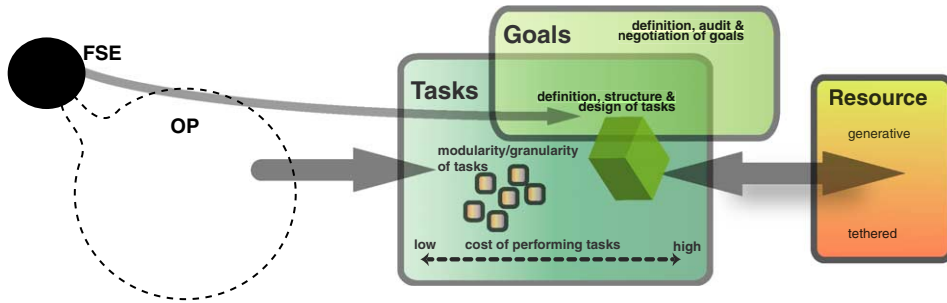


FIGURE 6
Conceptual relation amongst resources, goals and tasks undertaken through participation.

This abstract diagram represents a set of questions that could be asked, or further specified, of any given instance of participation: what is/are the resource(s)? What rights to a resource do people in an FSE have vs. the rights of those in an OP vs. those of everyone else (the multitude/general public)? Who decides goals and who has ultimate authority over a resource? Who manages tasks, assigns them or encourages participation? How modular/granular are tasks? What is the cost of performing a task? Who can use, change, fork or make claims about a resource? Who takes legal responsibility for a resource? Who is the maintainer of last resort?

In the case of Apache and Wikipedia (and Free Software generally), the governance of property relations, specifically copyright, is central to the endeavor. Copyleft licenses create a specific form of commons (different from a public domain) that constrain the appropriation of resources by any particular person or organization (whether OP or FSE), and facilitate re-use or remix (Benkler 2006; Lessig 2004; Jenkins 2006a; Hess & Ostrom 2007; Boyle 2008). Current TV, PatientsLikeMe and Linden Labs do not use copyleft licenses to govern property relations and manage their resources, but rely instead on terms of service (TOS), formal employment contracts, or end user license agreements (EULA) to do so. Such a distinction is frequently missed or ignored by observers.

Zittrain (2008) has refined this approach somewhat by distinguishing *tethered* and *generative* resources. In addition to copyleft licenses, Zittrain’s distinction concerns the management of the infrastructure through which resources are available. *Generative* resources are easily available, without the permission of any FSE, for re-use, improvement, or transformation, whereas *tethered* resources are managed at the sole discretion of the FSE and require either legal or technical permission in order to be modified.

Both Apache and Wikipedia are generative resources: they can be modified or transformed, legally and technically, without the permission of the Apache Software Foundation or Wikimedia respectively; FSE and OP are legally equivalent to each other in terms of ownership and access rights. Practically speaking, the FSEs are necessary to facilitate this situation and so retain some forms of direct control over the persistent availability of the resource (i.e. whether the servers stay up and the electricity/hosting bills get paid). By contrast, Current TV and PatientsLikeMe are both tethered resources: both the infrastructure and the content are controlled and restricted in various legal and technical ways limiting the modification of the sites and republication/rebroadcasting of content. The value of PatientsLikeMe as a resource rests primarily in the aggregation of the data in one place – but the modes and technologies of aggregation are not available to

anyone other than the FSE, and each individual in the OP edits only his or her own profile and data. Second Life is a mixed case: the world within is generative, limited only by the time and creativity of those who work within its constraints, and is in fact governed by copyleft licenses that allow users to retain rights to what they create in world (see especially Boellstorff 2008 for details). The platform, by contrast, which is controlled by Linden Labs, cannot be legally or practically changed or reused by anyone without the FSE's (Linden Labs) permission and oversight (barring criminal activity, of course).¹¹

Goals and tasks. Also observable in practice are the various activities that go under the label of participation: in particular the goals and tasks that individuals design and execute. Goals may be implicit or explicit, and tasks can be *voluntary* (self-chosen tasks that require some minimum level of conscious effort), *assigned* or even *involuntary* (tasks which people may not know they are performing, such as strengthening links by clicking on them or other forms of contribution of data that are aggregated, visualized or re-displayed by the FSE). The variation in goals and tasks indicates whether FSEs and OPs are tightly or loosely coupled, and says something about the relationship of mutual obligation and responsibility. The design and execution of goals and tasks can be divided according to questions of *governance* and *outcomes* and are summarized in Table 2.

Goals are easy to observe at a surface level in the form of mission statements or philosophies. How they are formed and debated, however, can be much harder to

TABLE 2
Governance and outcomes of goals and tasks.

	Goals	Tasks
Governance	<p>*Mission statements, roadmaps, design and integration. High-level discussion of the what and why of a project. Reference to original formation of project (FSE → OP vs. OP → FSE).</p> <p>*Who sets goals? Who is involved in the discussion? Are multiple different goals possible, or is the project heavily mission-focused? Are goals discussed in private, amongst an open group, or openly on a mailing list? Are past and future goals clearly signaled? Does the OP discuss, refine, influence or set goals, or is the FSE solely in charge of them? How are goals related to the prioritization of tasks.</p>	<p>*Integration of contributions, management and negotiation of tasks (charismatic leadership). Definition and design of tasks (engineering leadership). Hierarchy of decision-making power.</p> <p>*Who is involved in the design of tasks (OP or FSE or both)? Who is involved in the management of tasks (editors, sysadmins, other <i>ad hoc</i> hierarchies?). Are tasks clearly driven by or related to goals?</p>
Outcomes	<p>Is the mission open-ended and ongoing or time-limited and specific? When has a project achieved its mission? How has the mission changed over time, and is this visible to participants?</p> <p>Is progress towards goals measured? What metrics are shared? Who are perceived as competitors? Are metrics precise or vague? Who are outcomes important for: OP, FSE, funders, others?</p>	<p>When is a task complete?</p> <p>Are tasks highly specific (concrete outcomes) or open ended (having multiple potentials)? Is competition judged quantitatively or qualitatively? How do participants recognize the whole (.i.e the crowd, the network, the social graph) and their part in it?</p>

perceive from the outside. Some projects, such as Apache, have conducted all such discussions on publicly accessible mailing lists; others, like Second Life, can only be reconstructed, as in the case of Malaby (2009). Regardless, this form of variation is very important to note, even if the details remain obscure: FSEs might reserve all deliberation for themselves (as Amazon does with respect to Mechanical Turk) or they might merge with a deliberative OP (as in the case of Apache and other FOSS projects).

The ways in which outcomes of a goal are measured or displayed can also vary considerably: from very open and modifiable to clearly fixed milestones. The precision of measurement can also vary from quantitative metrics (often required of FSEs that gain outside funding) to qualitative forms of debate, deliberation or feedback (more common in the space of the OP). Goals are frequently distilled into mission statements, bylaws and roadmaps, whereas measurements run the gamut from revenue to 'eyeballs' to page views to more elusive measures of impact and effect. Measuring outcomes relates tasks to goals and creates the possibility for competition or comparison, which is, in turn, central to motivation and participation at a subjective level.

The Apache Software Foundation and Wikimedia Foundation are examples of FSEs that are tightly coupled with their OPs – where members might not even distinguish between them. Discussion of goals takes place primarily in the open (on mailing lists, blogs, in conferences and with an ethic of transparency).¹² Wikimedia and Wikipedia count and report articles, edits, page-views, unique visitors and so forth; Apache Software Foundation, by contrast, reports very little about the success of its projects beyond releases, downloads and the occasional press release (though a number of independent observers try to measure the number of installations of various projects).

Current TV represents the opposite case – a stark decoupling of FSE and OP. Current TV began in 2005 with different ambitions: the original mission was to secure 100% of its content from its audience. From 2005–2008 Current TV actively purchased content from OP members, though the aggregating, editing, formatting, packaging, vetting, and branding of OP-provided content was done by a handful of fully-remunerated FSE employees. In other words, the governance of both goals *and* tasks was reserved for the FSE. By 2007, about 30% of the network's content came from the OP, but the FSE has since abandoned the goal of 100% OP-produced content.

Current TV also differs in terms of how outcomes of goals are measured. Whereas projects like Apache and Wikipedia are focused on number of contributions, completion of software or articles, and stats about downloads and usage, Current TV is concerned first with revenue, and second with many of the same metrics as other advertising-centric businesses, such as television networks and Internet entertainment companies – eyeballs, views, households and cable television providers subscriptions. During its growth period (2005–2008), Current TV measured success by the number and quality of the OP contributions. However, at no point has the OP been involved in either the definition of goals or the definition of how they are measured.

Second Life again represents a hybrid case in which the operations of the FSE (Linden Labs) are not accessible to members of the OP (Second Life), but are nonetheless responsive to them. Malaby (2009, pp. 73–78) for instance details a story about the Linden Labs employees' attempt to engineer a particular form of urbanity into the system (based on Jane Jacobs' writings), and the pushback from users that caused them to abandon these goals; so, although OP users had no say in designing or setting the goals, they did, in

fact, have significant effect on the outcomes of those goals and in convincing Linden Labs to focus on measuring other kinds of outcomes.

Participation can also be distinguished with respect to tasks: the actual form of work, its execution and the rights and conditions associated with that labor/participation/use. Tasks are by definition something that the OP performs (debugging, testing or writing software; making media; writing encyclopedia articles; Digging, etc.). Tasks can be initially distinguished by their degree of modularity and granularity (Benkler 2006), and the subsequent cost of performing the task, or the level of effort required and in part the number of possible participants.

At one extreme of modularity and granularity are tasks whose effort is low, a simple Mechanical Turk task, daily updating of a profile page, automatically reporting a crash to a bug-tracking system, voting a news story 'up' to a site's frontpage or correcting typos in Wikipedia); at the other end are those which are intensive and time-consuming (writing a device driver for Linux, producing a documentary about the Gaza strip for Current TV); many others fall in between (confirming the existence of a bug, re-writing a Wikipedia article, translating a bit of text or dialogue for a project).

Governance of tasks concerns the management of multiple contributors, the integration of contributions, issues of payment or remuneration, choice of tasks, leadership and motivational style, etc. Perhaps one of the most important issues highlighted by this distinction is that of the integration of contributions. Every 'collaborative', 'participatory', or 'democratic' project faces the challenge of integrating contributions from tens, hundreds, thousands of contributors. Central to this challenge is the definition, structure and design of tasks, their modularization and the managerial work necessary to make them available as tasks to an OP (such things as software design and engineering, game design/implementation, marketing design, infrastructure development or the editorial/curatorial power of particular individuals).

The governance of tasks can be distinguished by whether the design and engineering of tasks is carried out by members of the OP, the FSE, or both. The resulting spectrum of participatory involvement, at different stages and at different depths, indicates who is involved and how in the production of a resource. Complex games and worlds like Second Life often starkly divide game designers/programmers – who design and engineer the available tasks – from game players – who may enjoy a well designed game, exploit its shortcomings, but cannot legally change it. FOSS projects such as the Apache webserver project or the Linux kernel are at the opposite end: a limit case or ideal type in which a pure OP is imagined as involved in every step of the definition, design and execution of tasks that lead to an openly shared resource. In between is Current TV, where there is a necessary FSE intervention in the OP-produced content. FSE producers solicit, vet and influence content, and there is a branded look and 'street' aesthetic to Current TV content that needs to be edited into the raw OP content by FSE-employed editors with access to proprietary branded digital overlays and transition effects.

Measuring the *outcome of tasks* can also be done precisely (cents paid for completing a Mechanical Turk task) or loosely (reputation gained for coding a device driver for Linux). Some tasks are so clearly defined and structured that the expectation of measurable outcomes is built in and easy to account for; others are less outcomes and more an abstract potential whose success will not be immediately evident until it is used (e.g. a new module for the Apache webserver). In the case of Apache or Wikipedia,

contributors often monitor each other and informally assess the quality of work on mailing lists or in discussion pages.

Current TV stands out here in directly remunerating documentary contributors (between \$500 and \$2000 depending on how many 'pods' or programs the contributor has produced). None of the other examples include direct remuneration, though many FOSS contributors are salaried employees whose duties include contributions. Current TV has also used a 'leaderboard' by which other OP members could vote pods onto air every week, the outcome being the prestige associated with having a pod broadcast (with the producers' names) on television. Current TV also uses metrics or 'badges' for OP members based on four scales: picked for TV, producer (of pods), contributor (of news stories), and commentator (on pods or news stories). Individuals who ascend the levels are rewarded with swag – hats, woolen caps, shirts, flip video cameras, bags, clipboards, notebooks, and pens – that is mailed to their homes.

Second Life doesn't seem to fit into the category of 'tasks or goals' at all, much less the concern with measurable outcomes. Indeed, most commentators highlight the 'open-endedness' of the world; nonetheless, there is no shortage of informal comparison and competition that takes many forms, including most obviously, income and the display of wealth. In general, task outcomes can be evaluated both qualitatively and quantitatively, and there may well exist a strong relationship between the type of task and its complexity and the style of evaluation of the outcome.

Birdsong: feedback as participation. A final distinguishing characteristic of participation that reveals differences in governance and outcomes is the ubiquitous practice of seeking and providing 'feedback'. In cases like Wikipedia and Apache, 'feedback' is often direct discussion on a mailing list or discussion page, and has the sense of being a more direct form of involvement both in specific tasks and in the setting of goals. For one thing it is conceived and executed as a 'flat' form of discussion: everyone regardless of position or power posts or comments in the same forum (which of course does not mean that it is always the site of real action). Thus, the task (writing an encyclopedia article, coding a piece of software) and the governance of the project (discussion about its form and purpose, and about how things ought to be done) are tightly coupled. By contrast, Current TV prides itself on having an effective, but cleanly separated, feedback system. At its origin (2005–2007), the request for documentary stories from the OP was seen by many as a radically 'democratizing' departure from the elitism and gate-keeping that suppressed direct involvement in production throughout the 60 years of television history, but it has since come to look more like the feedback channels instituted at all the mainstream media outlets, limited to requests for moderation and unsolicited news story and documentary pitches.

Variation in the governance of goals and tasks can also be 'built in' to the feedback infrastructure: Wikipedia pages by design each have a discussion page, and the structure lends itself to an organic proliferation of pages, including pages about the operation of Wikipedia itself, where discussion and decision-making can take place. FOSS projects are still largely run on mailing lists, with periodic forms of high-intensity communication on Internet Relay Chat (IRC) or at conferences where key issues of governance and outcomes are open to everyone interested.¹³ Current TV follows a different model: requests for email feedback are a constant sight on the cable television network, hosts request and respond on-air to feedback, frequent reminders appear on the website to write feedback and

Current TV has several blogging administrators who publicly respond to feedback, as well as several full-time FSE employees who are tasked with reading and responding to OP feedback. The question of whether or not feedback constitutes participation often depends on the relationship of the OP to the FSE and the design of tasks and goals. Not all feedback is equal in effect.

Using the Field Guide: Diagnosing Changes in the Ecology of Participation

The set of distinctions offered above constitutes only the first steps towards a field guide to seeing and understanding variation in forms of participation in Internet resources. Even these basic distinctions, however, reveal certain things about the ecology of participation. It should be clear from the examples given so far (summarized in Table 3) that there is a stark difference in terms of governance between projects like Wikipedia and Apache and those such as Current TV or PatientsLikeMe. Whatever participation means, it means very different things in these cases. In this last section we point out two aspects of the participatory ecology that we have observed with the help of these distinctions: the question of the legal status of organized publics, and the perhaps ironic, but not unexpected, centrality of charismatic authority – that is, any authority vested in the qualities of a person, rather than an office or system of government.

The Redefinition of Legal Relations of Labor, Contract and Sale

In posing the distinction between FSE and OP, we suggested that an FSE be defined as a contractual/legal relationship (like the famed ‘bundle of contracts’ definition of a corporation in law and economics), and that OPs are less formal, *ad hoc* ‘publics’ that form through attention. In fact, OPs are also legally defined in most cases – primarily through the instrument of the now ubiquitous ‘Terms of Service’ (TOS) agreements which govern what rights and responsibilities individuals have when performing a task via a website, while using a particular piece of networked software (such as a copy of Second Life), or using a tool to create something (in that case, an End User License Agreement). Such a claim should seem obvious, especially to legal scholars who have already contributed a wealth of literature to the topic (Balkin 2004; Grimmelmann 2004, 2006)

However, it is important to formalize and highlight the claim that ‘the organized public’ is in these cases a *legal entity*, and not a *notional, imaginary or purely political* one – and especially a legal entity with respect to issues of employment, contract and sale. Among the most important implications of this distinction is the fact that ‘being a member’ or ‘being employed’ or ‘being in public’ all overlap here. Hence the claim at the outset that we are not always clear whether we are consuming or protesting, or whether we are part of an organization or not, has a concrete legal basis, and one that it should be incumbent on every commentator to make explicit in analysis.

Focusing on this distinction allows one to see a crucial difference between projects such as Apache and Wikipedia and those such as Second Life or PatientsLikeMe. The legal device of import in FOSS is the Free Software license, which guarantees property rights in the products of labor to a laborer. Wikipedia editors, for instance, contribute their work pseudonymously (as a persistent user-name) under the terms of a copyleft license that guarantees future rights to that resource, and all the resources contributed to the

TABLE 3
Empirical examples summarized.

Project	FSE Name	Domain	Formation	Mission	Metrics	Resource provided	Availability of Resource	Owner/Founder	FSE Org. style	OP Org. Style	Typical OP member
Apache	Apache Software Foundation	FOSS	OP → FSE	<i>“The Apache projects are characterized by a collaborative, consensus based development process, an open and pragmatic software license, and a desire to create high quality software that leads the way in its field. In a nutshell: Let developers focus on what they do best: code. The foundation exists to do rest”.</i>	Downloads and statistics on installations	Web server-related software	Copyright (Apache Public License)	Group-founded. Early httpd coders.	Foundation	Meritocracy	Skilled coder
Wikipedia	Wikimedia Foundation	Education	OP → FSE	<i>“To empower and engage people around the world to collect and develop educational content under a free license or in the public domain, and to disseminate it effectively and globally”</i>	Number of articles, number of contributors	Public encyclopedia	Copyright/CC-Licensed	Jimmy Wales	Foundation	Meritocracy	Encyclopedia collaborators
Current	Current Media	Television and Community Journalism	FSE → OP		Eyeballs, households, page-views, revenue.	Television and internet-based news, community and citizen journalism	Content available for viewing/comment online and via cable affiliates	Current Media and Al Gore	Group work governed by chain of command management, typical for internet startups	Contributions and dialogue on social media site current.com	Journalism readers and video journalism producers

TABLE 3 (Continued)

Project	FSE Name	Domain	Formation	Mission	Metrics	Resource provided	Availability of Resource	Owner/Founder	FSE Org. style	OP Org. Style	Typical OP member
Second Life	Linden Labs	Virtual Persistent Worlds	FSE → OP	<i>"It's our mission to connect us all to an online world that advances the human condition"</i> Tao of Linden	Revenue, Number of subscribers, revenue in Linden Dollars, affiliate sites.	Interaction in a persistent Virtual World; virtual goods, virtual money, virtual real estate. Environment for learning interacting remotely	In world objects CC-licensed; access is subscription based, TOS-governed	Philip Rosedale, Cory Ondrejka, Mark Kingdon	Tao of Linden, individual initiative, workplace democracy; implicit hierarchy	Creative autonomy within virtual world. Market-based relations.	Immersive gamer/resident
Patients Like Me	Patients Like Me.com	Patient Community, Health Information	FSE → OP	<i>"Our goal is to enable people to share information that can improve the lives of patients diagnosed with life-changing diseases. To make this happen, we've created a platform for collecting and sharing real world, outcome-based patient data (patientslikeme.com) and are establishing data-sharing partnerships with doctors, pharmaceutical and medical device companies, research organizations, and non-profits"</i>	Aggregate statistics about sufferers, symptoms, treatments and so on. Data about outcomes or about revenue from, or use of data by third parties not available to users.	Aggregated public health data provided by individuals in conversation with each other	Data available to individuals who share with each other and, in anonymized form, to "trusted healthcare providers"	James and Ben Heywood, Jeff Cole. MIT engineers. Investors: CommerceNet, Omidyar, Collaborative Seed and Growth, Invus, LP	35+ employees Mostly focused on research and product development and community marketing	Detailed profile-based accounts. Patients share ongoing symptoms, treatments and experiences; communities organized by disease, treatments, and symptoms.	Sufferers of specific diseases, such as Diabetes, HIV, ALS, or mood disorders.

commons – the Terms of Service do nothing more than specify the requirement to make use of these licenses when contributing or re-using the site and its content. In Second Life, by contrast, the decision to allow participants to copyleft their in-world creations, while enlightened, obscures the fact that the Linden Labs' TOS actually govern everything else about what a user can and cannot do, far beyond the simple ownership of an in-world object (Herman, Coombe & Kaye 2006). The fact that one cannot clearly distinguish between an activity that might be called 'labor' and one that might be called 'consumption' (or sale) seems to confirm some of the claims that e.g. 'prosumption' defines the activity (Jurgenson & Ritzer 2010). But the variation across the projects we look at suggests that this does not happen the same way in every case.

Consider Current TV, which presents a case most like the more general and widespread case of freelance work and the casualization of labor (Sassen 1991, p. 282). On the one hand, the TOS between the FSE and a documentary producing member of the OP look like a freelance labor contract because that is essentially what they are: terms by which a corporation agrees to accept labor from a free agent, and expectations thereof by that agent. On the other hand, users of the Current TV website who contribute comments, votes, or other kinds of content, and are not paid, operate under the terms of a *different* agreement, more similar in kind to that which governs Facebook users or PatientsLikeMe users.¹⁴ So while it is perhaps not culturally possible to confuse the labor necessary to create a Current TV video with the act of watching it, linking to it, 'liking' it or Digging it, it is possible that the *legal* definition and control of them is, in fact, converging.

Similarly, the act of making and selling a virtual object in Second Life, addicting or profitable though it may be, could be considered 'consuming' an object provided by Linden Labs as much as it could be considered labor, and both activities are in fact governed by a TOS which blends parts of a sale contract with those of a labor contract, albeit covering only work paid for in the tokens known as 'Linden dollars'.¹⁵

To reiterate, by making clear the distinction between FSE and OP, it becomes more difficult to adduce claims about labor and remuneration that apply equally across both entities (however they may look in any given case). The terms and concepts of labor economics, or of a labor theory of value, are generally appropriate to the FSE, but less so to the OP; conversely, in the case of the OP, the language of 'public spheres', 'democratic participation' or claims of independently powerful forms of organization seem less appropriate the more defined the terms of service are which apply to OP members. It is also for this reason that there is a stark difference between FOSS communities (which are generally not governed by terms of service at all, but strictly by Free and Open Source Software licenses) and projects like Current TV, Second Life or PatientsLikeMe.

The Problem of the Peacock: Charismatic Authority and the Definition of Roles

Looking at participation without a guide, like birdwatching in the backyard, can lead one to confuse one's nuthatches with one's tits. There are many kinds of participation in any project, and as a result, many forms of power. Decision-making power, for instance, includes editorial decisions, decisions to include or reject a contribution, and moderation of contributions. The need for these decisions creates a role for committers (particular people with the power to commit contributed code to a software project or integrate it into the official release stream of a software project), editors, or system administrators who

may exist either in a FSE or in an OP, but undoubtedly possesses a different degree of power than others. Such people often rise to these positions through sustained volunteer effort. Wikipedia has a very small core (estimated in the thousands) of active editors who contribute the bulk of new content and edits, and a much larger ring of contributors making minor changes. Similarly, most FOSS projects consist of a small number of people who know each other well and do the bulk of the work, surrounded by a larger circle of people who find and submit bugs, make small changes, edit documentation, do translation etc. The implicit hierarchy that develops between these groups can be technically instantiated in the rights of the committer, administrator or editor.

Here, the classic distinction between offices and officeholders seems to be a starting point: on the one hand the evolution of projects (the formation of an FSE/OP relationship) implies the creation of a set of offices which can be filled in some cases by FSE members, in some cases by OP members, and in some cases by either. The definition of who is eligible for which offices is clearly what is at stake with talk of terms like 'participation', 'meritocracy', or 'horizontal' governance. Different offices emerge as projects evolve, from executing a task (designed by someone else) to designing a task for others to execute, to engaging in discussion, deliberation and planning concerning the kinds of tasks one might engage in. What emerges at the interface between FSE and OP are various new kinds of go-betweens, administrators, aggregators, editors, committers, 'trusted lieutenants', and others who may or may not be paid by an FSE, but have a higher status and measure more editorial or practical power over members of the OP.

However, not all offices are specified. It is a fact (and one that troubles participants in some projects) that certain individuals have more power, access, or control based on a kind of charismatic authority – and not necessarily because they hold an office. The initial formation of a FSE and an OP (Figures 4 and 5) often has a strong influence on who will exert lasting control or influence over a project. In the case where an FSE seeds an OP, offices are often more clearly defined, simply because it is the FSE that comes into being first. In the case where an OP gives rise to an FSE, the power of particular individuals is often not formally designated, but nonetheless recognized by participants, or the office is *ex post facto* formalized. The case of Linus Torvalds and Linux (the so-called 'benevolent dictator' model) and the case of Apache's 'meritocracy' have been studied in the literature (Benkler 2002; Kelty 2008; Mockus et al. 2000; Annabi, Crowston & Heckman 2006; Von Hippel & Lakhani 2000). Here we consider the role of charisma in the cases of Wikipedia and Current TV.

Wikipedia. Jimmy Wales, along with Larry Sanger, initially conceived of Nupedia as an open source competitor to Britannica in 2000 (Gouthro 2000). But when they realized 'that there needed to be a way in which ordinary, people could participate more easily' (Sanger 2005) they launched Wikipedia as a side-project to allow collaboration on articles prior to entering the lengthy peer review process (Voss 2005). Wikipedia was thus intended as a place in which Nupedia contributors could publish early drafts before fully committing and publishing them to the Nupedia site. As an open format, the wiki platform allowed everyone to author content, not just scholars and identified experts. This allowed for increased activity and participation and Wikipedia's popularity quickly surpassed that of Nupedia. In the first six months, it already had over 6000 articles. In three years it

reached 1,500,000 articles and includes 886,430 contributors working in 271 languages and in September 2003, Nupedia shut down (<http://en.wikipedia.org/wiki/Nupedia>).

The FSE arm of Wikipedia, Wikimedia, emerged in 2003 and seemingly represents a version of our model whereby the FSE emerges from the OP, much like the ideal case of Free Software. But the role of Jimmy Wales cannot be underestimated. In some ways, he can be seen as a 'founder' along the lines of a principle in a start-up company (the FSE → OP model); but in other ways he is only a very eager participant in a community project (the OP → FSE model). In terms of Wikipedia, Wales's 'office' is undefined, but in terms of Wikimedia he is not only the founder, but also on the Board of Trustees. Forte, Larco and Bruckman (2009) describe Jimmy Wales's involvement in the overall decision-making of the Wikipedia as the 'culmination' rather than a 'germination' of policy discussion. While Wales does have official authority to declare policy, it is done only rarely and only with strong support from the community – and does not extend to the authority to over-ride disputes on individual pages. The case of Wikipedia thus represents a mutual evolution of both the FSE and the OP that is mediated by the role of a strong leader. Although Wikipedia formed two years before the emergence of Wikimedia, Wales's role in the formation of both these entities prevents us from jumping to the conclusion that the OP alone gave rise to the FSE – the role of a charismatic leader was essential.¹⁶

Current TV. The case study of Current TV also exhibits the role of the charismatic founder. In the years after the 2000 US Presidential election fiasco, Al Gore turned his attention to the problem of combining the Internet and television in order to empower a new generation of news producers, and to providing them incentive to voice their opinions through nonfiction video. Increasingly frustrated by the power of special interest money in US politics and how US media corporations misinform, un-inform, and distract publics from important political issues, Gore founded Current TV, a user-generated television and satellite news and information network headquartered in the Mission district of San Francisco and with offices in Los Angeles, London, Dublin, and Rome. Financed by high-tech investors, Democratic party supporters, and venture capitalists, Current TV's vision was part Digg, part Indymedia, part mainstream television. The mission was to use the Internet to form a community of citizen journalists and an active online audience of viewer-contributors making and voting news stories to the homepage and the television network. In doing this, Gore and his supporters hoped they could add otherwise under-appreciated information to the debate regarding citizenship while bringing a disruptive new form of journalism to the mainstream media ecology.

While Gore's involvement with Current TV is presently more as a symbolic masthead for fundraising and legitimacy missions, his aura is a key factor responsible for recruiting talented FSE personnel. An example is David Neuman, Current TV's President of Programming (2005–2010), who had a distinguished career with executive positions at CNN and NBC before taking a call from Gore in late 2004. In an interview with one of the authors (Adam Fish), Neuman suggested that because it was Gore, he was going to say yes to whatever Gore needed him to do. Gore's charisma and political causes also attract some of the most active OP members.

Although the project started with grand ambitions to be 100% user-generated, the relationship of goals and tasks was much different from cases like Wikipedia or FOSS. Current TV created an 'outreach department' within the FSE headed by managers who reported directly to Neuman. These managers oversaw paid producers, who in turn sought

contributors and content and were allowed to contact freelance producers from the OP (though required authorization to purchase content). Thus, 'viewer-created content' was purchased for between \$500–\$2000, on a model long-established within television and sharing very little with projects like Wikipedia or FOSS.

Despite this practical difference with more consensually governed or meritocratic projects such as Wikipedia or FOSS and likely because of the charisma of its founder, Al Gore, Current TV has been able to maintain its rhetorical stance as 'democratizing' television. Current TV, therefore, represents a rather extreme case in which 'participation' is heavily driven by the charisma of the founder, and where governance of both the goals and the tasks of the project are overseen by the FSE.

Directions for Future Research

The question of the legal basis of an OP reveals an open question for research: the extent to which our understanding of public participation and the rights associated with national citizenship are transformed when they are governed by terms of service contracts. Similarly, the recalcitrant fact of charismatic authority as a feature of even ardently egalitarian projects like Wikipedia, suggests the need for a more refined model of who is involved in these projects and how. One could, for instance, reformulate the relationship amongst structure, resources and tasks/goals to include the kinds of authority and influence (and the trails of money, capital and reputation) that are associated with any given project (e.g. Figure 7).

Such a map could help diagnose success or failure better than, or at least quite differently from, overly technical attention to the details of tasks and their execution or ideologies and their disputation. Naturally, this would require attention to the actual workings of projects, and to forms of investigation and research that go beyond the surface rhetoric and self-presentation of these projects – but a good field guide can aid

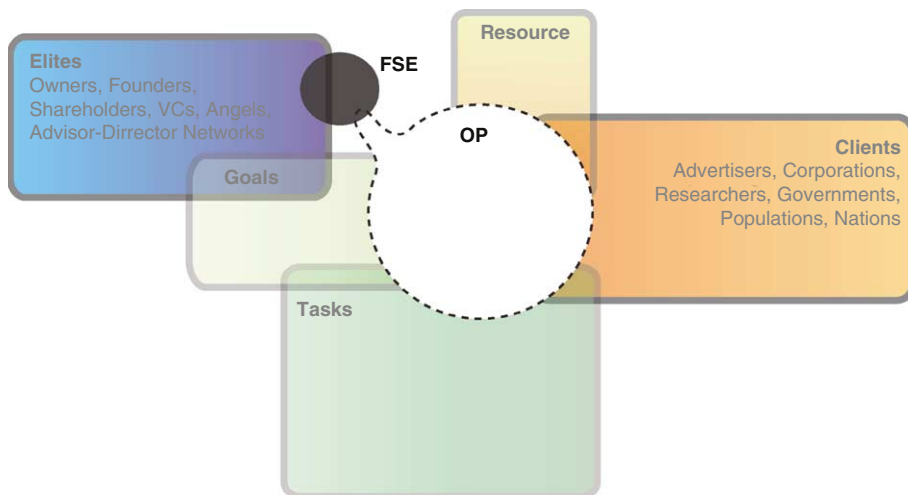


FIGURE 7

The wider political economy of Formal Social Enterprises/Organized Publics.

this process immeasurably. Indeed, a field guide can also be the basis for more extensive theoretical work on the patterns of variation. For example, do different temporalities of formation lead to different patterns of authority? Might we expect members of OPs to have more power to define goals and tasks when FSEs emerge from them rather than the reverse? Might we expect different capacities of flexibility and freedom in an OP to affect the pace and creativity of innovation? OPs that have a good deal of freedom might be less reliably productive (from the FSE's point of view) but also have a greater chance of producing unanticipated innovations. If we hope to understand the changing nature of contemporary action and organization in such enterprises, articulating concepts that capture and illuminate the patterns and outcomes of these obscure aspects of 'participation' will be necessary.

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NOTES

1. Apache Foundation manages organizational aspects associated with the open source, volunteer-created Apache Web Server, which has for the past decade run on more the 50% of the servers on the world wide web; Wikipedia is a well-known community-edited encyclopedia; Linden Labs is the new media/gaming firm which created the persistent world Second Life; Current TV was an attempt by former US Vice President Al Gore to create a new media-based alternative to mainstream mass media, by allowing amateur journalists to produce and distribute video news stories on cable and satellite television; and PatientsLikeMe is an online community for sufferers of specific diseases like Mood Disorders, Amyotrophic Lateral Sclerosis (ALS) or Epilepsy, in which they can share intimate details about symptoms, treatments and experiences with other sufferers.
2. Recent work on the cultural and political economy of the Internet has given a range of labels to this general phenomenon: web 2.0, social media, 'peer production' (Benkler 2006), 'produsage' (Bruns 2008), 'the wisdom of crowds' (Surowiecki 2004), 'prosumers/prosumption' (Toffler 1980; Jurgenson & Ritzer 2010), the 'network society' (Castells 1996, 2001), 'protocol' (Galloway 2004), 'user-led innovation' (von Hippel 2005), 'recursive publics' (Kelty 2008), 'creation capitalism' (Boellstorff 2008), 'convergence culture' (Jenkins 2006b), 'organized networks' (Rossiter 2006; Lovink & Rossiter 2005), 'wiki-nomics' (Tapscott & Williams 2006) 'networked publics' (Varnelis & Annenberg Center for Communication 2008; boyd, 2008), 'cognitive surplus' (Shirky 2010), and 'cybernetic totalitarianism' (Lanier 2010).
3. The problem is also one of political commitments: some scholars see only flying birds – the liberatory and democratizing potential of the Internet (Shirky 2008, 2010; Tapscott & Williams 2006) – while others see only caged birds – the insidious extension of capitalist exploitation, the 'consumerization of politics' (Terranova 2000; Dean, Lovink & Anderson 2006; Barbrook 2007; Keen 2008; Carr 2010; Lanier 2010).

4. Our comparative empirical approach builds on the now significant body of literature that uses in-depth, qualitative, long-term anthropological and sociological methods to analyze Internet-mediated endeavors; the five cases we dwell on here are drawn from over 50 in our hybrid dataset/literature review. The bulk of existing work covers Free and Open Source software and challenges many core concepts in the social sciences such as collective action problems, organizational learning, and public sphere theory (Ratto 2003; Coleman 2004; Weber 2004; Kelty 2008; Karanovic 2008). Related work in user-led innovation has focused on the effects of participation on innovation outcomes in high tech industries (von Hippel 2005; Chesbrough, Vanhaverbeke & West 2006). Wikipedia has also generated a growing body of empirical analysis, often with and through the detailed help of wikipedia participants themselves (Viégas, Wattenberg & McKeon 2007; Butler, Joyce & Pike 2008; Forte, Larco & Bruckman 2009; Geiger & Ribes 2010; Reagle 2010), as has Facebook (Gershon 2010). New media, journalism, and online interactive game-spaces (i.e., massively multiplayer role playing games and persistent worlds) have also received significant detailed attentions, most significantly Linden Labs and Second Life, and World of Warcraft (Castronova 2005; Boellstorff 2008; Malaby 2009; Golub 2010). Similarly, work on participation in science and engineering, has exploded in the last decade as well (Lengwiler 2008; Irwin & Wynne 1995; Joss & Durant 1995; Irwin 2001; Guston 1999; Wynne 2002; Jasanoff 2003; Frickel & Moore 2006; Epstein 2007; Callon & Rabeharisoa 2008).
5. On problematization and the nature of concept work undertaken here, Rabinow 2003, 2008.
6. The sense that the Internet has had an effect on every aspect of organized human life – economic, aesthetic, cultural, religious, physical, geographical, emotional/personal give it the character of what anthropologist Marcel Mauss called a ‘total social fact’ (Mauss 1990; Gofman 1998). Like ‘gift exchange’ in Mauss’s oeuvre, the Internet is irreducible, but is neither a concrete thing (an exchange token) nor an abstract relationship (debt), but something in between, responsible for the genesis of the social ties. The notion of platform shares something with the emergent field in software studies of ‘platform studies’ (Montfort & Bogost 2009). But whilst platform studies clearly aim to focus scholars’ attention on the computer architectures and their cultures, it remains agnostic about whether one platform matters more than another, or in what relationship they stand to each other. The Internet is not at ‘the bottom’ of anything, but rather in the sense that Mauss gave to total or general social facts, is a ‘phenomen[on] which extend[s] to the whole of social life’ (Mauss 2005, p. 70). Our use of platform here is probably more akin to that used by Cambrosio and Keating (2003), which suggests that innovation or knowledge production emerges from a flexible configuration of concepts and methods, physical experimental apparatuses, social relations and institutional arrangements.
7. The terms ‘network’ and ‘community’ are similarly overdetermined, see Postill (2008).
8. Note that the critiques of public sphere theory that emphasize its exclusivity (e.g. Fraser 1990) do not thereby assert that public spheres are, in fact, just another species of organization, but that they are unjust and exclusionary in a structural sense, and hence a corrupt form of an ideal public sphere, or even an impossible ideal.
9. Research on the cultural aspects of online communities and that on the digital divide are situated at this border between OPs and the general public: although anyone *can*, it is not empirically the case that ‘anyone’ *does in fact* join a given OP. Gender, skill-level, technological literacy, possibility for remuneration or the development of cultural capital,

perceptions of social hierarchy and opportunity, and many other factors govern who crosses this boundary and who does not. Furthermore, every OP develops a different configuration of participants that may mirror specific demographic characteristics (e.g. boyd 2008).

10. The language of resources should evoke the approach of analyzing these projects as commons in the tradition of Elinor Ostrom. In that tradition resource-management implies the formation of governance systems, formal and informal norms of property. Only recently has the approach been applied to intangible property (compare Hess & Ostrom 2007; Schweik, English, Paienjtton & Haire 2010; Schweik & Kitsing 2010).
11. Zittrain's distinction, to be useful, should be refined as two separate variables (tethered vs. untethered and generative vs. non-generative). Second Life represents a case where this grid of possibilities could be more clearly articulated. Second Life as a body of code over which Linden Labs maintains control is tethered and non-generative of further versions of the world. Within the world of Second Life, that code is tethered, but generative of unpredictable relations and situations.
12. Apache Software Foundation and Wikimedia clearly state goals on their respective websites: <http://www.apache.org/foundation/faq.html>; http://wikimediafoundation.org/wiki/Mission_statement
13. On conferences, see Coleman (2010). In addition, software coding recapitulates governance even at the level of code, in that there are discussions within the code itself, written as comments, debating the various merits of how to do one thing or another. Such discussions are clearly hidden, to some extent, but they are not inaccessible.
14. Interestingly, all of these terms of submission and use are contained in a single, and very long, legal document: <http://current.com/s/terms.htm> that includes terms for content submission (POD and VCAM) as well as general use and participation on the site.
15. Available at <http://secondlife.com/corporate/tos.php> (accessed 22 June 2010).
16. More recently, Wales has applied the wiki model to revenue-generating endeavors. In 2004, Wales created Wikia with Angela Beesley. In contrast to Wikipedia, Wikia constitutes a revenue generating wiki, based on advertising through Google AdWords. Wikia also has close financial relationships with powerful members of the Silicon Valley elite like the Omidyar Network, Netscape founder Marc Andreessen, LinkedIn founder Reid Hoffman, Lotus founder Mitch Kapor, legendary Silicon Valley angel investor Ron Conway, and eBay vice president Gil Penchina, and Amazon (Greenstein, Frazzano & Meagher, 2009). Wikia's footprint on the wider Internet landscape is still unclear, however Wales' influence across the Wikipedia, Wikimedia, and Wikia should encourage further research into the role of these charismatic leaders in shaping the dynamics within these ecologies.

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