From Prosumption to Produsage

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Web 2.0 and the Rise of User-Led Content Creation

Almost a decade after the 2004 O'Reilly Media conference which popularized the term 'Web 2.0', the impact of this concept on users and developers of the current generation of Web technology – and by extension, on the digital economy overall – is undeniable. At the time, 'Web 2.0' promised an interactive, engaging online space in which users were able to do more than surf from static, fixed Website to static, fixed Website. Although the implicit suggestion that the version change to 'Web 2.0' represented a clean break with this inflexible past must be read as mere marketing hype, the core principles which the concept outlined nonetheless form the operational basis for most mainstream Websites of the present day.

Such principles (cf. O'Reilly, 2005) included the customization of the user experience, by embracing on-the-fly Web page creation through AJAX and other database-driven Web technologies which provided an opportunity for users to actively query and select the available information on any given Website. By extension, such technologies also offered an additional opportunity for users to become active as content creators and contributors, which fundamentally altered the vertical interaction between Website providers and Website users. In turn, this potential for user participation and content creation also enabled the emergence of genuine horizontal collaboration between users, and for the formation of user communities, especially where sufficient functionality was available to make users aware of each other's activities and to help them coordinate their collaborations. This interplay around a shared content base in turn also necessitated a reconceptualization of the content thus created or modified. As users work with and rework one another's contributions, the content development processes found in communities themselves no longer resemble those of organized industrial production, which also means that new models of content authorship and ownership, beyond standard copyright, must necessarily be found to facilitate them.

Benkler (2006, p.2) summarizes the great sense of promise attributed to the emerging practices of collaborative, user-led, 'Web 2.0' content creation[i] at the time:

> They hint at the emergence of a new information environment, one in which individuals are free to take a more active role than was possible in the industrial information economy of the twentieth century. This new freedom holds great practical promise: as a dimension of individual freedom; as a platform for better democratic participation; as a medium to foster a more critical and self-reflective culture; and, in an increasingly information-dependent global economy, as a mechanism to achieve improvements in human development everywhere.

But at the same time, the novelty of this 'new' information environment should not be overstated. Collaboration in interaction and content creation has a long prehistory which predates the Internet

age itself, and can be traced back to communal, commons-based activities that are at least as old as the Greek *agora*; commons-based approaches to managing and growing shared resources are likely to be as old as the history of farming itself, and persist to this day in various pockets of the world (cf. Ostrom, 1990). From this very long-term perspective, it is the industrial age and industrial economy, dominated by production companies each carefully guarding their trade secrets and positioning users merely as passive consumers, which presents as an historical aberration. The emergence of Benkler's '"new" information environment', then, merely re-balances industry and user contributions in a way which is more suited to a digital creative economy.

Prosumption?

Attempts to engage and harness user (or consumer) input in the industrial process are themselves far from novel, however; they did not emerge along with the 'Web 2.0' concept, but predate it by some margin. As early as 1970, Alvin Toffler coined his portmanteau of the 'prosumer' to describe industry attempts to involve especially knowledgeable, quasi-professional consumers in production processes – initiatives which he describes in *The Third Wave* (1980, p. 275) as 'the willing seduction of the consumer into production'. In the first place, this seduction is accomplished by offering to consumers the opportunity to customize and personalize the products they wish to purchase. This results in an on-demand, 'customer-activated manufacturing system' in which 'the consumer, not merely providing the specs but punching the button that sets this entire process in action, will become as much a part of the production process as the denim-clad assembly-line worker was in the world now dying' (1980, p. 274). This is similar to the limited options for content customization and personalization which are now available as a matter of course from many basic 'Web 2.0' Websites.

As such customization and personalization processes are established on a more comprehensive scale, however, they also generate an increasing amount of valuable information on user demands and ideas for further product development. In a second stage of the move towards prosumption, then, production companies are increasingly able to exploit this customer-contributed knowledge for commercial advantage:

> Producer and consumer, divorced by the industrial revolution, are reunited in the cycle of wealth creation, with the customer contributing not just the money but market and design information vital for the production process. Buyer and supplier share data, information, and knowledge. Someday, customers may also push buttons that activate remote production processes. Consumer and producer fuse into a "prosumer." (Toffler, 1990, p. 239)

Defined in this way, prosumption represents a highly uneven, off-centre and imbalanced 'cycle of wealth creation', however, which continues to substantially privilege industrial producers over their information-generating *and* money-spending users and prosumers. Their relationship remains a highly one-sided one, foreshadowing criticisms of 'Web 2.0' practices as merely exploiting the free labor of user-led content creation to the benefit of the corporations, which operate the Websites (see Terranova (2000) for an early example of such critiques).

Undoubtedly, such criticism is justified at least for a subset of such sites. Benkler (2006, p.76), for example, points out that corporations such as 'Google and Amazon … that have done immensely

well at acquiring and retaining users have harnessed peer production to enable users to find things they want quickly and efficiently'. Both companies, and others like them, harness the activities of their users at large scale in order to improve their products, for example to provide more accurate search results or more useful purchase recommendations. In essence, the Google index and Amazon recommendations are co-created between the companies which design the algorithms and the vast user bases which, more or less unwittingly, provide the interaction data from which the algorithms learn. Historically, both companies have thus been at the very forefront of current trends towards 'big data' analytics, which seek to generate new insights from the large-scale examination of patterns in online user data (cf. boyd and Crawford, 2012). Whether, given the free and fundamental search service which Google provides, such *harnessing* of user activities should necessarily be seen as *exploitation* in the negative sense of the term remains debatable, however.

Toffler's concept of prosumption does not provide a particularly useful model for many other practices of content creation in 'Web 2.0' environments. Most centrally, it cannot be applied successfully to wholly or predominantly user-*led* initiatives which proceed without oversight or coordination by commercial entities, or even to initiatives which build on platforms provided by distinct commercial or non-profit institutions, but whose content creation processes are managed predominantly by the user communities themselves. Ultimately, the prosumption model assumes that consumers contribute individually to prosumption practices, but that the task of coordinating and evaluating their contributions falls necessarily to the corporation, as the only entity which has the comprehensive overview required to carry out this task. This assumption holds for Google and Amazon, for example (no-one external to these organizations is able to evaluate the totality of Google searches or Amazon purchase patterns) – but it does not apply to the many 'Web 2.0' platforms which do enable their communities to publicly coordinate and evaluate communal activities amongst themselves. As Bauwens describes it:

> Whereas participants in hierarchical systems are subject to the panoptism of the select few who control the vast majority, in P2P systems, participants have access to holoptism, the ability for any participant to see the whole. (2005, p.1)

It is unfortunate in this context that Toffler's prosumption model was seen for some time as a blueprint that described 'Web 2.0' practices in general. Tapscott's (1996) and Tapscott and Williams's (2006) updates on the concept of prosumption, though increasingly referencing 'Web 2.0' platforms such as *Wikipedia*, *Flickr*, and *YouTube* (whose names even appeared on the cover graphic of their 2006 book *Wikinomics*), continued to position user-created content merely as intelligence to be harnessed and exploited by corporations; to them, this 'prosumptive approach to building a business offers advantages that tightly controlled business models can't replicate' (Tapscott and Williams, 2006, p.127), but the central aim remains exactly this: to build a business on the basis of prosumer labor. Such teleological application of the industrial-age prosumption concept to information-age collaboration practices must necessarily fail to describe the full range of content creation activities associated with the 'Web 2.0' phenomenon. An exploration of alternative models is necessary.

Towards Produsage

Adequate models must strive to describe the practices of 'Web 2.0' users from the inside, rather than from the perspective of commercial operators seeking to exploit user-led content creation for

their own ends. From this embedded perspective, then, it is appropriate to describe such practices with reference to the major success stories of user-led content creation, regardless of whether they operate in commercial or non-profit configurations. Perhaps the most obvious object of investigation for such an analysis is *Wikipedia*, whose knowledge creation and management practices in turn build substantially on collaborative development models in open source software; however, the approaches described in the following discussion also apply to a vast range of other content creation projects across the digital creative economy.

Open Participation, Communal Evaluation

In the first place, of course, user-led content creation in 'Web 2.0' spaces such as *Wikipedia* relies on the participation of a sufficient number of users in these processes. *Wikipedia* and similar platforms therefore face the challenge of having to lower their barriers to participation as far as possible, while simultaneously mitigating the threat of disruptions from well-meaning but poor-quality contributions or deliberate interference, spam, and defacement. New users coming to a site are inevitably reluctant to participate if they are required to make substantial investments of time and effort in learning site functionality or generating acceptable content, or if they feel that they are unwanted intruders into an already established community of participants on the site. Such concerns may be addressed by providing users with a clear and manageable pathway of stepping-stones towards full participation. *Wikipedia* users, for example, may move from mere usage towards more productive engagement by simply clicking the 'edit' button on any page and making minor adjustments to language and spelling in an anonymous capacity, but can build up from there towards full editorship by registering on the site, establishing a user profile, contributing more substantial edits to entries, engaging with other contributors through the discussion pages attached to each encyclopedia entry, and eventually assuming local or global administrative functions. Arguably, it is this granularity of participation which has contributed substantially to the site's impressive track record. As Benkler notes:

> The number of people who can, in principle, participate in a project is … inversely related to the size of the smallest-scale contribution necessary … . The granularity … therefore sets the smallest possible individual investment necessary to participate in a project. … If the finest-grained contributions are relatively large and would require a large investment of time and effort, the universe of potential contributors decreases. (2006, p.101)

But such granularity also opens the door to abuse, and generates a stream of edits and updates which would be impossible to manage for any small team of dedicated moderators or reviewers. *Wikipedia* and similar content creation projects therefore extend their invitation to user participation beyond content contribution, and towards moderation. Indeed, *Wikipedia* hardly distinguishes between the editing and reviewing process, and simply enables its contributors to revert previous changes, make further revisions, and initiate critical discussions about the merit of specific changes or change proposals. It is in this combination of *open participation* and *communal evaluation* that *Wikipedia* most obviously breaks with traditional content editing models – as do the collaborative software development models of open source, or many other projects inspired by such user-led approaches.

Such broad-based community models for the creation and evaluation of content necessarily also depend on the diversity of the community: a uniform group of participants with similar levels of knowledge, similar areas of interest, and similar beliefs and values will be unable to effectively create content through a process of iterative revision and evaluation, as its members lack the difference of skills and opinions required to investigate a problem from all sides. This builds on the open source maxim, formulated by Raymond (2000), that 'given enough eyeballs, all bugs are shallow'. As bugs and other problems are encountered in software development, the number of participants concerned with beta-testing increases the speed and efficiency with which such bugs are addressed and eradicated. 'Adding more beta-testers may not reduce the complexity of the current 'deepest' bug from the *developer's* point of view, but it increases the probability that someone's toolkit will be matched to the problem in such a way that the bug is shallow *to that person*' (Raymond, 2000, n.p.). Open source software development, in other words, pursues a probabilistic approach to problem-solving.

Unfinished Artefacts, Continuing Process

In effect, then, much like open source software, the user-created content of 'Web 2.0' sites such as *Wikipedia* exists in a state of 'permanent beta'. It remains constantly under development, and evolves along probabilistic lines which are determined by its users' diverse interests rather than coordinated by an overarching corporate strategy. Even more so than open source software, however, whose maintenance and extension requires specific technical skills in addition to intellectual knowledge and capacity, text-based content creation sites such as *Wikipedia* extend an invitation to a very wide potential contributor base: here, the specific technical skills are comparatively limited and relatively easy to learn, while the range of contributions possible is substantially wider. It is for this reason, then, that *Wikipedia* has been able to cover the traditional domains of encyclopedias as well as topics from obscure pop-cultural trivia to the latest breaking news, and has been able to do so with considerable success in more than two hundred languages.

Given such probabilistic, user-driven models of content creation, our conceptualization of the material they generate must also be rethought. Conventional, industrial models of content creation generally result in distinct products, not least also in order to make them marketable. Importantly, especially in the emerging digital economy such products represent a legacy of the industrial age, where distribution of intellectual content in physical form made it necessary to suspend development at specific points in order to package, distribute, and sell products. While an encyclopedia volume, a software package, a newspaper issue, or any other non-trivial product could always be improved and updated further, their development was thus segmented into product cycles which lasted, depending on the product, from less than one day (for newspapers) to several years (for less time-critical goods).

Distribution in non-physical form – especially through the Internet – removes any pressing necessity for such product cycles. The rise of subscription-based content update and software-as-a-service models points to the fact that services which feature incremental, continuous updates and upgrades are able to replace distinct, packaged products. At their simplest, such services may only seek to replace the delivery mechanisms for otherwise conventionally produced content. (Thereby they essentially speed up the product cycle to a point where regular product versions such as the

annual encyclopedia edition or the daily newspaper become revisions which are provided on a much more frequent basis, or *ad hoc* whenever updates are necessary.) But the collaborative, distributed, probabilistic nature of user-led content creation further requires a shift from preparing such updates behind closed doors and releasing them when they are ready and approved towards developing and testing them in full view of the public. Only such public visibility of the work under development enables the project to enlist users encountering such new revisions in the process of testing, evaluating, and further developing this 'public beta' content.

User-created content generated under such conditions must be thought of as consisting of *unfinished artefacts*, engaged in a *continuing process* of revision and development. Again, this can be seen as moving away from the industrial-age dominance of distinct, commercial, marketed products and back towards an older model of ongoing use and improvement of shared resources. This is a passing-along of materials from user to user, with modifications along the way – but now, in intangible, electronic form, and therefore directly available to a much larger range of participants in digital culture and the digital economy. This continuing process of development and – under the right circumstances – improvement also resembles the medieval palimpsest: a repeatedly overwritten text, which contains traces of each of its former iterations. In *Wikipedia*, but also in many other collaborative platforms which retain previous content revisions, this palimpsestic process of revising and overwriting can be retraced and made visible by accessing the 'page history' functions for any given entry.

Fluid Heterarchy, Ad Hoc *Meritocracy*

Such retracing of the contribution histories for individual artefacts or entire collections of user-created content also highlights the fact that in spite of the equal *potential* for all users to participate in collaborative 'Web 2.0' platforms of this form, or as Bauwens describes it, 'the free participation of equipotent partners, engaged in the production of common resources' (2005, p.1), *actual* participation by users is far from evenly distributed in most cases, due to differing levels of interest, commitment, and ability. While open participation in collaborative efforts, and the probabilistic development activities that result from it, do provide an equal opportunity for users to engage, these other factors nonetheless result in a stratification of the participant community into more or less important and influential members. The equipotentiality which Bauwens invokes, in other words, should not be misunderstood as claiming complete equality for all contributors and contributions, or as denying the existence of power differentials between different individuals and groups; rather, it simply 'means that there is no prior formal filtering for participation, but … that it is the immediate practice of cooperation which determines the expertise and level of participation. It does not deny 'authority', but only fixed forced hierarchy, and therefore accepts authority based on expertise, initiation of the project, etc.' (2005, p.1).

Further, the distributed, granular basis of collaborative content creation projects tends to mean that there are multiple centres of power and authority, rather than a clear hierarchical structure of command and control. In *Wikipedia*, for example, stratified communities of contributors can be found at various levels of complexity for every entry, every group of entries, every domain of knowledge in the encyclopedia. Such projects and platforms, in other words, constitute a community of communities, and in each case, a user's positioning within their community is determined in the

main by their contribution to the project, in the form of useful content or other interventions deemed valuable (including for example coordinating and documenting activities, guarding against disruptions and defacement, or welcoming new users into the fold). Users may therefore simultaneously be central members of a community to which they have contributed crucial content or services, but marginal participants of other communities on the same site to which they have made more minor contributions.

What emerges from this complex interplay of contributors and contributions, this ongoing evaluation, re-evaluation, and repositioning of users on the basis of their latest contributions, is a highly changeable network of power relations which is best described as a *fluid heterarchy* and an *ad hoc meritocracy*. Though identified at times with highly visible individuals such as *Wikipedia* founder Jimmy Wales or Linux inventor Linus Torvalds, the communities which built these and other projects rely on a much broader range of leading users, distributed across the communities and subcommunities which exist around each granular element of their activities and potentially unaware of each other. Their leading positions are in turn determined on an *ad hoc*, meritocratic basis; should they drift away from the project or should the quality and relevance of their contributions decline over time, other currently more important members of the community will come to replace them as influential community leaders.

Communal Property, Individual Rewards

The meritocratic nature of such collaborative content creation communities also provides a further incentive for users to participate in the process. The opportunity to gain greater influence over the further direction of content creation processes, and to work in a leading role with like-minded users, serves as a reward for participation beyond the intrinsic satisfaction of making a useful contribution to the shared effort. By contrast, personal ownership in specific elements of the shared project cannot be a reward offered by sites which facilitate user-led content creation, as such ownership in intellectual property – if exercised to the exclusion of other users – would severely undermine the continuing development process. Sites such as *Wikipedia* therefore require the use of intellectual property licensing schemes which are modeled on the long-standing experience of the open source software development community with commons-based licenses. Such licenses affirm the rights of contributors to be acknowledged as (co-)authors of the shared, common resource, and may include stipulations against the unauthorized commercial exploitation of the resource, but explicitly give permission to other contributors to continue use and revision of their predecessors' work without further approval from these earlier contributors.

These licensing schemes, then, introduce a distinction between ownership and authorship: in essence, the work contributed by individual users becomes *communal property*, but these users retain the ability to extract *individual rewards* from their contributions at least in the form of personal standing within the community, and potentially of acclaim as a notable contributor well beyond it. While the latter remains uncommon for *Wikipedia* contributors, whose personal contributions to any one entry are more difficult for outsiders to trace, several leading contributors to the development of open source software packages have used such acclaim to boost their professional careers as developers, consultants, or authors, for example. Growing out of interest-driven collaborative content creation communities, such professionals begin as what Leadbeater and

Miller describe as 'a new breed of amateur … : the Pro-Am, amateurs who work to professional standards. … The Pro-Ams are knowledgeable, educated, committed and networked, by new technology' (2004, p.12). Over time, as opportunities become available, some Pro-Ams make the transition to professional work in a more conventional sense – but even those who continue simply as Pro-Ams maintain a quasi-professional commitment to their work.

Conventional, industrial content production draws only on a narrow range of fully professional participation, then (as well as – under the prosumption model – on a much more low-grade form of product input from consumers). By contrast, user-led content creation is open to a much wider continuum of user involvement which ranges from quasi-professional Pro-Am activities by lead users through diverse forms of less intensive participation at various levels of granularity all the way to a mere usage of the artefacts of collaborative content creation. 'Web 2.0' sites which build on the four key principles outlined here – (1) open participation, communal evaluation; (2) unfinished artefacts, continuing process; (3) fluid heterarchy, *ad hoc* meritocracy; (4) and communal property, individual rewards – appeal to their users at every step to be more than just users. They encourage them instead to make productive contributions to the ongoing content creation project, at whatever level of granularity and engagement is possible for them. This positions participants in a hybrid position as potentially both users and producers of content, at the same time – that is, as *produsers* (Bruns, 2008).

The practices which these produsers engage in – the collaborative and continuous building and extending of existing content in pursuit of further improvement, or *produsage* – do not resemble conventional content production. The outcomes of their work, as temporary artefacts of an ongoing process, do not resemble conventional products, but neither do they represent a form of prosumption as it has been defined above. Instead, produsage processes can operate with significant success independently of commercial entities, as *Wikipedia* and many other community-driven projects have demonstrated. Whatever terms we use to describe them, the principles and processes of produsage must be understood on their own terms, rather than through the lens of industrial-age producer/consumer relationships.

Beyond Produsage

Produsage concepts and communities are inherently connected to the sociotechnical environments which enable and support them. While some produsage projects and communities, such as *Wikipedia*, date back at least to the turn of the millennium and have been afforded an opportunity to evolve independently, others have been tied more closely to changing corporate, industrial, and intellectual environments. The software and especially the computer games industries, for example, have embraced produsage practices with considerable enthusiasm, especially in the field of game mods and add-ons, where prodused additions to commercial games have contributed substantially to the commercial success of these games (cf. Banks, 2009). Indeed, the contribution of commercial production in some such collaborative settings has focused centrally on developing the underlying games engine, while the creation of content and storylines to be played using such engines has strongly drawn on the work of produsage communities.

A recent trend towards industry/community co-funding of games development using crowdfunding services such as *Kickstarter* or *Pozible* ostensibly formalizes such collaborative relationships by creating partnerships between production houses and produsage communities. At

present, such models may be most prevalent in computer games and related software projects, but they also outline possibilities which may be applicable well beyond this sector of the creative industries. Especially where considerable fan enthusiasm may be mobilized to support and contribute to the maintenance and development of a project, approaches which combine formal production and communal produsage teams may well be successful. Even in more resource-intensive industries, which generate physical rather than digital artefacts, such collaboration may be possible, especially if the line between produsers and producers is drawn at the digital/physical interface. In the open innovation communities of kitesurfers and circuit board designers, which von Hippel (2005) discusses, for example, design is a largely communal activity, while the physical production of artefacts is carried out by specialized companies. Unlike Toffler's prosumption, however, the community retains the rights to its designs; giving up such rights is no longer the default price of admission.

In some industries, relationships between industry and community have been considerably more problematic. Interactions between professional news organizations and their produser counterparts (including news bloggers and citizen journalists) have long been characterized by animosity rather than collaboration, for example (see for example Highfield and Bruns, 2012). Such mutual disdain is gradually being replaced both by in-house projects which seek to invite produser collaboration and by engagement between professional journalists and citizen journalists in neutral, third-party spaces. On the one hand, projects such as *The Guardian*'s MPs' Expenses site (which invited readers to collaboratively hunt through a vast collection of UK MPs' expenses claims in order to detect any signs of impropriety) acknowledge that many data journalism activities cannot be conducted by a small staff of professional journalists alone, but instead require wide community participation (Bruns, 2012). On the other, the growing role of social media spaces such as *Facebook* and – especially – *Twitter* for the rapid dissemination, discussion, and evaluation of journalistic content particularly in the context of breaking news means that journalists, newsmakers, experts, news enthusiasts, and the general news public are increasingly frequenting the same, public, social media spaces, and that existing boundaries between professionals, Pro-Ams, produsers, users, consumers are further eroded.

In such spaces, then, all parties with an interest in a specific story are able to come together, to exchange ideas and information, to discuss, argue, and attempt to make sense of the news. On an *ad hoc* basis, they collaborate more or less effectively to 'work the story' (Bruns and Highfield, 2012). Such activities retain many of the principles of produsage as we have encountered them above: when discussing the news in a *Twitter* hashtag, for example, participation is open to all, and contributions are communally evaluated by @replying and retweeting (which confers visibility and, to some extent, endorsement). From this, a heterarchy of especially visible and influential participants emerges, based on the merit of their contributions. The discussion of the news is ongoing and unfinished, and the arrival of new information can fundamentally shift the dynamics of the process. Even without formal licensing agreements beyond *Twitter*'s terms of service, an assumption persists that any message may be passed along, retweeted, and commented upon by others.

In essence, therefore, such social media spaces are now positioned to become universal third-party platforms to support produsage processes involving a diverse set of contributors, potentially replacing extant dedicated sites for produsage (or at least duplicating and augmenting some of their

functionality). Rather than users conducting discussions about a specific issue or problem in the shared produsage project through the project's own platform (for example, *Wikipedia*'s discussion pages), social media may increasingly serve as universal backchannels for collaborative content creation communities. This embedding of social media platforms into produsage practices would be nothing more than a logical extension of the fundamental principles of produsage. The 140-character limitation of a single tweet positions it as one of the most granular contributions possible, and the open-access, globally visible nature of tweets means that the potential for open participation is guaranteed.[ii]

At the same time, however, any shift towards *Twitter* and other social media as supporting technologies for produsage processes also creates a series of potential pitfalls. First, while such social media technologies are readily available, their use alongside a dedicated produsage platform such as *Wikipedia* may increase the complexity of participation and thereby raise rather than lower barriers to participation. Users would now need to maintain multiple accounts (*Wikipedia*, *Twitter*, *Facebook*, and so on), and would need to coordinate their activities across these accounts in order to participate fully. Second, any splintering of discussion across built-in contributor fora and third-party social media spaces may undermine community coordination of activities. It could no longer be assumed that discussions and decision-making take place only within the fora provided by *Wikipedia*; parallel, possibly conflicting debates may also exist in other spaces, between a different subset of contributors. Third, a longer-term side-by-side operation of different discussion and coordination technologies may lead to the formation of opposing factions within the community, centered around each technology, which pursue competing and irreconcilable agendas. And finally, a reliance on services such as *Twitter* and *Facebook* to facilitate community discussion and coordination means a reliance on commercial operators and proprietary technology for potentially crucial activities within the community. This could jeopardize the long-term documentation, archiving, and preservation of community activities. Operating on its own platform since 2001, *Wikipedia* has preserved a full archive of all contributions and discussions since its first encyclopedia entries were published to the Web; this constitutes a rich historical resource. Relying on a third-party provider for part of its functionality, the longevity of that archive could not have been guaranteed – and information of significant value, about the history of *Wikipedia*, of its community, of contemporary knowledge processes, and of produsage and 'Web 2.0' as such, might have been lost as a result.

Such concerns illustrate the challenges ahead for produsage and its communities. As 'Web 2.0' practices have matured, and as produsage models have become established as legitimate, successful processes for collaborative content creation, the number of non-profit and commercial providers of third-party platforms to support produsage activities has also increased. Commercial approaches to working with produsage communities – sometimes in genuine partnerships, sometimes in settings which pursue prosumption by stealth – have multiplied (Bruns, 2012). In this complex, diversified environment, individual contributors and produsage communities overall will need to continue to guard maintain their integrity, and ensure that the fundamental principles of produsage are maintained. This means (1) continued openness to new contributors, but also the maintenance of community standards through the constant evaluation of activities; (2) organizational and technological frameworks which support the constant, gradual revision and extension of existing content; (3) flexibility in community structures which enables proven contributors to assume positions of leadership; (4) ownership and authorship rules which recognize individual contributors

but deny them the power to control the further use and development of their work. Such principles are well-enshrined in a number of the leading produsage projects which are currently underway; other projects would do well to study these principles in detail, and to translate them to their own contexts.

Further Reading

The concept of produsage is explored in much greater detail in *Blogs, Wikipedia, Second Life and Beyond: From Production to Produsage* (Bruns, 2008). Several significant alternative conceptions of user-led content creation also exist: Yochai Benkler's *The Wealth of Networks* (2006) describes what he calls 'peer production' from a perspective that is more strongly influenced by law and economics; Henry Jenkins outlines the broader impact of the move to user-led content creation for the media and entertainment industries in *Convergence Culture* (2006).

References

Banks, John (2009), 'Co-creative expertise: Auran Games and Fury – a case study', *Media International Australia*, **130**, 77-89.

Bauwens, Michel (2005). 'Peer to peer and human evolution', *Integral Visioning*, 15 June 2005, available at http://integralvisioning.org/article.php?story=p2ptheory1 (accessed 1 Mar 2007).

Benkler, Yochai (2006), *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, New Haven: Yale University Press.

boyd, danah, and Kate Crawford (2012), 'Critical Questions for Big Data', *Information, Communication & Society*, **15** (5), 662-79.

Bruns, Axel (2008), *Blogs, Wikipedia, Second Life and Beyond: From Production to Produsage*, New York: Peter Lang.

——— (2012), 'Reconciling community and commerce? Collaboration between produsage communities and commercial operators', *Information, Communication & Society*, **15** (6), 815-835.

———, and Tim Highfield (2012), 'Blogs, Twitter, and breaking news: The produsage of citizen journalism', in Rebecca Ann Lind (ed.), *Producing Theory in a Digital World: The Intersection of Audiences and Production*, New York: Peter Lang, pp. 15-32.

Highfield, Tim, and Axel Bruns (2012), 'Confrontation and cooptation: A brief history of Australian political blogs', *Media International Australia* **143**, 89-98.

Jenkins, Henry (2006), *Convergence Culture: Where Old and New Media Collide*, New York: NYU Press.

Leadbeater, Charles, and Paul Miller (2004), 'The Pro-Am revolution: How enthusiasts are changing our economy and society', *Demos*, available at http://www.demos.co.uk/publications/proameconomy/ (accessed 20 Dec. 2012).

O'Reilly, Tim (2005), 'What is Web 2.0? Design patterns and business models for the next generation of software', *O'Reilly Media*, available at http://oreilly.com/web2/archive/what-is-web-20.html (accessed 20 Dec. 2012).

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

Raymond, Eric S. (2000), 'The cathedral and the bazaar', available at http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/index.html (accessed 20 Dec. 2012).

Tapscott, Don (1996), *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*, New York: McGraw-Hill.

Tapscott, Don, and Anthony D. Williams (2006), *Wikinomics: How Mass Collaboration Changes Everything*, New York: Penguin.

Terranova, Tiziana (2000), 'Free labor: Producing culture for the digital economy', *Social Text* **18** (2), 33–57.

Toffler, Alvin (1980), *The Third Wave*, New York: Bantam.

——— (1990), *Powershift: Knowledge, Wealth, and Violence at the Edge of the 21st Century*, New York: Bantam.

Von Hippel, Eric (2005), *Democratizing Innovation*, Cambridge, Mass.: MIT Press.

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[i] 'User-created content' and 'user-generated content' are generally used with no clear distinction in the literature. For consistency, I use the former throughout this chapter; however, part of the point here is also to note the lack of consistent language in describing this phenomenon, which is why I suggest produsage as an alternative term.

[ii] By contrast, the focus on strong ties and the lack of universal visibility for *Facebook* messages serve as somewhat greater barriers to widespread community participation in produsage activities.